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Mapping the development of agroecology in Europe

Alexander Wezel, Baptiste Grard, Vasileios Gkisakis

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MAPPING THE DEVELOPMENT OF
AGROECOLOGY
IN EUROPE

COUNTRY REPORTS SERIES

VOLUME 1

MARCH 2023

Wezel A. - Grard B. - Gkisakis V.

VOLUME 1
 COUNTRY REPORTS SERIES

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COUNTRY REPORTS SERIES

VOLUME 1

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INTRODUCTION

Agroecology is a holistic concept that embraces a diversity of interpretations, intentions and realities that are dependent on the country in questions, its context, history, stakeholders, and socio-political environment. In order to scale up agroecology, it is critical to document and analyse its development in different contexts as a necessary step to attain larger insights about the state of art of agroecology, as well as to support its expansion and use at the policymaker level. Through the “mapping of agroecology in Europe” we aim to provide an overview of the situation that shows the reality of agroecology in different European countries.

This mapping is not foreseen to be completely exhaustive, but rather as illustrative, synthesising and providing key information on the road to building a common understanding of agroecology, as well as its development at European level (Wezel et al. 2018). This is furthered by the planned creation of a European partnership of Agroecology Living Labs and Research Infrastructures which will provide additional support and information. This work was carried out under the AE4EU project and through a LIFE operating grant which involved a large number of organisations,

as well as many so-called “mappers” who conducted the work in the different European countries. Among them were many members of the Agroecology Europe Youth Network (AEEUYN). In order to carry out the mapping, a common methodology was defined, building on already existing elements used for previous mapping efforts executed by Agroecology Europe. In this first volume of the Country Reports series, 13 countries have been mapped: Albania, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Germany, Greece, Italy, Kosovo, Malta, Montenegro, North Macedonia, and Romania.

This mapping includes the identification of different initiatives, cases, examples, and programmes relating to five different activity categories: Practice, Science, Movement, Living Labs, Education, and Training. Moreover, it provides an overview about the current state of agroecology in each country and the barriers and perspectives for the future development of agroecology in Europe.

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¹ https://research-and-innovation.ec.europa.eu/research-area/agriculture-forestry-and-rural-areas/ecological-approaches-and-organic-farming/partnership-agroecology_en

² <https://www.agroecology-europe.org/mapping-of-agroecology-initiatives/>

METHODOLOGY

1. MAPPING ACTIVITY CATEGORIES

The mapping of agroecology was carried out in different European countries with a common methodology. The information collected was organised according to the three major elements commonly recognised as making up agroecology, as a scientific discipline, a set of practices, and a social movement (Wezel et al. 2009) (Figure 1).

To take into consideration complementary aspects and the European dynamic on the topic, as well as the European partnership in agroecology, two additional activity categories were added (Figure 1):

- “Living labs”, as recognised and spotlighted by the European Commission in its project “Agroecology living labs and research infrastructures”³;
- “Education and training”, in order to distinguish the many initiatives, programmes and training are existing outside the academic and scientific sphere which would be described under the ‘scientific discipline’ activity category.

³https://research-and-innovation.ec.europa.eu/research-area/agriculture-forestry-and-rural-areas/ecological-approaches-and-organic-farming/partnership-agroecology_en

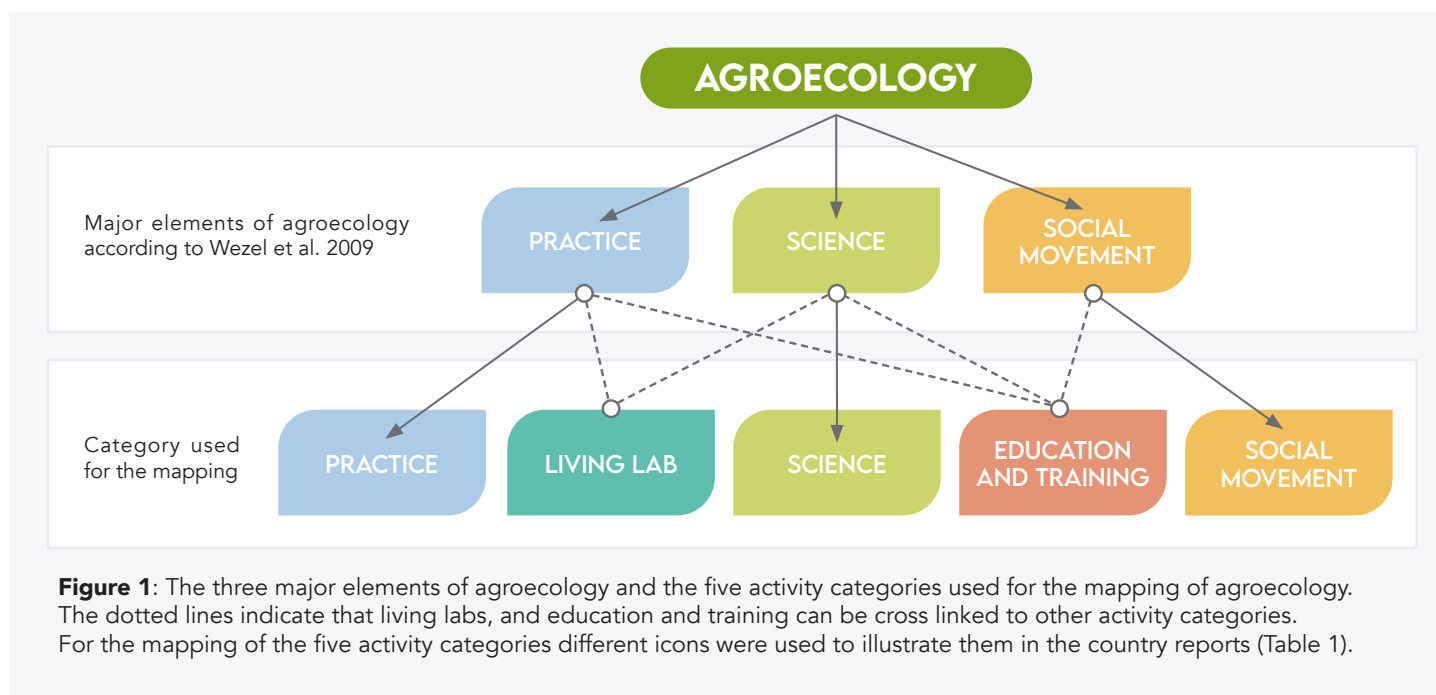


Figure 1: The three major elements of agroecology and the five activity categories used for the mapping of agroecology. The dotted lines indicate that living labs, and education and training can be cross linked to other activity categories. For the mapping of the five activity categories different icons were used to illustrate them in the country reports (Table 1).

³ We define living labs according to the definition established by the international Agroecosystems Living Laboratories (ALL) working group (Agroecosystems Living Laboratories (ALL) Executive Report 2019, www.macs-g20.org): “Transdisciplinary approaches which involve farmers, scientists and other interested partners in the co-design, monitoring and evaluation of new and existing agricultural practices and technologies on working landscapes to improve their effectiveness and early adoption.”

ACTIVITY AND CATEGORIES ICONS



Figure 2: Icons used for the five activity categories of mapping agroecology

Apart from the recognition of these five activity categories, two concepts and notions were at the centre of the mapping:

- **Key informants:** a diverse range of experts providing information regarding one or more of the established activity categories (e.g. researchers from universities or research institutions, representatives of an NGO or other organisation who is active in agroecology, participants of a national agroecological conference, individuals who had been involved in previous mapping projects).

- **Initiatives:** understood in this report as a formal action led by an organisation towards agroecology. This can include a diversity of initiatives, examples or cases related to one or more of the five activity categories:

- Programmes, projects, and initiatives that put agroecology into practice (farms networks, farmer's cooperatives, local markets, etc.);
- Living labs;
- Platforms or organisations that collect information about what they know about agroecology and disseminate it;
- University programmes and courses, or training and teaching courses and activities promoted by any organisation;
- Social movements of people promoting agroecology for any reason;
- Research projects and programmes on agroecology, including research infrastructures.

Building on this, the mapping methodology was organised in four steps (Figure 2). The first step mainly consists of finding key informants and interviewing them. Second, initiatives are selected and analysed through in-depth interviews and complemented by desktop research. The third step includes the analysis of the data that was collected, as well as complementary desktop research, and evaluation into one of the five activity categories.

Finally, the last step mainly consist on presenting the results for the current state of agroecology in the country in question with a description and analysis of the selected initiatives. A mapping team developed the methodology together, with regular exchanges within the team to ensure the quality of data collected and synthetised. All data collected was stored in a common database and a central server. In the following section, each step will be further detailed.

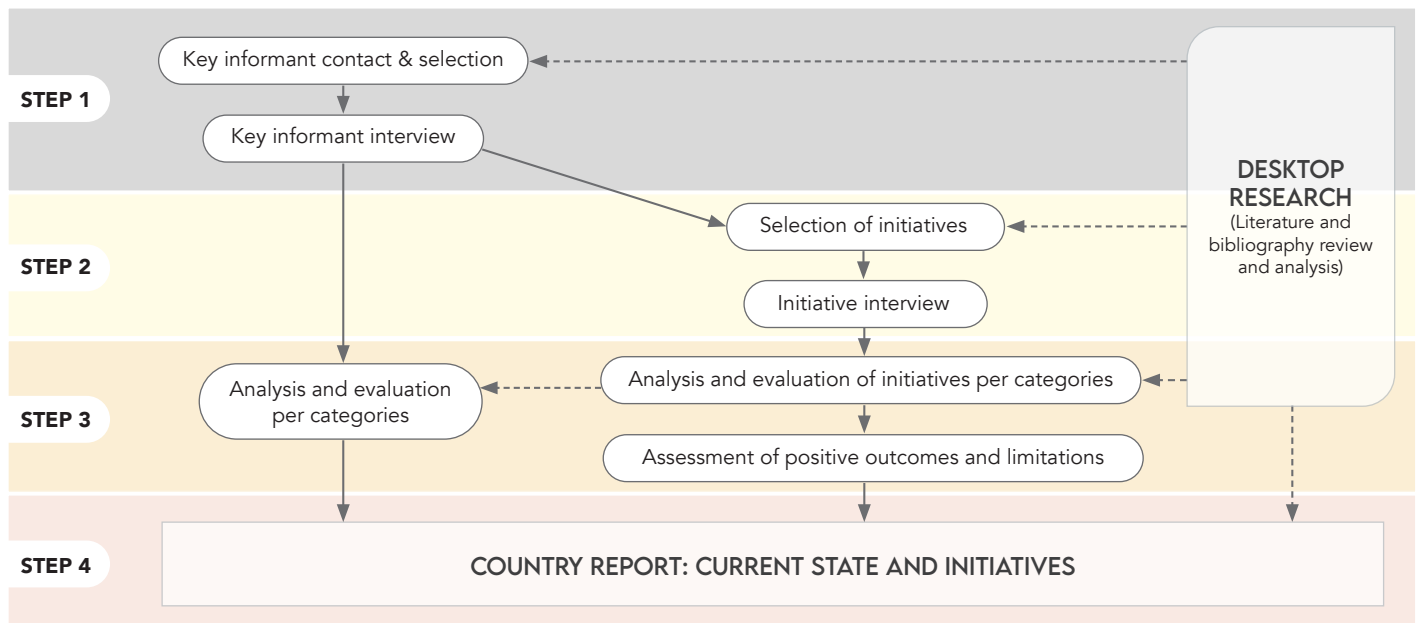


Figure 3: Schema of the four methodological steps used in the mapping.

2. STEP 1: KEY INFORMANT SELECTION AND INTERVIEWS

Key informants were selected according to their knowledge on one or more of the five selected activity categories. They were identified through the AE4EU and Agroecology Europe network, through desktop research, the SCAR Agroecology group* contacts, and/or named by other key informants. All interviews were framed as semi structured interviews conducted preferably in the native languages of the informant to minimise the loss of information. General information about the interviewees were gathered before or during the interview. Each interview lasted between 30 to 60 minutes.

The interviews were organised in three main parts:

1. A preamble which aimed to understand the knowledge and vision of the interviewee regarding agroecology. Five key areas (organic agriculture, agroecology, agroforestry, territories and food system, regenerative farming) and associated key words were provided to the interviewee if it was found necessary to clarify their understanding of agroecology.
2. The first part of the interview, which gathered information regarding initiatives known by the interviewee on one or more of the five activity categories. This part started with a general question on known initiatives, followed by an exchange that detailed the information per activity category.
3. The second part of the interview targeted the understanding and perception of key information regarding the present state and recognition of agroecology in the country.
4. The interview ended with questions regarding the barriers, perspective and any additional information that still could be provided.

The full questionnaire given to key informants is described in Gard et al. (2023).

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Gard, B., Wezel, A., and Gkisakis, V. (2023). AE4EU - Mapping questionnaire for key informant and initiative. Zenodo. <https://doi.org/10.5281/zenodo.7520262>

*<https://scar-europe.org/index.php/agroecology>

3. STEP 2: INITIATIVE SELECTION AND INTERVIEW

The most promising initiatives are selected and analysed through in-depth interviews with other key informants and complemented by desktop research.






In order to help this selection, five flexible criteria were defined:




1. Initiatives existing for longer than three years, with an exception for initiatives that stand out notably in some aspect of interest that are about two to three years old.
2. Outstanding initiatives that tackle social, environmental, economic problems or difficulties in agriculture.
3. Agricultural initiatives that provide an economic role (such as a living wage to the people involved in the project) and are socially sustainable.
4. An initiative cited by more than one key informant or mentioned in previous mapping exercises.
5. Initiatives which are located in different parts of the country.

Once selected, information was gathered on each initiative according to a grid which was adapted as a questionnaire that aimed to target key points for each activity category. At least one semi-structured interview had to be conducted per initiative to collect the most information possible, and preferably with one of the persons leading the initiative. The full questionnaire is described in Grard et al. (2023).

In order to deepen the analysis of the initiatives, the criteria used in the report "100 Iniciativas locales para una alimentación responsable y sostenible" (CERAI 2019) were applied to describe and evaluate their positive impact, as well as their limitations and challenges (CERAI 2019). These criteria allowed to describe on dimensions, type of activity and criteria of the initiative impact (Table 2).

Table 1: CERAI criteria used to analyse each initiative, as well as the dimensions, type of activity, and icons used.

DIMENSION	TYPE OF ACTIVITY	ICONS
ENVIRONMENTAL	Natural resources and biodiversity management	
	Energy and waste management	
	Health	
POLITICAL	Cooperation	
	Governance	

DIMENSION	TYPE OF ACTIVITY	ICONS
ECONOMIC	Sustainable and fair economics	
	Commercialisation is local, fair and/or collective	
SOCIAL	Traditional food and heritage conservation	
	Society and equity	
	Education	

4. STEPS 3 AND 4: DATA ANALYSIS AND COUNTRY REPORTS

To ensure data reliability and uniformity a common frame was used as database. This allowed a certain uniformity of data that was then analysed.

Reports were divided into three main parts:

1. Context: a short description of agriculture (based on the literature, as well as interviews) and the state of the art of agroecology in the country.
2. Current situation of agroecology: a summary of the collected information divided per activity category.
3. Agroecology initiatives, cases and examples: a description of the different initiatives analysed per activity category.

Each country report was reviewed by a range of people, and if possible, by an expert from that country to ensure the reliability of the shared information.

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MAPPING AGROECOLOGY IN ALBANIA

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ALBANIA

EXECUTIVE SUMMARY

In Albania, the term agroecology has a little recognition as a complex approach in farming and food system transformation. It is mostly understood as a scientific discipline examining environmental interactions at the farm level, having little reference in academic and research institutions. At the farm level, some agroecological principles and practices are present, mostly in small-scale farms, where traditional crop and tree varieties and animal breeds are maintained in a mixed production system. However, farmers tend not to use this term when referring to their production systems.

A social-political movement acting as a unified voice for agroecology is not present in Albania. Further, there is a difficult landscape for cooperation at the horizontal and vertical level, among farmers and among other stakeholders, common to the whole farming sector. Key informants and initiatives described actions that have the potential to move towards agroecology through the promotion of organic agriculture by strengthening the capacity building of farms and non-governmental organisations, but they are quite geographically scattered and do not act under the umbrella of agroecology. Direct financial support for agroecology is missing, while the agri-environmental measures for farms created by the Ministry, such as those related to organic agriculture and agrobiodiversity conservation, are seen as not consistent and not easily accessible by small-scale farmers, who therefore cannot plan medium and long-term investments. Training courses and on-farm assistance on sustainable agricultural practices, on the other hand, are provided by certain national and international NGOs. Unfortunately, such programs or services are not adopted by ministerial extension services, which often lack resources and skills in organic agriculture and/or agroecology.

Other limiting factors to the development of organic agriculture and agroecology are market demand and consumer education regarding organic agriculture. The term organic is still confused with "natural" and does not automatically provide a premium price to the producers. However, traditional local food is gaining increasing attention within the surge of agri-tourism in certain regions of the country, especially in the South and in the Albanian Alps.

Promising networks and advocacy initiatives, such as the Rural Parliament, hold the prospect of more integration between civil society actors engaged in sustainable agriculture and rural development. Institutional policies boosting support towards sustainability for small-scale farmers and economic valorisation of their diverse farming systems, are needed to boost the Albanian farming sector, as well as to create an enabling environment for real development towards agroecology in the country.

ALBANIA

EXECUTIVE SUMMARY (IN ALBANIAN)

Në Shqipëri, termi agroekologji njihet pak si një qasje komplekse në fermë dhe në transformimin e bujqësisë dhe sistemit ushqimor. Më së shumti agroekologjia kuptohet si një disiplinë shkencore që shqyrton ndërveprimet mjedisore në nivel ferme, dhe megjithatë, ajo ka pak referenca në institucionet akademike dhe kërkimore. Në nivel ferme, disa parime dhe praktika agroekologjike janë të pranishme, kryesisht në fermat e vogla, ku varietetet tradicionale dhe racat e kafshëve mbahen në një sistem të përzier prodhimi. Megjithatë, fermerët priren të mos e përdorin këtë term kur i referohen sistemit të tyre të prodhimit.

Mungon një lëvizje sociale e politike që vepron si një zë i unifikuar për agroekologjinë në vend dhe vështirësia e bashkëpunimit në nivel horizontal dhe vertikal, mes fermerëve dhe aktorëve të tjerë është e përbashkët për të gjithë sektorin e bujqësisë. Informacione dhe iniciativa të ndryshme kanë në bazë veprime që shkojnë drejt agroekologjisë përmes promovimit të bujqësisë organike, forcimit të kapaciteteve të fermave dhe organizatave joqeveritare, por ato janë mjaft të shpërndara gjeografikisht dhe nuk veprojnë nën ombrellën e agroekologjisë. Mungon mbështetja financiare për agroekologjinë, ndërkohë që masat agro-mjedisore për fermat (bujqësia organike dhe ruajtja e agrobiodiversitetit) të parashikuara nga Ministria nuk janë konsistente në kohë dhe nuk janë lehtësisht të aksesueshme nga të gjithë fermerët e vegjël, të cilët për këtë arsye nuk mund të planifikojnë investime afatmesme e afatgjata. Kurset e trajnimit dhe asistencë në fermë për praktikën e qëndrueshme bujqësore kryhen nga disa OJQ kombëtare dhe ndërkombëtare, por kjo qasje nuk realizohet nga shërbimet e ekstensionit, të cilave shpesh iu mungojnë burimet dhe aftësitë për bujqësinë organike dhe/ose për agroekologjinë.







Faktorë të tjerë kufizues të zhvillimit të bujqësisë organike dhe agroekologjisë janë kërkesa e tregut dhe edukimi i konsumatorëve në lidhje me bujqësinë organike pasi ato janë ende shumë të ulëta dhe termi organik ngatërrohet edhe me «natyror» dhe nuk njihet automatikisht një çmim më të lartë për prodhuesit. Megjithatë, ushqimi tradicional vendas po fiton vëmendje në rritje nëpërmjet zgjerimit të agroturizmeve në rajone të caktuara të vendit, veçanërisht në jug dhe në rajonet e Alpeve Shqiptare.

Rrjetet premtuese dhe nismat advokuese, si Parlamenti Rural, theksojnë rëndësinë e bashkëpunimit midis aktorëve të shoqërisë civile të angazhuar në bujqësi të qëndrueshme dhe zhvillim rural. Politikat institucionale që nxisin mbështetjen e qëndrueshme ndaj fermerëve të vegjël, për vlerësimin ekonomik të sistemit të tyre bujqësor të larmishëm janë të nevojshme për të forcuar sektorin bujqësor shqiptar dhe për të krijuar një mjedis të përshtatshëm për zhvillimin e ndryshimeve më të mëdha drejt agroekologjisë.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Albania are summarised in Table 1.

Table 1: List of key informants in Albania

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED
1	NGO	Food sovereignty	
2	NGO	Rural development	
3	Private Company	Organic agriculture	
4	Research Centre	Plant protection	
5	NGO	Farmers organisation	
6	Public institution	Rural development	

2. CONTEXT

In the last century, agriculture in Albania has encountered radical changes which impacted every aspect of the sector. Three land reforms occurred between 1939 and 1991, which were primarily aimed at land ownership. The first came into power before the second world war, which intended to distribute land that was owned by big landlords that were part of the establishment of the Ottoman empire to peasants. The second started in 1946 with the expropriation of private land and their collectivisation during the communist regime; while the last reform was implemented after the fall of the communist regime in 1991, distributing land to all rural inhabitants (Ciaian et al. 2018). During the communist regime (1944-1990), the country was politically isolated, leaving all production designated to internal consumption. Industrial and larger-scale mechanised farms were created with great investments in external inputs and infrastructures, and the rural population was forced to work in state cooperatives, leaving no land for private cultivation (Bernet and Kazazi 2012). The system was characterised by inefficiency, and in many periods food production was not sufficient for the national consumption demand. This accelerated the shift into a market economy in the early 1990s, after the fall of communism. The land reform which was initiated in 1991 aimed to redistribute land equally to all those who had worked in collective and state farm, namely the “head of the household”. This resulted until today in negative consequences for women, who are still not recognised within agricultural roles: women currently represent 50% of the agricultural workforce but own/manage/head only around 6.5% of farms (FAO 2020).

According to the latest available data, Albanian farms are characterised primarily by family and small-scale farms, with 86% of the farms being 2 ha or under. Most Albanian farms are mixed farms, as a strategy to reduce economic risk with different production systems, as well as the realities of having limited access to markets that can absorb large quantities of a single product (FAO 2020). After 1991, the Albanian production model changed and new farmers abandoned industrial field crops such as rice, cotton, wheat and tobacco for investments

in livestock, agro-processing plants and horticulture (Jani 2020). Agriculture now accounts for roughly 20% of the Gross Domestic Product (GDP) and the sector is trying to transform further, by developing several new strategies and policies, especially since the membership application to the EU was submitted in 2008.

Another process which impacted the sector in the last 30 years is the emigration of 900,000 people out of Albania, but also through internal migrations to urban areas, which consisted in a large population increase in the bigger cities of Tirana and Durrës, while inhabitants in the rural areas of the North and the South were particularly impacted, who were mostly working in the agricultural sector (Kullaj et al. 2018).

The term agroecology ("Agroekologjia" in Albanian) is used only by agri-environmental scientists and the broader concept is not well known among civil society and policy makers (ALB-KI-5, Table 1). Indeed, it can be found in only a few national scientific publications. One publication, which includes agroecology in its title, refers to the study of the agri-environment and agroecological conditions for the cultivation of plant species. Still, political and social movements are at an early stage of adherence to the concept (ALB-KI-2, Table 1).

An organic agricultural movement began after the transition period of 1991, as a farming model close to smallholders and traditional farmers, and also to open up market opportunities for high-quality products. The ten-years international project "Sustainable Agriculture Support", led by FIBL International from 2001 to 2011, paved the way into regulatory aspects, implementation and capacity building for the Ministry of Agriculture and Rural Development (MARD) (Bernet and Kazazi 2012). Subsidies to organic farms, "agri-environment"-like schemes (from 2018 are also accessible to farms in conversion) are available, but it is often challenging for small-scale farms to access them, considering the bureaucracy and discontinuity of measures (ALB-KI-3 & ALB-KI-4, Table 1). Moreover, the support is fixed at a lower level and does not take into account the farm size and farm activities (Kullaj et al. 2018). At the national level, the amount of land devoted to organic farming is still very low, with only 0,08% of the total agricultural land certified organic (Madzarić et al. 2019). However, the harvest of wild products in forests or other natural areas are also included in some of these statistics, compromising 5% of the land categorised as organic. Furthermore, organic agriculture in Albania is export-oriented, with medicinal and aromatic plants, followed by olive and essential oils exported to Europe, Turkey and the USA (Madzarić et al. 2019). At a country level, the awareness of organic agriculture among local consumers is still very low, with only a handful of specialised shops offering organic certified products and other agroecological products (ALB-KI-2, Table 1).

In the last few years, peri-urban agriculture and agri-tourism (also connected with the Slow Food movement) are promoting new models of food systems, often preferring agroecological and organic farming practices. Although there is no movement specifically working on agroecology, NGOs such as ANRD (Albanian Network for Rural Development) are tackling rural development issues by advocating for small scale rural livelihoods and thus strengthening the basis for political and social movements in this channel. In 2019, the FAO organised in Tirana the first "Dialogue of agroecology" for the Western Balkans and Caucasus areas, bringing together many stakeholders from these regions. This was the first forum tackling agroecology as a multidisciplinary approach, which was a novelty in Albania.

⁴ <https://www.libriaribut.com/produti/agroekologjia-velesin-peculi-albert-kopali-2/>
⁵ <https://www.fao.org/europe/events/detail-events/fr/c/1181808/>

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



Specific trainings on agroecology are thus far absent in the Albanian context. NGOs such as the Institute of Organic Agriculture (IBB) and the Albanian Network for Rural Development (ANRD) offer trainings on agroecology-linked farming practices such as organic crop production, integrated pest management (IPM), soil fertility and agro-biodiversity. Such capacity building initiatives are usually financed by government agencies and donor organisations such as the German Agency for International Cooperation (GIZ), Italian Agency for Development Cooperation (AICS), and International Visegrad Fund. The private certification body “Albinspekt” also organises capacity building trainings on organic agriculture as a regulatory framework. AgriNet Albania (see the initiatives chapter), an NGO of 15 farmer organisations, operating in the Korça and Elbasan region, in the south-east of Albania, organises trainings mostly on integrated production such as integrated pest management, but it also focuses on financial education for farmers and how to capacity build for women and increase their role in the rural farming sector.

The research center IBB in Durrës offers trainings to farmers, students and extensions/public officers on organic agriculture, which also builds on the experiences from experiments and research taken in 20 farms scattered in 5 counties (Tirana, Durrës, Valona, Shkodra, Leizha). It is important to recognise that conventional and adult training schools, almost absent in rural areas, do not include agroecology-related content in their curricula (FAO 2020). In general, there is low awareness amongst farmers on the ecological impacts that agriculture has, thus usually resulting in inadequate fertilisers and pesticides utilisation and other practices that could be harmful to the environment (Kullaj et al. 2018). Key informants also added that proper capacity building on farm management is also missing (ALB-KI-1 & ALB-KI-3, Table 1). Furthermore, vocational education is male-dominated, both in who is teaching and the majority of students in agricultural programs, deepening the knowledge and skills gap between genders (FAO 2016).

Agricultural, food and environmental sciences are present at the university level at the Agricultural University of Tirana and the University of Korça “Fan S. Noli” but neither has developed specific materials that approach agroecology as a multi-category discipline - it is only considered within the scientific, environmental interactions at the farm level.

3.2. LIVING LAB



No evidence was found that any living labs related to the field of agroecology in Albania are present. However, it should be highlighted that the project “FILA”, in the framework of the program INTERREG CBC (Italy-Albania-Montenegro), developed a Living Lab in all three countries.

In 2019, a three-phase Living Lab was conducted in the Korça region which aimed to bring together stakeholders of the agri-food chain (small-medium enterprises, farmers, innovation brokers and research organisations).

⁶ <https://www.italy-albania-montenegro.eu/fila-living-labs-cooperation-and-technology-transfer-in-the-agri-food-sector>

3.3. MOVEMENT



There is currently no specific movement focusing on agroecology in Albania. However, different organisations are working towards sustainable agriculture, environmental protection and rural development. One of the most prominent organisations related to these topics is the Albanian Network of Rural Development (ANRD), an umbrella-organisation for 20 associations. The network advocates and promotes initiatives towards the formulation and implementation of sustainable rural development policies, with national and international members working in Albania. Their most important event is the “Albanian Rural Parliament”, held biannually. In 2021, the 2nd parliament took place, organised as an online and physical event, with over 600 participants coming from all over Albania. Representatives of public institutions, farmers associations, civil society organisations and other stakeholders came together for two days to meet, discuss and present the “Declaration of the Second Albanian Rural Parliament”, containing a call to policy makers to support actions towards: national support schemes for agriculture, rural development, remote and mountainous areas, small farmers, youth, rural women and the implementation of the LEADER program in Albania’s rural communities (ANRD 2021). While agroecology is not mentioned, these fields of action are a ground to mainstream agroecology programs in Albania.

On the other hand, associations related to organic agriculture, such as the initial Organic Agriculture Association (OAA) and then BioAdria, despite receiving capacity building and financial support, are still limited in their membership size and lobbying power at the decision-making level.

In parallel, the development of the Slow Food movement with regional groups, has raised consumer concern and focus towards local, healthy food. A network of restaurants and so called “presidia” farms, follow particular sustainability criterias, based on the concepts of “good, clean and fair” food. The agri-tourism sector has witnessed a huge increase in the last few years due to donor funds and local foundations, such as Gijorokastra Foundation (ALB-KI-1 & ALB-KI-5, Table 1). Even if they do not define themselves as agroecological per se, the sector is deemed active and crucial to revitalise local food culture from mostly family farming systems.

3.4. PRACTICE



Albania is characterised by two pedoclimatic zones: the continental, internal one and the Mediterranean coastal area. This divides the country in three main agroecological areas: lowlands where intensive agriculture is practiced, the hills where arable crops and fruit trees are mainly cultivated and the mountains with mainly grasslands, fruit crops and some cereals (Kullaj et al. 2018). In mountainous and hilly areas, small-scale farms with an average area of 1.5 ha are predominant, which include diversified crops and livestock present on a single farm (Jani and Kume 2018). Farming products are mostly for family and self-consumption, with excess products going into the market channels. In small-scale farms a higher use of local cultivated varieties is observed, as farmers tend to conserve specific crops adapted to the local soil and climatic conditions. Normally, they tend to use organic fertilisation with manure, composting, and crops rotations. However, a lack of information on best farming practices, inadequate farming techniques, the misuse of pesticides and fertilisers, and the negative impacts on the environment from overgrazing and burning crop residues are frequently observed (Kullaj et al. 2018).

One close link with agroecology is found within Albanian organic agriculture. Nevertheless, while the farming approach is close to traditional smallholders' practices, the actual amount of certified organic agricultural land in Albania is still very low (0,08% of agricultural land), as is the knowledge of organic agriculture among farmers (ALB-KI-2, Table 1).

Increasing actions are being taken toward the conservation of local food traditions, with projects aimed at doing research and conservation of cultivated agrobiodiversity and local livestock breeds. For instance, the Institute for Organic Agriculture (IBB) is doing experimental research with a few traditional horticultural varieties in collaboration with the Institute of Plant Genetic Resources. Other approaches such as agroforestry have been promoted in a few projects, and in 2018 a conference on agroforestry took place. However, there is no evidence of specific initiatives currently working on this topic.

3.5. SCIENCE



The Agricultural University of Tirana (AUT) and the University of Korça "Fan S. Noli" (both public) are the only universities offering degrees in agricultural, food and environmental sciences. AUT, one of the largest academic institutions in the Western Balkans, offers courses in a wide range of subjects. In the Department of Agriculture, agri-environmental and organic crop production is addressed but they do not constitute a single course. Though agronomy students can attend courses on integrated rural development, marketing, rural sociology and finance, it is not compulsory to integrate them in their curriculum. Overall, no specific mention of agroecology as a multi-categories discipline was found.

When it comes to the other academic institutions, researchers at the University of Korça have collaborated with AgriNet Albania to create Integrated Pest Management (IPM) and soil organic fertilisation training booklets but no other work regarding organic agriculture is present so far. Research in agriculture is also channeled in Agricultural Technology Transfer Centers (ATTCs)--public bodies managed by the Ministry of Agriculture and Rural Development (MARD)--which are scattered throughout Albanian regions and focus in a particular on the agricultural and food-processing sector, with a mission of technology transfer. Nevertheless, ATTCs have low resources and do not focus on agroecological practices.

The Institute of Organic Agriculture (IBB) in Durrës is a private scientific research institute founded in 2010 as an NGO. It focuses on the promotion of organic agriculture through performing field research mainly on biological pest control, fertilisation and crop protection. The Institute collaborates with the public extension office, AUT and the Institute of Agro meteorology to provide capacity building on the topic. They have also developed different farmer trainings courses on organic crop production.

⁷ <https://anrd.al/second-rural-parliament/> ⁸ <https://www.slowfood.com/nazioni-condotte/albania/> ⁹ <https://gjirokastra.org/food-tours/>
¹⁰ https://twitter.com/AgrofMM?fbclid=IwAR3gL2K2ERYOEsqqFVTQv-OZ2JqFk5OPuo3eq9MUIb_n2DNWfCUZ1ED1vaQ

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 2: An overview about initiatives, cases and examples described and analysed.













INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	IBB - Institute of Organic Agriculture. <i>Instituti I Bujqesise Biologjike</i>	National	NGO	Promotion of organic agriculture					
2	ANRD - Albanian Network for Rural Development. <i>Rrjeti Shqiptar për Zhvillimin Rural</i>	National	NGO	Sustainable rural development, policies and instruments					
3	AgriNet Albania	Regional	NGO	Capacity building					
4	Agropuka	Local	Farmers association	Rural development of Puka					

Table 3: Additional initiatives, cases and examples in the country - not included in this report.

INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Slow Food Network in Albania	National	NGO	Promotion of local food cultures and traditions					
2	Uka Farm	Local	Farm	Permaculture					
3	Community Seed Bank of Zadrima	Local Regional	NGO	Conservation and valorisation of traditional crop varieties					
4	BioZadrima	Local	Farmers association	Organic Agriculture					



EDUCATION



SCIENCE



PRACTICE



LIVING LAB



MOVEMENT



INSTITUTI I BUJQESISE BIOLOGJIKE
<https://ibb.al/>

INITIATIVE N°1 – IBB

INSTITUTE OF ORGANIC AGRICULTURE

The Institute of Organic Agriculture (IBB) is an Albanian private non-governmental organisation based in Durrës (West of Albania), who aims to increase organic agricultural knowledge and technical services. It was established in 2010 when the Swiss-government financed the “SASA” (Sustainable Agriculture Support for Albania) project through FIBL, the Swiss Research Center for Organic Agriculture. Currently, it employs 1 full-time and 3 part-time experts. The specialisation of IBB is plant protection, organic vegetable and fruit production. Agricultural technologies, such as weather stations to monitor and forecast diseases, are tested and promoted in different locations in order to have a more accurate and rational use of inputs for disease and pest control. Usually bulletins are sent to its members with results from these studies. IBB performs research activities which are also based on the experiments they do on various farms located in the Tirana, Durrës, Valona, Shkodra and Leizha areas. Moreover, IBB collaborates with approximately 25 other farms, some of which are used as “demonstration farms” for training courses and other activities.

IBB implements trainings for agricultural specialists such as public extension agricultural officers and farmers. There is no fixed training program, but they can include organic cultivation and standards, and pest and disease control techniques. For instance, IBB has an collaboration with the Ministry of Agriculture for a ‘Training of Trainers’ program for public extension officers. The Institute is also engaged in events for consumer education and the promotion of organic agriculture.

IBB is considered as the most important research institution for organic agriculture, providing advisory services to organic farmers in Albania. It collaborates with several institutions like the AUT, ANRD, Institute of Agro meteorology, as well as agricultural high schools and other actors. Specifically, in their collaboration with experts at AUT, certain course lessons were developed which related to sustainable/organic agriculture, and a Bachelor thesis was hosted for students. Trainings on concepts related to the economy were also organised with ANRD, while the use of weather stations to create a prognosis and warning system regarding plant protection was promoted in cooperation with the Institute of GeoSciences, Energy, Water and Environment, with a specialisation in Agrometeorology.

WHAT CAN WE LEARN?

IBB plays an important role in the research and promotion of organic agriculture in Albania. The Institute develops research experiments based on local challenges.

KEY FEATURES

- **Type of education and training:** workshop and courses on organic agriculture
- **Main topics:** plant protection
- **Type of legal entity:** NGO
- **Members:** scientists
- **Project duration:** various durations, depends on the course program



Picture 1: Professor Enver Isufi inspecting biological trap for pests. Source: The Institute of Organic Agriculture.



Picture 2: The technical brochures published by the NGO. Source: The Institute of Organic Agriculture.



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE



EDUCATION

INITIATIVE N°2 – ANRD

ALBANIAN NETWORK OF RURAL DEVELOPMENT



RJETI SHQIPTAR PËR ZHVILLIMIN RURAL
<https://anrd.al/homepage/>

ANRD is an Albanian non-governmental organisation launched in 2015 in Tirana after an extensive civil society movement which aimed to create a platform which operate for the well-being of rural communities, by taking up an active role in the processes and reforms of the rural development sector. To this end, ANRD intends to build an active and inclusive national rural agenda which includes gender equality, rural youth civic engagement, community-led local development, family farming, agri-tourism, sustainable agriculture, and smart villages. ANRD is a membership organisation, an association of associations and other entities. The number of its members is now 27. Members operate in almost every region in the country, bringing territorial or sectorial priorities and stakes to the network, while operating as a single voice in the policy framework development. A participatory and bottom-up perspective is adopted for advancing the national rural agenda and lobbying for sustainable rural development policies, which was inspired by the LEADER program approach (i.e. program fund by the European Union that aim to support pilot projet in rural areas over Europe).

KEY FEATURES

- **Main goal:** rural development
- **Founded in:** 2015
- **Type of organisation:** formal NGO
- **Farming sectors:** diversified systems
- **Scale of the organisation:** national

The most important event the network runs is the Albanian Rural Parliament. The Parliament engages in a two year process that collects consultations from local stakeholders, agricultural organisations and rural development issues, culminating in the final declaration after a 2-day event. The first Parliament was launched in 2017 with the collaboration of the Agricultural University of Tirana. The Albanian Rural Parliament is the primary instrument through which the Albanian Network for Rural Development seeks to influence the rural development agenda in the country. It is also the strongest advocacy act so far that is inclusive and nationwide in character, applying a bottom-up perspective to accelerate Albania's reform process in EU policy of Community Led Local Development (CLLD).

The 2nd Albanian Rural Parliament was organised in 2021, in coordination with the Agricultural University of Tirana and Epoka University. It brought together, both physically and remotely, 600 participants from rural areas, as well as important actors in agricultural and rural development, to discuss the challenges and actions that can be taken to serve the well-being of rural people. The 2021 Parliament aimed to find innovative instruments and alternatives to enable farmers, women, youth, entrepreneurs and other rural stakeholders to voice their concerns and aspirations to connect and actively participate in the development and decision-making processes.



Picture 3: Product of supported women entrepreneurs. Source: Albanian Network of Rural Development.

While agroecology is not an integral part of the work of ANRD, certain projects deal directly with the adoption and promotion of sustainable agriculture practices (e.g. conservation of old crops varieties); sustainable land management; protection of old orchards and trees; pesticide use reduction; water harvesting; soil and erosion management; and the introduction of innovative horticultural practices. The socio-political aspect of agroecology is reflected through their support and promotion of the needs and empowerment of small-scale farmers, which is not usually reflected in the national policy debate. Improving the conditions of rural women is also an important concern for the Network.



Picture 4: Workshop of the project Rural Youth. Source: Albanian Network of Rural Development.

Over the years, ANRD has cooperated with several international organisations (European Rural Parliament, Balkan Rural Development Network, Standing Working Group, European Union, UNDP, GIZ, Latvian Rural Forum, AICS, International Visegrad Fund). ANRD is also a member organisation of the networks PREPARE (Partnership for Rural Europe), an European civil society organisation, and the Balkan Rural Development Network, who both intend the transfer of know-how and to influence EU reform processes in rural development through joint advocacy and lobby initiatives.

ANRD has also collaborated with various state institutions such as the Albanian Parliament, Ministry of Agriculture and Rural Development, Agricultural University of Tirana, Epoka University, Agriculture and Rural Development Agency, Regional Development Agencies, Albanian Development Fund, and nationwide municipalities.

ANRD is currently engaged in several projects, in particular "Rural-You. Rural Albanian Youth", which advocates for the participation and recognition of rural youth in Albania. Another current project is NAGE (Networking and Advocacy for Green Economy), a three-year project funded by the European Union. NAGE is implemented by a consortium of rural networks in Western Balkan countries acting jointly in the interest of their constituents through the Balkan Rural Development Network (BRDN). The partners have tailored an action that reflects the BRDN development goals, and therefore strengthens the positioning of the network in the region, while encouraging grassroots involvement in public decision-making and reform processes. They also focus on networking and advocacy to introduce the concept of the green economy by offering evidence-based policy solutions. A recently finished project is the "Academy from Farm to Fork - V4 for Sustainable Agriculture in Albania". The project aimed to share micro-scale, cost-effective farm know-how regarding biodiversity protection and climate change adaptation solutions from four Visegrad countries (Czech Republic, Hungary, Poland and Slovakia) with farmers from Albania (particularly young farmers). Through this project, farmers gained knowledge and witnessed in-practice measures pertaining to the enhancement of sustainability, environmental preservation, and the prevention of further losses in biodiversity.

WHAT CAN WE LEARN?

ANRD operates as a unique voice which advocates for better rural development policies in Albania, acting as a catalyst of cooperation for many diverse actors scattered in the country, while trying to overcome the low levels of such cooperation that still exists throughout the Albanian society.

The Albanian Rural Parliament is an innovative participatory process which offers a unique model of the bottom-up approach to influence effective governance in the area.

POSITIVE IMPACTS



COOPERATION: ANRD is engaged in promoting actions based on participatory processes which is an innovative approach and methodology for the country.



SOCIETY AND EQUITY: The empowerment of youth and women has been at the core of ANRD's mission, in order to advance their interests, priorities and civic engagement, and generate public support for enhanced socio-economic opportunities.

LIMITATIONS & CHALLENGES



COOPERATION: Cooperation among different stakeholders is difficult, not only between farmers, but also between public and private actors.



PRACTICE



EDUCATION



LIVING LAB



SCIENCE



MOVEMENT

INITIATIVE N°3 – AGRINET



Facebook: @agrinet.al

AGRINET ALBANIA

AgriNet is an Albanian, non-governmental and not-for-profit organisation which was established in 2005. It has a head office in Korca and two other field offices in Elbasan and Peshkopi. During 2005-2020, AgriNet has implemented different projects which have been supported by different donors. The overall objectives have been the improvement of the social and economic situation in different rural regions of Albania.

From 2018, AgriNet has started its transformation to a membership organisation aiming to establish a network of farmer associations. This network started with 10 formal and non-formal associations, composed by 250 members, of which 100 were women. Currently, AgriNet is composed by 15 organisations with 450 members, including 200 women. AgriNet employs a team of full time and part time staff with a broad spectrum of skills in areas such as rural community and agricultural development.

KEY FEATURES

- **Agroecological practices concerned:** integrated pest management, organic pest control
- **Founded in:** 2005
- **Farming sectors concerned:** fruit cultivation
- **Types of stakeholders involved:** 15 farmers association
- **Scale of the initiative:** regional

AgriNet's mission has four components to: (i) increase the management capacities of farmer associations; (ii) promote good farming techniques and education in farm management topics; (iii) advocate for gender equality and strengthen the recognition of the role of rural women, and (iv) lobbying at the national level and network with Albanian and international organisations. A transition to better agricultural practices is in the mission of AgriNet. In regards to the local farming context, the organisation operates in counties which are dominated by plains, which often have intensive fruit cultivation systems. The use of chemicals is very large and the highly hazardous pesticides are commonly applied in the fields. In contrast, in hilly and mountainous areas, agricultural systems are less intensive and so is the use of external inputs. So far, organic production is very limited and farmers are mostly unaware of the harmful effects of pesticides for both human health and ecosystems.



Picture 5: Farmers group. Source: Agrinet Albania.

AgriNet organises trainings in integrated production systems and biological pest control in collaboration with the research institute IBB. The other topics that are promoted by AgriNet are soil quality improvement, integrated production of fruit and vegetables, the implementation of GAP standards, organic farming, environmental protection, and climate change adaptation measures.

AgriNet is supported by international development bodies and private foundations. AgriNet is a co-founder and Board Member of the Albanian Network for Rural Development (ANRD). It collaborates with the University of Korça on research on IPM, and is carrying out trainings and field demonstrations on members' farms.



Picture 6: Farmers group. Source: Agrinet Albania.

WHAT CAN WE LEARN?

The association works together with farmers from the regions of Korca and Elbasan to promote better agricultural practices in fruit production, in order to decrease dependence from hazardous chemicals and to provide practical alternatives to farmers. They also combine trainings and capacity building with project management and the enhancement of farmers' professional skills.

Finally, they provide support to member associations of farmers from various fields of agricultural production, including the introduction of different standards (Global GAP, ISO, etc.).

POSITIVE IMPACTS



SOCIETY AND EQUITY: AgriNet advocates for gender equality in agriculture, recognising the work and interests of women in the sector.



EDUCATION: The initiative offers training programs to farmers who usually do not have access to higher agricultural education.

LIMITATIONS & CHALLENGES



GOVERNANCE: They have found it difficult to create powerful lobbying actions at the local and regional level.



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE



EDUCATION

INITIATIVE N°4 – AGROPUKA



<https://www.agropuka.org/>
Facebook: @AgroPuka

AGROPUKA

AgroPuka is an association of agricultural producers in the municipalities of Puka and Fushë Arrëz, in the Puka county (Northern Albania). It was established in 2001 by agricultural and rural development advisors, and farmers, with the support of Swiss Development Cooperation (SDC). The association has more than 300 members, consisting of farmers, food producers, animal breeders, advisors and local citizens. Over 50% of members are women and in the year 2019, AgroPuka adopted a Gender Policy and Strategy to be implemented by the organisation and their stakeholders. Currently, the staff of AgroPuka consists of 6 people. The pool of external advisors for AgroPuka includes about 20 experts in diverse disciplines (livestock breeding, agronomy, beekeeping and others).

KEY FEATURES

- **Agroecological practices concerned:** agrobiodiversity conservation, non-timber wood products
- **Founded in:** 2011
- **Farming sectors concerned:** permanent crops, livestock, forestry
- **Scale of the initiative:** inter-municipal

AgroPuka focuses on offering dedicated services, such as technical assistance for quality production, to members in the field of agriculture, livestock breeding, food transformation and marketing. Since Puka county is dominated by mountainous areas, over 80% of the land, the association aimed to develop the sectors that are suitable to the geographical conditions: beekeeping, livestock breeding and dairy production, wild harvesting (such as wild berries, mushrooms, and herbs) and rural tourism. While supporting agricultural production development, AgroPuka is giving support to market products and the promote cooperation between producers, especially women and youth. The association has invested in creating a commercial branch which takes care of the processing, packaging and marketing of different products (dried mushrooms, dried fruits, herbs, berries, preserves and jams). The revenues generated from the marketing sector go to the employment of women to process fruits and other products. The label "AgroPuka" is currently well recognised at the national level.



Picture 7: AgroPuka product exposition. Source: Agropuka.



Picture 8: Development of Ecotrails (left) and Pruning session (right). Source: Agropuka.

While AgroPuka does not refer specifically to agroecology, issues of agrobiodiversity and restoration of the environment are placed high on the agenda of the association. During the communist regime, the environment was strongly transformed with land use changes such as cutting forests, even in mountainous and sloped areas, in order to put them under agricultural production. These areas are now mostly abandoned and riddled with soil erosion issues. In response to this issue, AgroPuka works to promote the recovery of these lands, and experimental work has been put in place, especially in the reintroduction of chestnut trees and through planting aromatic herbs. Another important component of AgroPuka's work is devoted to the conservation and valorisation of endangered fruit trees varieties, especially apple. They have created a collection of apple tree varieties and studies have been carried out by specialists on the best adapted varieties to the local conditions. The association is also working on educating young students on the importance of protecting the environment through information campaigns, and small actions in the villages and schools through the cultivation of trees and herbs in communal gardens.

AgroPuka is a donor-based organisation and relies mostly on external funding coming from SDC, the EU, Italian Cooperation Agency and the Swedish grant "We effect". AgroPuka is a founder member of ANRD (Albanian Network for Rural Development) and has many ties with national and international NGOs.

WHAT CAN WE LEARN?

AgroPuka represents a model of cooperation in creating jobs and skills in remote mountainous areas, creating diversity in cultivated crops and exploiting forestry products in a sustainable way. Half of the members of the association are women and gender inclusion and promotion of activities aimed at improving the rural women livelihoods is placed high on the association's agenda.

POSITIVE IMPACTS



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Local fruit trees and horticultural varieties are preserved and monitored for their adaptation to local farming and climatic conditions.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: AgroPuka developed a commercial entity which promotes the production and sales of transformed products. This strengthens the recognition of the brand and ensure income to the groups of producers.

LIMITATIONS & CHALLENGES



SOCIETY AND EQUITY: Youth involvement is quite difficult in a context with a high rate of emigration. Moreover, it is difficult to find qualified skilled labourers in the primary sector.



GOVERNANCE: Since AgroPuka mostly works on a project to project basis, finances and the management of resources are subjects to fluctuations.

5. CONCLUSION AND FUTURE PERSPECTIVE

The current report highlights that the development of agroecology in Albania is still at an early stage and the term is not usually used by the diverse range of practitioners. While farmers and civil society organisations are coming together under the umbrella of advocacy for inclusive rural development policies, institutional support is needed to ensure an effective transition to sustainable agriculture models, such as organic agriculture and small-scale farming systems. Key informants denounce the inconsistency of financial support to organic agricultural conversion and maintenance, as well the bureaucratic difficulties for small farmers to access support measures (ALB-KI-3, ALB-KI-4 & ALB-KI-6, Table 1). Furthermore, the number of training and education programmes on agroecological practices are still limited, as well as the capacity of the extension services in organic agriculture (ALB-KI-4, Table 1).

Strengthening the cooperation of farmers concerned in promoting more sustainable practices and promoting more direct link with consumers, including tourists, are two directions where agroecology can be promoted, both of which are encountering promising results. However, strong support from institutions and a clearer perspective towards the multi-dimensional nature of agroecology are necessary to create the basis for a sustainable impact in the country.

ABBREVIATION

AICS: Agenzia Italiana per la Cooperazione allo Sviluppo: Italian Agency for Development Cooperation
 ANRD: Albanian Network for Rural Development
 CBC: Cross-Border Cooperation
 GDP: Gross Domestic Product
 GIZ: Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH- German Development Agency
 FILA: Fertilisation and Innovation Labs in Agro-food'
 IBB: Instituti i Bujqësisë Biologjike - Institute of Organic Agriculture
 IPM: Integrated Pest Management
 OAA: Organic Agriculture Association
 SDC: Swedish Development Cooperation

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MAPPING AGROECOLOGY IN AUSTRIA

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AUSTRIA

EXECUTIVE SUMMARY

This report gives an overview of the development of agroecology in Austria. As part of the H2020 project Agroecology for Europe (AE4EU), this work provides an analysis of the current state of agroecology and descriptions of existing initiatives. Information and data provided here are results from interviews conducted with 8 experts named as key informants and 9 representative initiatives, and desktop research held between March and July 2021. In this study, information on the development and existing initiatives were collected according to five activity categories: Education and Training, Living Lab, Movements, Practice, and Science.

The term agroecology is not commonly used in Austria and understood differently by the key informants. The concept of agroecology was mostly defined as closely related to the principles of organic agriculture. Organic agriculture, like agroecology, is understood as a systemic approach going beyond European regulations and national prescribed practices. Through its early historical development, organic agriculture is well recognised in Austria and will continue to be a driving force in the development of agroecology.

The ÖPUL (Austrian agri-environmental programme) was identified as a programme promoting agroecology. Key informants identified different barriers for the development of agroecology in Austria, these including economic and political barriers similar to organic farming, as well as missing awareness.

The initiatives presented here serve as examples, which can inspire others as they all contribute to transform the current food system. Positive impacts and limitations of these initiatives are related to their respective scale and specific aim. All are working towards either sharing knowledge or educating farmers and civil society on topics related to agroecology (organic farming, permaculture, biodiversity conservation, seed preservation, and food waste).

AUSTRIA

EXECUTIVE SUMMARY (IN GERMAN)

Dieser Bericht gibt einen Überblick über die Entwicklung der Agrarökologie in Österreich. Im Rahmen des H2020-Projekts Agrarökologie für Europa (AE4EU) bietet diese Arbeit eine Analyse des aktuellen Stands der Agrarökologie und Beschreibungen bestehender Initiativen. Die hier bereitgestellten Informationen sind das Ergebnis von Interviews, die zwischen März und Juni 2021 mit 8 Experten (Schlüsselinformanten genannt), 9 Vertretern von Initiativen und Desktop-Recherchen geführt wurden. In dieser Studie wurden Informationen über die Entwicklung und bestehende Initiativen in fünf Säulen gesammelt: Bildung und Ausbildung, Living Lab, Bewegungen, Praxis und Wissenschaft.

Agrarökologie ist in Österreich ein nicht gebräuchlicher Begriff und wird von den Schlüsselinformanten unterschiedlich verstanden. Der Begriff der Agrarökologie wurde meist als eng mit den Prinzipien des Bio-Landbaus verbunden definiert. Bio-Landbau wird als systemischer Ansatz verstanden, der über europäische Vorschriften und national vorgeschriebene Praktiken hinausgeht und ist damit in völliger Übereinstimmung mit der Agrarökologie. Der Bio-Landbau genießt durch seine frühe historische Entwicklung einen hohen Bekanntheitsgrad in Österreich und wird auch weiterhin als eine treibende Kraft in der Entwicklung der Agrarökologie wirken.














Als Programm zur Förderung der Agrarökologie wurde das ÖPUL (Österreichisches Programm für Umweltgerechte Landwirtschaft) identifiziert. Schlüsselinformanten identifizierten verschiedene Hindernisse für die Entwicklung der Agrarökologie in Österreich, darunter wirtschaftliche, politische Hindernisse, ähnlich den Hindernisse für den ökologischen Landbau, sowie fehlendes Bewusstsein.

Die hier vorgestellten Initiativen dienen als Beispiele, die andere inspirieren können, da sie alle zur Transformation des aktuellen Ernährungssystems beitragen. Positive Auswirkungen und Grenzen dieser Initiativen hängen mit ihrem jeweiligen Ausmaß und ihrem spezifischen Ziel zusammen. Alle arbeiten daran, entweder Wissen auszutauschen oder Landwirte und die Zivilgesellschaft zu agrarökologischen Themen (ökologischer Landbau, Permakultur, Erhaltung der biologischen Vielfalt, Erhaltung von Saatgut und Lebensmittelverschwendung) aufzuklären.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Austria are summarised in Table 1.

Table 1: List of key informants in Austria.

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED
1	Chamber of agriculture	Soil and water protection	
2	Chamber of agriculture	Organic agriculture – arable farming & viticulture	
3	Chamber of agriculture	Plants	
4	Research infrastructure	Soil ecology	  
5	Chamber of agriculture	Agricultural and regional policy	
6	NGO	Agroforestry, regenerative farming	  
7	University	Organic agriculture, agroecology	 
8	Ministry of agriculture	ÖPUL, mountain farmers and less-favoured areas, organic farming	

2. CONTEXT

Austria has a farmland area of 26 698 km², covering over 32 % of the land area (Eurostat 2019) whereas 40% of the land area is covered by forest (BMLRT 2020). The average size of agricultural holdings is 45 ha (2016), with a disparity between the different regions (Machold and Groier 2020). In Western Austria, in central and southern Burgenland and in the West Styria, over 50% of farms are small holdings (average size 8.5 ha). Since the 1970s, the number of small holdings has continuously declined, which is a trend observed in many other European countries. Between 2003-2016, 26% of small holdings were abandoned in Austria.

Historically, Austria is a pioneer in organic farming (AUT-KI-7, Table 1), starting with the development of biodynamic agriculture by Rudolf Steiner in 1924, followed by the first biodynamic farms created in 1925 in Carinthia, and the creation of the first organic association (which became Demeter) in 1932 (Steinwider and Starz 2020). The number of organic farms were relatively low until the eighties, followed by the high increase in the nineties. This surge of organic agriculture in Austria can be traced back to the start of organic subsidies in 1991, which led to an increase of more than eightfold in the number of organic farms between 1990 and 1994. Currently, organic agriculture is promoted by the Bio-Aktionsprogramm 2015-2020, which has been prolonged until 2022. Organic farms generally receive a high allowance payment (Biobonus). A specificity of Austria is that mountains cover 70% of its area, according to EU classification (Art. 32(2), Regulation 1305/2013) and is considered as disadvantaged mountainous region for which many organic farms receive additional subsidies. With over 25% of the agricultural land is farmed organically in 2019, Austria has the highest percentage of organic farmland in the EU and the third worldwide (Steinwider and Starz 2020).

The Austrian agri-environmental programme ÖPUL (Österreichisches Programm für Umweltgerechte Landwirtschaft, Austrian programme for environmentally friendly agriculture) supports organic agriculture activities (over 40% of its budget go to organic agriculture), water conservation measures, biodiversity conservation and integrative pest management (Grandl, Weber-Hajszan, and Neudorfer 2016) and can therefore be considered as a programme promoting the development of agroecology (AUT-KI-1, AUT-KI-5, AUT-KI-6, AUT-KI-7 & AUT-KI-8, Table 1). The ÖPUL measures are implemented on a voluntary basis and the impact of effectiveness for these measures are not yet evaluated (Eichberger et al. 2019).

In comparison to organic agriculture, agroecology remains less known in Austria. In 2011, with the first European Food Sovereignty Forum in Krems, Austria, the term became more popular within social movements and practitioners (Agroecology Europe 2020). The term agroecology is still very uncommon and not many people can associate something with it (AUT-KI-5, Table 1). In many cases and by different stakeholder groups, it is more commonly understood and often named together with organic agriculture. Hence, some organic farmers practicing agroecology do not use the term itself. This holds for farmers that work together with scientists or social movements and therefore are often familiar with the term, but rarely use it.

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



Education in the broad field of agroecology is fragmented in Austria and rarely exists under that name. A major focus remains on organic agriculture, which can be explained by its historical development in the country. Key informants mentioned courses and trainings related to agroecology from different organisations, movements, schools and universities:

- The 'Bioschule Schlägl' (organic school Schlägl; see initiative description – part 3.1) provides education on organic farming to 14 to 17-year-olds students and adults (see initiative description - part 3).
- The 'Ländliches Fortbildungsinstitut Rural Education Institute' (LFI – Rural Education Institute) regroups all education opportunities for adults in rural Austria. Trainings on organic farming, biodiversity and direct marketing can be found.
- The 'Permakultur Akademie im Alpenraum' (permaculture academy; see initiative description – part 3.1) provides education on permaculture.
- The University of Life Science (BOKU) in Vienna offers many courses related to the topic of agroecology and a masters' degree on Organic Agricultural Systems and Agroecology.
- Agricultural and regional sociology are taught at the University of Innsbruck.

Finally, different associations offer educational courses, for example BioAustria has trainings for farmers on many topics¹² including nature conservation, low input dairy farming, and soil fertility. The 'Bodenpraktiker' course focuses on soil health teaching how to create fertile soils, by covering topics such as soil formation and structure, nutrient mobilisation, cover crops, weed control and composting (see previous mapping project: Agroecology Europe 2020). The network of farmers and advisors called the 'Humus Bewegung' also offers courses on regenerative farming¹³.

¹² <https://www.bio-austria.at/bio-bauern/beratung/bildungsangebote/> - ¹³ <https://www.humusbewegung.at/veranstaltungen/bodenkurs-im-gr%C3%BCnen>

3.2. LIVING LAB



According to interviewees (AUT-KI-6 & AUT-KI-7, Table 1), living labs in agriculture seems to be a recent concept that is still rarely used in Austria. In fact, most key informants could not name any, and most of agroecological living labs are often recent initiatives. Two living labs mentioned were the Grand Farm (demonstration activity started in 2018, see initiative description – part 3.2), and the long-term ecological research experiments (see initiative description – part 3.2) of the AGES (Austrian Agency for Health and Food Safety). Representatives from the two living labs stated that they link farmers to researchers, putting research experiments in a real-world context permitting innovation. Another aspect is sharing of knowledge; many initiatives but especially living labs aim to co-create knowledge and transmit it to other practitioners.

3.3. MOVEMENT



The concept of agroecology has been used by different movements in Austria, even if the term itself is not always explicitly used. Most movements link agroecology to socially fair and sustainable production. The ÖBV-via Campesina Austria¹⁴ and nyéléni Austria¹⁵ focus on food sovereignty (see initiative description – part 3.3) and community supported agriculture (CSA, Solidarische Landwirtschaft – solidarity farming). Over 40 initiatives of CSA have been listed in Austria¹⁶. FIAN Austria (FoodFirst Information and Action Network) has created a document on agroecology (FIAN Österreich 2017) for decision-makers and Austrian stakeholders who help shaping the process of change within food and agricultural policy.

Another association mentioned by key informants was the 'Boden.Leben' association (soil. life), promoting practice-oriented research and farmer-to-farmer knowledge exchange mainly on soil protection. The association 'Sezioneri' (seasonal workers), advocating for the rights of agricultural workers in Austria, is also an example of an initiative that could be considered as agroecological.

A further type of movement is the emergence of food policy councils aiming to involve citizen in decision-making processes in food systems (Sieveking 2019), creating a new appreciation for food and its producers, promoting local, sustainable and fair food supply. A map of different food councils in Austria and other European countries has been established¹⁷. Food councils follow many agroecological principles such as recycling (food waste), co-creation of knowledge, social values and diets, connectivity and participation (for principles see HLPE 2019; Wezel et al. 2020). Their work relies on volunteers and their actions are limited by the lack of recognition and financial support by governments. The description of the Vienna Food Policy Council is described below (initiative description – part 3.3).

Different associations like BioAustria (representing two thirds of all organic farmers in Austria), Demeter and Bioland established guidelines going beyond the EU organic farming regulations (AUT-KI-1, AUT-KI-2, AUT-KI-6 & AUT-KI-7, Table 1). For example, all different productions of a farm need to be organic to have the BioAustria label, other major differences to the EU guidelines are on animal welfare requirements. There are also requirements for packaging, horticultural production and communication and education that are not mentioned in the EU regulations. These guidelines are adapted regularly with the involvement of farmers, advisors and experts (proposal, discussions, final vote). While these additional guidelines do not use the term agroecology, organic farming is understood as its inventors, in a systems approach, meaning that the values and ideas behind it are completely compatible with agroecology.

⁶ <https://www.italy-albania-montenegro.eu/fila-living-labs-cooperation-and-technology-transfer-in-the-agri-food-sector>

3.4. PRACTICE



In Austria, some associations like BioAustria, Demeter, Bioland, and Boden. Leben are actively promoting promote exchanges on practices, linking farmers, and offering courses on specific practices. Different agroecological practices are implemented in Austria according to key informants: crop rotation, organic farming, flower meadows, flower strips, traditional old species and adapted cultivars, intercropping, agroforestry, drip irrigation, direct seeding, cover crops, and reduced or no tillage. While some of these are identified agroecological practices (Wezel et al. 2014), some of them, for example organic farming, refer to a production system including a series of different practices. Others like flower strips are linked to an agri-environmental measure, which, in case it is used to support ecosystem services, is an agroecological practice.

Summarising and assessing the main practices at the country level has not yet been carried out. Nevertheless, regional differences can already be mentioned. Two regions in Austria are labelled organic model regions: the 'Ökoregion Kaindorf' (case study in the UNISECO project¹⁸) and the 'BioRegion Mühlviertel'¹⁹. These regions have a high percentage of organic farms and aim to develop sustainable practices throughout the territory linking different stakeholders, creating regional value chains, and raising awareness of inhabitants through events and workshops.

3.5. SCIENCE



The scientific aspect of agroecology encompasses a multitude of subjects and is often fragmented in different research areas in Austria. Key informants named three universities: 'Universität für Bodenkultur' (BOKU), 'Universität Innsbruck' and 'Universität Wien' researching on agroecology related topics. The BOKU has a department on sustainable agricultural systems with a specific division on organic farming (IFÖL). The 'Universität Innsbruck' has a research group called 'Agrar- und Regionalsoziologie' (agricultural and regional sociology) in the institute of sociology, working in the field of rural development and on food systems. At the 'Universität Wien', the division of terrestrial ecosystem research (TER²⁰) as well as the department of Botany and Biodiversity research at the 'Universität Wien' are doing relevant research regarding environmental issues such as land-use change and soil role in food security.

Four research infrastructures were identified: 'Bioforschung Austria'²¹, HBLFA Raumberg-Gruppenstein²² (Higher Federal Teaching and Research Institute for Agriculture), AGES²³ (Austrian Agency for Health and Food Safety) and FiBL²⁴ (Research Institute of Organic Agriculture). The research done by the 'Bioforschung Austria' and the FiBL focuses on organic farming. The HBLFA has a research institute on organic farming and livestock biodiversity. The AGES mainly deals with the research topics of sustainable plant production, agroecology and biodiversity, pathogens and allergens in and on plants and plant products, animal nutrition and feed as well as foodborne diseases, zoonoses, and bee protection.

⁶ <https://www.italy-albania-montenegro.eu/fila-living-labs-cooperation-and-technology-transfer-in-the-agri-food-sector>

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 2: An overview about initiatives, cases and examples described and analysed.

























INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Permaculture academy <i>Permakultur Akademie</i>	National	Association	Teaching permaculture					
2	Biodiversity monitoring with farmers <i>Biodiversitätsmonitoring mit LandwirtInnen</i>	National	Association	Farmers monitoring biodiversity in agricultural landscapes, changing practices to promote biodiversity					
3	Organic school Schlägl <i>Bioschule Schlägl</i>	Local	School	Capacity building					
4	Grand Farm	Local	Farm	Innovations along three themes: soil health, agroforestry, market gardening					
5	LTER – long term field experiments	National	Research infrastructure	Long term ecological research plots					
6	Field - association of the use of unused <i>Verein zur Nutzung von Ungenutztem</i>	Local	Association	Reducing food waste by transforming unsold food					
7	Arche Noah	International	NGO	Preservation and development of the diversity of cultivated plants					
8	Vienna Food Policy Council <i>Ernährungsrat Wien</i>	Local/ National	NGO	Relocating – food system and decision making processes in Vienna					
9	ENP - Result oriented nature conservation planning <i>Ergebnisorientierter Naturschutzplan</i>	National	-	Result based nature conservation planning					

Table 3: Additional initiatives, cases and examples in the country - not included in this report.

INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
				EDUCATION	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
Zerfuchs	Local	Farm (CSA)	Provide sustainable food to local community					
Krautwerk	Local	Farm	Preserve old, traditional plant varieties and cultivation techniques					
ÖBV Via Campesina Austria	National	Association	Stand for specific interests and needs of mountain farmers in Austria					
Nyéleni Austria	National	Network	Food sovereignty					
Boden praktiker	National	Traineeship of BioAustria	Trainings on soil health					
Agricultural and regional sociology <i>Agrar und Regionalsoziologie</i>	-	Research group at University of Innsbruck	Study rural development, society and agriculture, food politics					
Hay milk	Local	Farmers network	Hay milk production, maintain traditional multifunctional systems					
Food council Innsbruck <i>Ernährungsrat Innsbruck</i>	Local	Association	Develop a regional, fair and ecological food supply in Innsbruck					
Humus academy – eco-region Kaindorf <i>HumusAkademie Ökoregion Kaindorf</i>	Regional	Association	Training in humus build-up and sustainability					
Circular Vienna	Local	Association	Develop circular economy in Vienna – regenerate, reinvest, reuse					
LIVERUR - Südburgenland	Regional	H2020 EU project	Promote circular economy					
Village university, education for everyone everywhere <i>DorfUni.at, Bildung für Alle Allerorts</i>	National	Open community of people and institutions	Virtual academy for sustainable development					



EDUCATION



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE

INITIATIVE N°1 – BIODIVERSITY MONITORING BY FARMERS

THE PERMACULTURE ACADEMY (PIA)



The Permaculture Academy has been teaching permaculture for almost 20 years, in all of Austria to all age students (18-70+). Inspired by Bill Mollison's categories of permaculture and the linked 12 principles (Mollison and Slay 2013), the trainings focus on three dimensions: ecology, people's need of food, and social connections (economy without money, cooperation, individuals, society, and nature should profit from these connections). The aim is to train people in reading landscapes and being able to plan accordingly. The academy is managed by the association E.R.D.E (Österreichisches Institut für Angewandte Ökopaedagogik - Austrian Institute for Applied Ecological Education) and the "Plantago-Verein zur Förderung von permakulturellem Wissen und Handeln".

KEY FEATURES

- **Type of education and training:** lectures and practice
- **Main topic:** permaculture
- **Training duration:** 88 hours (basic training)
- **Type of legal entity:** non-profit association
- **Accessible to:** everyone (18 - 70+ years olds)

The training consists of lectures, practice and guided tours where the courses take place. A basic training in permaculture (88 hours over 9 week-ends, proposed 3 to 4 times/year) comprises 4 modules with a first introduction to permaculture:

1. Self-sufficiency (e.g. food, clothing...),
2. Living and constructing (work with natural, environmentally compatible construction elements, reduced energy inputs),
3. Social permaculture (exchange rings, local currency), and
4. Agriculture (alternatives for cultivation, for animal husbandry and for forestry).

The basic training presents the theory hence the modules 1-4 can be taken in any order once the introduction is completed. This can be followed by specific courses on soil analysis, composting, soil structure, agroforestry, mixed cropping, woodland garden, and/or building solar cookers. The basic training is not mandatory for the specific courses. Overall, 70 courses are proposed to provide a complete overview on permaculture. Around 15-18 people follow a cycle of the basic training per year and a certificate is provided after completion (almost 600 certificates have been given so far). Trainings are open to everyone, and furthermore supported and recognised by some employment agencies for unemployed individuals. The academy also accompanies students to obtain the Diploma of Applied Permaculture Design.

The ideas behind the concept of agroecology are used in most courses, even though the term itself is not always mentioned because the emphasis lays on permaculture. Soil restoration, closing (nutrient) cycles, preservation of seeds, and building competencies and skills are at the core of the proposed trainings.

A partner of PIA is the winter school Ulten in Italy, where the training is more developed, as it is promoted by the state which is not the case in Austria, and participants need to pay for their participation.

The training is not recognised in Austria as a skilled occupation, it is considered as a leisure activity. Future objectives are the further development of training options, increasing the recognition of permaculture, convincing more farmers to implement permaculture, and cooperating with more training facilities throughout Europe.



Picture 1: Three illustration of steps to obtain the Diploma of Applied Permaculture Design (planning, designing, setting up, developing and maintaining), which consists of creating at least ten-self-chosen, real-world permaculture projects. Source: Ortner PIA.

WHAT CAN WE LEARN?

The permaculture academy in Austria proposes a high variety of courses on permaculture. A holistic view is applied to the concept of permaculture and the main aim is that students develop skills to implement permaculture in any place. Through lectures and connected experiential learning the PIA offers a multidisciplinary intergenerational learning experience.



EDUCATION



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE

BIODIVERSITÄTSMONITORING MIT
LANDWIRTLINNEN
www.biodiversitaetsmonitoring.at

INITIATIVE N°2 – BIODIVERSITY MONITORING BY FARMERS

BIODIVERSITY MONITORING BY FARMERS

The Biodiversitätsmonitoring mit LandwirtInnen

(biodiversity monitoring by farmers) is an education project aiming to raise farmers' awareness of biodiversity, with a focus on extensive grassland. The pilot project started in 2007, based on the results of the scientific research project MOBI-E, which proposed to integrate farmers in biodiversity monitoring projects as those represent the main stakeholders when considering land use management. The project helps farmers to monitor biodiversity on their land through the observation of indicator species, showing what species can be found and the relationship between management and occurrence of certain rare species. The project executing organisation is the ÖKL (Österreichisches Kuratorium für Landtechnik und Landentwicklung - Austrian board of trustees for agricultural engineering and rural development), a non-profit association active throughout Austria for adult education and further training in the agricultural sector.

KEY FEATURES

- **Type of education and training:** training of farmers and school visits on the field
- **Main topic:** biodiversity monitoring on extensively used grassland
- **Type of legal entity:** non profit association
- **Accessible to:** farmers

The project started with 50 farmers observing only plant species. It was successively expanded and there are now 700 farmers involved for monitoring plant and animal species. The monitoring is on a voluntary basis, any farmer can take part as long as their agricultural operation involve pastures or meadows which are mowed maximum twice a year or grazed extensively. Once a farmer is registered, an expert (ecologist, biologist or zoologist) visits the farm and observes with the farmer the existing biodiversity, followed by determining species and explaining causal relationships (species occurrence linked to practice). This usually lasts half a day and ends with a monitoring basis on maximum three plots per farm, which represents the core of the educational training. The first visit of the farm is currently done by about 10 experts from the ÖKOTeam (private Institute for Zoology in Graz). Overall, there are 1000 plots that are monitored with a standardised survey, where at least one analysis is done every year. Indicator species are counted and reported, enabling farmers to see if species richness and diversity is stable. They can link the results to their management of the land. Many farmers also monitor other non-indicator species they are attached to, like swallows, enabling ecologist to make a qualitative analysis. For each farm, the farmer has access to the data collected (monitoring and management details) and they can see the differences from year to year and link it to their practice.

Various information events are organised in the different regions on specific themes, like insect-friendly mowing techniques. The results of the monitoring analysis in the regions are also shared in these events.

Per regions, there are 1-2 representative farmers ("Projektvertreter") who organise events on their farms and visit schools to raise awareness and educate other farmers and students. The programme is determined with the class teacher, and it often consists of two theoretical hours on biodiversity and agriculture followed by an excursion to a grassland, where species are determined and monitored. The project works regularly and intensively with 15 agricultural schools, and with other schools on an irregular basis.

In Austria, funding for farmers for the maintenance of extensive grassland is regulated through the Austrian rural development programme of the ministry of agriculture, regions and tourism (BMLRT, Bildungsmaßnahme – educational measure and Naturschutzmaßnahme – nature conservation measure - for the monitoring).

The project's success is linked to farmers' involvement and motivation to protect biodiversity. An objective is to continue the close cooperation between farmers and ecologists and expand the monitoring from grassland to fields, field margins, flower strips, and fallow fields, to demonstrating the purpose of such structures. The initiative evolves and is looking for alternative approaches to keep a close contact with the farmers and encourage them to report and collect data, which can sometimes be difficult and demands time and adequate funding.



Picture 2: (Left) Observations are made on the development of around 200 plant and 50 animal species on Austrian meadows and alpine pastures. Source: <https://www.biodiversitaetsmonitoring.at/wiesen-und-almen>. (Right) Newcomers get a complete free project folder with guides and species profiles of plants and animals observed in the project. Source: <https://www.biodiversitaetsmonitoring.at/neueinsteiger>.

WHAT CAN WE LEARN?

The educational project promotes farmers' endeavour to actively protect biodiversity and change or adapt practices to conserve different indicator species on the farms. The standardised process and follow-up requirement gives farmers a concrete acknowledgement of their engagement. Indeed, having stable indicator species numbers and monitoring specific species (emotional link to biodiversity) provides pride and a sense of accomplishment. Funding programmes exist for education to raise awareness on the topic of biodiversity which are important to implement good practices. The initiative also covers the education of agricultural students and future actors in the agricultural sector.



EDUCATION



MOVEMENT



PRACTICE



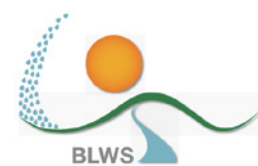
LIVING LAB



SCIENCE

INITIATIVE N°3 – BIOSCHULE SCHLÄGL

ORGANIC SCHOOL SCHLÄGL



BLWS
**BIOSCHULE
SCHLÄGL**

BIOSCHULE SCHLÄGL
<https://www.bioschule.at/>

The Bioschule Schlägl (organic school Schlägl) is located in Upper Austria in the Mühlviertel, and was created in 2002. Before, there was already an agricultural school since 1924. The school educates agricultural workers with a focus on organic farming. Additionally, 14-17 years old students and adults can also follow a curriculum. A specific teaching system was implemented based on the different seasons to link theory with practice. The knowledge is conveyed in different interdisciplinary modules, with the aim to give students a comprehensive overview of organic farming.

The Bioschule Schlägl is the only agricultural school, financed by the Upper Austria region, where the focus is solely on organic farming in Austria. However, a high school graduation at the school is not yet established.

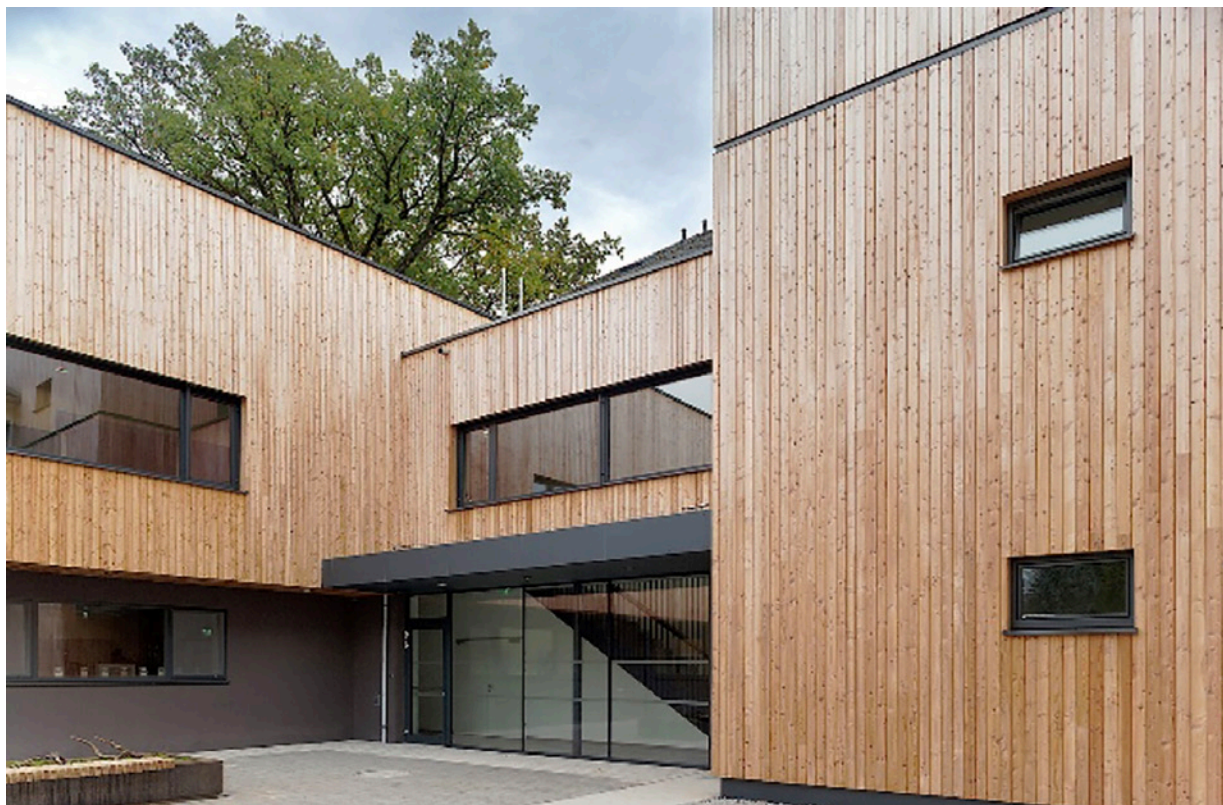
The school has about 180 to 200 students and about 23 permanent teachers which is strongly anchored in the region. The completion of the three years gives apprenticeship credits (which are equivalent to the first apprenticeship year). A third of the classes are practical and consist of group work and excursions in the region. The school has a few plots where experiments are conducted. Near the school there are 2 partner farms (Betrieb Mandel, Betrieb Höglinger) where practical training takes place. During holidays, students need to do a 14-day internship at an organic farm, while between the second and third year a three-month internship must be done (which can be at non-organic farm and outside of Austria). The training for adults consists of 500 hours with 140 hours of practice, distributed in a year. In the last decade, the demand and interest have highly increased, resulting in an expansion of the courses offered from only evening classes to additional day courses for adults. Around 60 to 90 adults are trained every year, which many come from different Austrian regions or from Germany and aim to change career.

At the school's experimental station (Biokompetenzzentrum), created in 2011 and run by the school and FiBL, different experiments take place to answer region specific questions, such as on grain breeding, corn cultivation in organic farms, and consequences of climate change. There are no specific lectures on organic farming or agroecology because it is a teaching principle and therefore integrated in every lecture. Ethical, economic, and social aspects as well as circularity are also addressed throughout the teaching modules.

The Bioschule is involved in the Interreg research and innovation project, aiming to develop and establish cross-border educational programme with the Kringell Ökoakademie (Bavaria, Germany), with the goal to offer diverse training opportunities in organic farming.

KEY FEATURES

- **Type of education and training:** training for agricultural workers
- **Main topic:** organic farming
- **Training duration:** 3 years (students) or 550 hours (adults)
- **Type of legal entity:** public school
- **Accessible to:** students (14-17 years old) and adults



Picture 3: The entrance of the organic school Schlägl. Source: Bioschule Schlägl.

WHAT CAN WE LEARN?

The Bioschool Schlägl provides a transdisciplinary education in organic farming and is currently the only school in Austria solely focusing on organic farming. The school is not only training 14-17 year-olds to become agricultural skilled workers, but adults can also follow a specific training. Action learning is a key characteristic of the educational programme.



LIVING LAB



SCIENCE



PRACTICE



MOVEMENT



EDUCATION



INITIATIVE N°4 – GRAND FARM

GRAND FARM

Innovation • Forschung • Demonstration

<https://grandfarm.at>

GRAND FARM

The Grand Farm is located in eastern Austria (about 40 km NW from Vienna) and run by the Grand family for generations. 6 people are employed on the farm (4 full labour equivalents) and 1-3 interns are working during the growing season.

Since 2006, it is certified organic and no ploughing has been implemented in the last 25 years. In 2018, the Grand Farm became a demonstration farm, with tight cooperation between science and research institutes. Through its engagement and targets, this initiative contributes to 11 of the 17 SDGs, with main goal is to search for sustainable solutions and a systemic approach, considering for example diversity and yield jointly.

KEY FEATURES

- **Main topics:** agroecological practices and production
- **Founded in:** 2018
- **Type of organisation supporting the living lab:** farm
- **Type of actors involved:** farmers and scientists
- **Scale of the living lab:** regional

Three main themes are studied at the Grand Farm:

1. Soil health – Trial and evaluation of different measures that promote soil health are executed. Experiments are carried out with the focus on reduced tillage and no-till, crop rotation, greening management and seed mixtures.
2. Agroforestry – Over 5000 trees and bushes were planted to serve as hedges, with two main purposes, protecting the climate by actively capturing CO₂ and slowing the effect of wind hence, it reduces the evaporation in adjacent fields. It is also a habitat for important biodiversity and provides goods (wood, fruits, etc.).
3. Market gardening – The “Grand Garten” of 1 ha, where no tractors are used, aims to produce organic vegetables for the region (vegetable boxes and gastronomy). Further aspects include the contribution to climate mitigation and adaptation, the increase of species diversity (nesting possibility and food provisioning for insects, birds, bats), and the cultivation of rare vegetables and ancient species.

The Grand Farm is currently involved in three different researches or training projects:

- trAEce (<https://traece.eu/>), is aiming to provide agroecological vocational training for farmers,
- BEST4SOIL (<https://www.best4soil.eu/>), a network of practitioners to share knowledge on prevention and reduction of soil borne diseases.
- The global network of lighthouse farms (<https://www.lighthousefarmnetwork.com/>), is aiming to produce sustainably and render ecosystem services.

The concept of agroecology (and organic farming) is implemented at the Grand Farm. The agroecological principles of soil health, input reduction, economic diversification, synergy and co-creation of knowledge, connectivity and participation are followed.

The initiative is considered as a living lab as it integrates different on-farm trials, horizontal sharing of knowledge with farmers in the region and the different networks it is involved in. The Grand farm aims to demonstrate the feasibility of agroecology, the economic benefits, and share this knowledge to convince farmers to transition towards sustainable production and marketing.



Picture 4: Sharing of knowledge and demonstration with farmers in the region (left) buckwheat field (right). Source: Alfred Grand, GRAND Farm (Austria).

WHAT CAN WE LEARN?

The Grand Farm is exemplary on multiple levels. It is following many agroecological principles which include not only the sustainable production of food, but also social aspects like knowledge sharing and encouraging participation of farmers. The systemic approach is central to the development of the farm. The close connections to different European projects linking scientists and farmers show the motivation to innovate, change practices, and share experiences.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

The Grand farm has been implementing many agroecological practices (no ploughing, agroforestry, organic fertilisation...) and aims to protect biodiversity.



SUSTAINABLE AND FAIR ECONOMICS:

The initiative helps the local economy of the region, by providing job opportunities. The farm is economically profitable through its different income sources.



TRADITIONAL FOOD AND HERITAGE CONSERVATION:

In the Grand Garden, traditional and rare vegetables are cultivated. Promoting local knowledge is an important motivation for the farmer.



LIVING LAB



SCIENCE



PRACTICE



MOVEMENT



EDUCATION


<https://www.ages.at/umwelt/boden>

INITIATIVE N°5 – LONG-TERM ECOLOGICAL RESEARCH-AGES

LONG-TERM ECOLOGICAL RESEARCH-AGES

The **long-term ecological research (LTER)** done by the Austrian Agency for Health and Food Safety (AGES) involves scientists and farmers in different standardised field management experiments. The AGES was founded in 2002 and owned by the state of Austria. It aims to guarantee food safety, food security, and consumer protection.

Many different experiments are conducted under the agroecology topic regarding soil protection, groundwater protection, maintaining biodiversity, sustainable plant production, plant protection and animal feeding, and climate protection and adaptation. Current experiments are on the comparison of standard management in a field with improved management, for example mineral fertilisation and organic fertilisation (with different composts) and its effects on soil chemical, physical and biological properties (e.g., pH value and nutrient level measures). The impact on yield is also analysed in those experiments. The long-term use of compost was shown to improve yield and humus content (Kurzemann et al. 2020).

The AGES has experimental stations all over Austria (in upper Austria, lower Austria, Kärnten, Styria, Alpenvorland, Marchfeld) where regular field days are held to explain and show results. The involvement of farmers is considered as indispensable for innovating and implementing adapted practices.

Three (Rottenhaus/Grabenegg, Fuchsenbigl, Lysimeter Station AGES VIENNA) of the 38 LTER Sites (Mirtl 2010) listed by the Austrian Long-Term Ecosystem Research Network, are managed by the AGES. The LTER-Austria focuses on three research areas: process-oriented ecosystem research, biodiversity and nature conservation research and socio-ecological research.

The AGES is part of the b5-corporate soil competence network (<https://www.ages.at/en/topics/environment/soil/partner-und-netzwerke/b5-corporate-soil-competence>), a consortium of five institutions linking experts in soil science, protection and analytics. The AGES is a partner in the MINAGRIS project (<https://www.minagris.eu/>) aiming to assess the impact of micro plastic in agricultural soils.

KEY FEATURES

- **Main topic:** agroecological practice
- **Founded in:** 2002
- **Type of organisation supporting the living lab:** research infrastructure and living lab
- **Type of actors involved:** scientists and farmers
- **Scale of the living lab:** national



Picture 5: Soil sample shown by participant. Copyright reserved.



Picture 6: Illustration of planting by participant. Source: Karolina Grabowska - <https://www.pexels.com>.

WHAT CAN WE LEARN?

The AGES does long term ecological experiments to collect a variety of data on different practices all over Austria. The experiments are focusing on many different topics related to agroecology and giving insights on the effects of different practices on biodiversity and soil health.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

The initiative tests different techniques that favour soil protection, promote efficient water management, maintaining biodiversity, sustainable plant production, plant protection and animal feeding, and climate protection and adaptation.

LIMITATIONS & CHALLENGES



COOPERATION: There is limited co-design with the farmers in the experiments.



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE



EDUCATION



VEREIN zur Nutzung von Ungenutztem

<http://feld-verein.at/>

INITIATIVE N°6 – FELD

FELD – VEREIN ZUR NUTZUNG VON UNGENUTZTEM

The association feld aims to reduce food waste by transforming unsold vegetables (literal translation: association to use the unused). Around 30 members from civil society are involved in the association created in 2014 in Innsbruck. The association started with the aim to deal with the general topic of unused resources, the focus on vegetables was coincidental and linked to early and easy contact with vegetable producers around Innsbruck. Two years ago, the cooperative 'feld:schafft' was created and is in charge of catering and educational projects. The cooperative consists of 20 long-term members, such as the association feld and the Lebenshilfe (an association that stands up for the interests of people with intellectual disabilities or with learning difficulties).

KEY FEATURES

- **Main goal:** reduce food waste
- **Founded in:** 2014
- **Type of organisation:** association
- **Farming sectors:** market gardening
- **Scale of the organisation:** local

The vegetables come currently from 5-6 cooperating farmers, private gardeners, and community gardens. A cooperation with the city has been established to harvest fruit trees, while a contract with a supermarket provides other food sources. Every 1-2 month 60-80 kg of vegetables are picked up and transformed to food. A key purpose is to reduce waste not just at the production level but also after the transformation of products. All the products sold by feld are packaged in reusable glass containers or delivered in the cooking pot. The initiative follows a zero waste objective. Material needed for transportation are built and tinkered to avoid buying new one. In the city, food is transported with cargo bikes and trailers. The initiative does not receive regular subsidies, but the cooperative received funding for specific projects from the city (education projects and rebuilding the kitchen). The transformed products, the catering, and soup production are sold in a shop at prices that compensate the production and permits to give a part-time salary to 4 people.

In addition, education programmes have been developed for schools adapted to the student (ages 7-10, 11-14, and >14). It usually consists of excursions and coupled project hours, mainly on food supply, field diversity, from field to kitchen, seasonality, vegetable origins, and food waste.

The initiative contributes to agroecology in different ways: it aspires to fully use what is produced, to deviate from norms and quality standards, and to promote real quality (e.g. it does not make any sense to throw away a split carrot). The initiative has a comprehensive practical approach, where food, the person who produced and transformed it, and the soil is fully appreciated. The initiative is connected to other initiatives in Tirol and Austria, who are also working on reducing waste. It is also increasingly recognised by stakeholders in universities, chambers of agriculture and closely linked to the food policy council Innsbruck.

Feld aims to continue its work locally, as all of their actions remain in a diameter of 20 km, and help another similar initiatives to emerge and become successful.



Picture 7: The pictures show examples of the diversity of carrots (variety and form), used by feld to raise awareness. Reducing food waste means not throwing away edible food just because it deviates from the set standard. Source: feld-Verein.

WHAT CAN WE LEARN?

Feld aims to transform the food system by giving a second life to food that would otherwise be thrown away. Raising awareness through actions and education projects is another objective of the initiative. Through its engagement, the association shows that there are many possibilities to reduce waste and appreciate food while rightly considering the value of nature and every person involved in the food chain.

POSITIVE IMPACTS



ENERGY AND WASTE MANAGEMENT:

The initiative is devoted to the reduction of food waste and more generally to the use of unused resources, and to transform in different types of food (soup, chutneys,...).



COOPERATION:

Through its engagement, the association with other organisations, have convinced the state of Tirol to create a coordinator position working on nutrition. This represents a real success and is essential to have a global approach and change the current food system. The association is helping other initiatives to develop.



EDUCATION:

The cooperative feld:schafft is organising courses in different schools including excursions, raising awareness and food appreciation. The initiative is also convincing farmers that their complete production has value, spoiled or vegetables outside the norms have a nutritious value.

LIMITATIONS & CHALLENGES



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

The initiative does not specifically promote agroecological practices like improving soil fertility for example. The association members are aware that their action do not favour a more sustainable practice at the field level.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE:

The lack of funding represents a clear limit, indeed the initiatives is doing an essential work is not enough recognised and does not fit criteria to get subsidy or other funding. The impact and amount of food transformed depends on financial means.



MOVEMENT



EDUCATION



PRACTICE



LIVING LAB



SCIENCE



ARCHE NOAH

<https://www.arche-noah.at/>

INITIATIVE N°7 – ARCHE NOAH

ARCHE NOAH

ARCHE NOAH is a non-profit association for the preservation and further development of crop diversity. The organisation was created in 1989, has about 17 000 members (mainly in Austria and some in other countries), and around 40 employees. ARCHE NOAH has an organic seed collection consisting of cultivated plants, comprising 5500 varieties. It is one of the largest private collections in Europe. Their aim is to make organic seeds obtainable for farmers especially the ones that are not available in the European seed market anymore. The seeds are sold all over the world. They work with different companies and partner farms to get the diversity of cultivated plants back into the breadth.

The association has a political department focusing on the framework for crop diversity, they are actively committed to change laws and patent practices. A success was the rejection of the new EU seed law in 2014, which would have “threatened the survival of local varieties, ignore consumers’ freedom of choice, and advanced the interests of agribusiness”. ARCHE NOAH also organises international workshops on seed policy.

A wide range of educational opportunities such as workshops, courses, and lectures are proposed by the initiative on different themes from urban gardening and self-sufficiency to advanced training on plant breeding. The educational aspects are key to share knowledge on the diversity of cultivated plants.

ARCHE NOAH is financed by the membership fees, donations, sales of seeds and plants, and funding from specific projects. The association is currently involved in the LEADER (vegetable rarities) project from the Kamptal, in Schiltern, for advocating diverse vegetable cultivation, regional marketing, and seed sovereignty in the Kamptal region. Together with producers and restaurant owners, they are working on sustainable and diverse vegetable growing with short supply chains. Another current project is participative plant breeding of tomatoes (Bauernparadeiser-Projekt): farmers are breeding adapted varieties prioritising taste and plant health.

The association is well connected to similar initiatives; they have been working very closely with ProSpezieRara in the last decades. They are collaborating with different gene banks, BioAustria, BOKU, and the horticultural school in Schönbrunn (HBLFA) on many projects.

KEY FEATURES

- **Main goal:** preservation of seed diversity
- **Founded in:** 1989
- **Type of organisation:** non-profit association
- **Farming sectors:** market gardening – mainly vegetables seeds
- **Scale of the organisation:** national and international



Picture 8: “Fruits of diversity” (left) – Source: ARCHE NOAH Früchte der Vielfalt; “Diversity of beans” (right) – Source: ARCHE NOAH Bohnenvielfalt.

WHAT CAN WE LEARN?

The ARCHE NOAH aims to preserve vegetable crop diversity by collecting traditional and rare crops or crop variety seeds and making them available to farmers and civil society. The initiative is over 30 years old and has been successful in influencing different political decisions and to ensure that seeds remain available to all. The ARCHE NOAH also provides education opportunities on many different topics related to agroecology.

POSITIVE IMPACTS



HEALTH: The initiative produces and sells organic certified seeds.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: ARCHE NOAH promotes the breeding of traditional and rare crops and crop variety seeds. Through the large seed collections, seeds are made available to everyone.



EDUCATION: Training and accompaniment is an important part of the initiative's objectives. This is done through a series of workshops and lectures on agroecology related topics.

LIMITATIONS & CHALLENGES



GOVERNANCE: An external challenge remains the European regulations on seeds (selling non-classified seeds) and the important influence of the agri-business lobby for patents.



MOVEMENT



EDUCATION



PRACTICE



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SCIENCE

INITIATIVE N°8 – VIENNA FOOD POLICY COUNCIL

VIENNA FOOD POLICY COUNCIL



Ernährungsrat Wien

<https://ernaehrungsrat-wien.at/>

The Ernährungsrat Wien (Vienna Food Policy Council, Vienna FPC) aims to connect, understand, and change the Viennese food system. Their motto is “networking-understanding-changing”. The civil society platform was created in 2018 with around 40 active members.

The initiative wants to relocalise the food system, not just in terms of promoting local food production but also bringing decision making processes to the citizens of Vienna. For this, the initiative is in constant dialogue with the city and political representatives, as policies are often fragmented and do not consider the food system as a whole from production to waste management and health. The members are all volunteers and governance is based on sociocratic principles, meaning that everyone can express their ideas and opinions on specific proposals and decisions are taken in groups.

The Vienna FPC has four different working groups on urban agriculture and spatial planning, alternative market chains, public food procurement, and nutritional awareness-raising and education. Current projects are the development of a food strategy with the environmental department of the city of Vienna. Another project that opened in September 2021 is a 0.35 ha field (called WeltTellerFeld) representing the yearly food consumption per person, with different areas showing the necessary arable land and pasture needed to produce all based food products. This field will give citizens a concrete sense of where their food comes from and what is needed for the production of the food (e.g. on the working conditions or necessity of pollinators). At the heart of the initiative is the idea to consider the food system as a whole, and understand the interconnectedness of every part of the system. Through their action, the members of the Vienna FPC aim to involve all relevant stakeholders from the production, processing, consumption, and disposal of food. Social and cultural norms as well as the environment are recognised as integral parts of this system. This approach is not necessarily labelled as agroecology by the initiative, but it is definitely in complete agreement with its worldview.

Specific projects are getting funded by the city. The commitment of the volunteers makes the work of the Vienna FPC possible. The initiative is actively working to get long-term financing. The Vienna Food Policy Council takes part in annual meetings of all German-speaking (Austria, Germany, and Switzerland) food councils. This event permits the exchange of ideas and sharing of experiences. A lot of initiatives exist in Vienna, therefore, to avoid starting new projects in parallel to other initiatives, collaboration and networking is a major objective for the Vienna FPC. The initiative has well established connections to institutions and organisations as its members have relations to different institutions and organisations like the FiBL and FIAN.

KEY FEATURES

- **Main goal:** democratisation and relocalisation of Viennese food system
- **Founded in:** 2018
- **Type of organisation:** association
- **Farming sectors:** all
- **Scale of the organisation:** local



Picture 9: Members of the Vienna Food Policy Council (left) and the Vienna FPC and cooperation partners present the WeltTellerFeld at a first public event (right). Source: WeltTellerFeld.

WHAT CAN WE LEARN?

This initiative is a civil society platform aiming to design and promote a sustainable food system for Vienna, thereby creating a socially just as well as an ecological resilient food system. An important aspect is the participative objective of the initiative, bringing citizens together to (re)-design the food system. All parts of the food system are considered and the food council intends to be inclusive.

POSITIVE IMPACTS



GOVERNANCE: The main approach of the Vienna FPCs is to involve citizens and create links with all actors of the food chain. This is done through different projects with the aim to design a resilient food system.



EDUCATION: Education is key to raise awareness, the initiative is regularly invited to events and has a working group on the topic. The “WeltTellerFeld” project is a good example on the food councils approach, providing information to everyone.

LIMITATIONS & CHALLENGES



COOPERATION: A challenge for the initiative is to reach out to more citizens and local producers and farmers. Most members of the food council have an academic background and don't have many direct contacts to farmers. Another limit is that farmers often don't have the time to go into the city to discuss and collaborate on projects. The initiative is working to diversify its members and cooperate more with local producers. The cooperation with political representative can also be challenging and demands a lot of time and knowledge on how to best approach which actors.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: The Vienna FPC aims to create a fair food system, where food is sustainable, healthy and easy to access. In order to achieve this goal, funding is necessary, for the moment all members are doing voluntary work and only specific projects get funded by the city or other organisations. A better recognition of the initiative's values by the city could lead to the creation of a full-time position (or more) and considerably increase the positive impacts.



PRACTICE



EDUCATION



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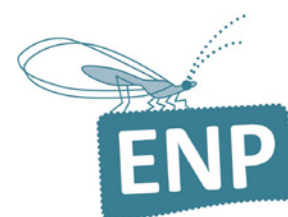
SCIENCE



MOVEMENT

INITIATIVE N°9 – ENP

ENP – RESULT-ORIENTED NATURE CONSERVATION PLANNING



ERGEBNISORIENTIERTER
NATURSCHUTZPLAN
[http://www.suske.at/projekte/
alle-projekte/ergebnisorientierter-
vertragsnaturschutz](http://www.suske.at/projekte/alle-projekte/ergebnisorientierter-vertragsnaturschutz)

The 'Ergebnisorientierter Naturschutzplan' (ENP - result-oriented nature conservation planning) is an agri-environmental measure giving farmers the possibility to determine their own conservation actions to achieve specific results regarding biodiversity and nature conservation. This result-oriented approach changes from the usual list of strict measures that are subsidised (action-oriented approach). In 2012-2013 a first pilot project with 15 farmers was tested to see how this approach works and determine the indicators and criteria that were relevant. This permitted the creation of the measure to be integrated in the nature conservation measure of the ÖPUL (AgrarMarkt Austria 2015) starting from 2015. The project executing organisation is a nature conservation private office called Suske Consulting.

The concrete goals, like creating nesting places for certain species, are established by an advisor together with the farmer in a first site inspection step. Then specific control criteria are explained, enabling the farmer to link their practice to the expected result (e.g. occurrence of a specific plant linked to late mowing or reduced mowing frequency). These criteria are then controlled like any measure by an inspection service (AMA in Austria). In the current phase, 150 farmers take part in the ENP. The area specificities are included in the criteria, however, certain regions have specific environmental goals or management instructions for biodiversity and habitat conservation.

The initiative works at the interface of agriculture and ecology and aims to adapt agri-environmental measures, however the word agroecology is not really used. An essential part of the project is networking meetings, where farmers can exchange their experiences and learn from others. A future objective is to increase the number of farmers participating and also to consider soil and climate protection as specific goals. The new version of the measure is being worked out, by BOKU researchers, the chamber of agriculture of lower Austria and Suske Consulting, and should be integrated in the next subsidy period. The initial criteria were determined in the first pilot phase in a learning-by-doing process, with the accumulated experience can be more standardised and regrouped to help advisors. A web application will also be developed allowing farmers to write down their observations and take pictures in the field to facilitate the whole monitoring process.

KEY FEATURES

- **Agroecological practices concerned:** not specific
- **Founded in:** 2012
- **Leading organisation:** Suske Consulting (project funded by EU and the Austrian state)
- **Farming sectors concerned:** grassland and arable land
- **Number of stakeholder involved:** 150 farmers and 12 advisors
- **Scale of the initiative:** national



Picture 10: “Heupferd” (left) Source: Katharina Bergmüller; ENP-farmer and advisor (right) Source: Barbara Depisch.

WHAT CAN WE LEARN?

Instead of the fixed maintenance and management requirements found in most agri-environmental measures, the result-oriented approach permits farmers to choose their own management to reach defined goals and results. Thus, responsibility and flexibility is given back to farmers. Every farmer learns about their specific field and farm characteristics, and multiple criteria are determined and monitored to give an indication when the target is achieved. This approach has been successful as its flexible premise permits adapted management plans, which is not only attractive to farmers but also promotes innovative practices that help conserving biodiversity and protecting the environment.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Through its result oriented approach, the initiative promotes the implementation of agroecological practices, favouring biodiversity conservation and protection of the environment.



COOPERATION: The measure is only feasible with the cooperation of farmers and since its beginning has been tested and adapted, making it an attractive measure. Scientists, advisors and farmers work together to provide an improved measure that will be integrated in the next ÖPUL.

LIMITATIONS & CHALLENGES

A general limitation with result-oriented measure is that farmers are not remunerated if results are not achieved, for the reasons that farmers are not responsible for (e.g. weather conditions, pest outbreaks).

5. CONCLUSION AND FUTURE PERSPECTIVE

Despite the word agroecology being rarely named by different stakeholders in Austria, agroecology has been implemented since many years and many different initiatives already exist. The concept of agroecology is closely related to the principles of organic agriculture that are well recognised in Austria, as well as the strong and longer history of organic agriculture in the country. This report gives a non-exhaustive overview of the current state of agroecology, highlighting a selection of initiatives and examples.

Key informants identified different barriers for the development of agroecology. Economic barriers were the first and most mentioned barrier, especially the fact that externalities are not taken into account in the food prices and farmers are not remunerated fairly. Alternative agricultural practices are well accepted and implemented in Austria, when considering the high number of organic farmers compared to other European countries. Current policies were also mentioned as barrier and the influence of agri-businesses on these policies. The ÖPUL was considered by all key informants as a programme promoting agroecology. The third type of barrier is linked to the awareness and education of civil society (and farmers). Some key informants also believed that the biggest barrier is the land use, as it becomes more and more profitable to use the land for energy production instead of food production and land pressure on agricultural land is rising because of urbanisation and artificialisation.

Overcoming these barriers and the current trend of consumers asking for local and sustainable products, accentuated during the COVID-19 pandemic, represent good opportunities to further develop agroecology in Austria. More and more people are aware of the climate change threat and the loss of biodiversity, indicated by a change of consumption habits of some consumers and a readiness to support (organic) farmers. A few ideas for the development of agroecology were raised by key informants, starting with the improvement of the image of agriculture, reconnecting consumers to producers and the need to demonstrate the economic viability of agroecology. A key informant was adamant about the risk to develop agroecology in parallel to organic agriculture, instead of continuing to develop and better organic farming. These two concepts are compatible (Migliorini and Wezel 2017) and at least in Austria, where organic farming has been well established, organic agriculture is still understood as a systemic approach going beyond regulations and prescribed practices.

The different initiatives presented here have different scales and specific aims, which also explain their positive impacts and limitations. All are working towards either sharing knowledge or educating farmers and civil society on topics related to agroecology (organic farming, permaculture, biodiversity conservation, seed preservation, and food waste). Overall, these initiatives are over three years old, active in many networks, linking different stakeholders, and will probably continue to inspire others and contribute to transforming the current food system.

ABBREVIATION

AGES: Austrian Agency for Health and Food Safety, Agentur für Gesundheit und Ernährungssicherheit
 BMLRT: Ministry of agriculture, regions and tourism, Bundesministerium für Landwirtschaft, Regionen und Tourismus
 BOKU: University of Life Science, Universität für Bodenkultur
 FiBL: Research Institute of Organic Agriculture, Forschungsinstitut für biologischen Landbau
 FIAN: FoodFirst Information and Action Network
 ÖKL: Austrian board of trustees for agricultural engineering and rural development, Österreichisches Kuratorium für Landtechnik und Landentwicklung
 ÖPUL: Austrian programme for environmentally friendly agriculture, Österreichisches Programm für Umweltgerechte Landwirtschaft

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MAPPING AGROECOLOGY IN

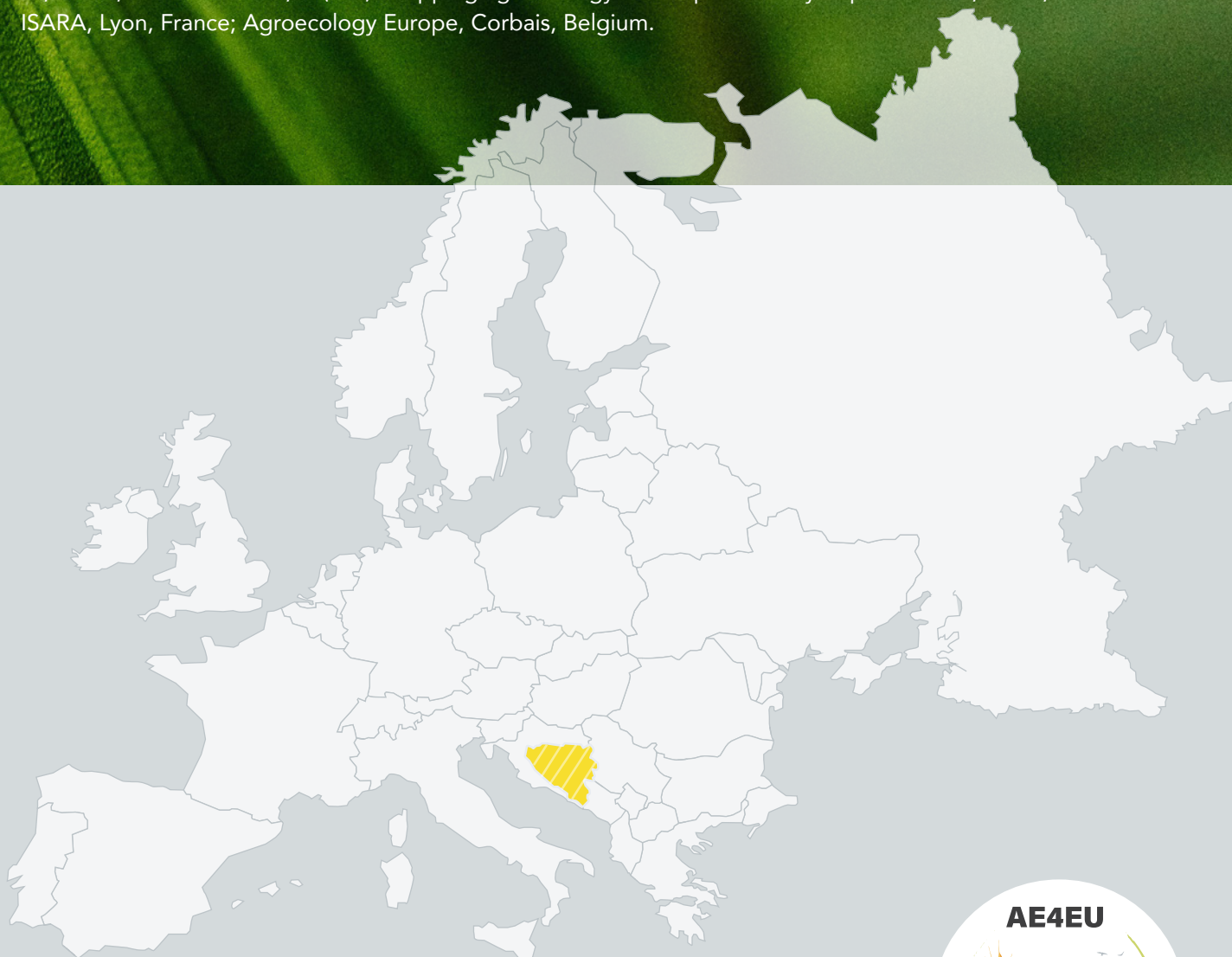
BOSNIA AND HERZEGOVINA

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BOSNIA AND HERZEGOVINA

EXECUTIVE SUMMARY

Agroecology has a weak presence in Bosnia and Herzegovina (BiH) across all sectors and is a largely unrecognised concept. Nevertheless, the current study demonstrates how many sectors are dealing with various issues that could be viewed as forming a basis for the future emergence of agroecology on different levels from farm to policy. Those issues include organic farming, environmental protections, direct relationships between producer and consumer, circular economies, fair economic practices, and social inclusion.

This report focuses on describing the context of agroecology in BiH, and highlights the positive impacts, limitations and challenges of a number of promising initiatives that relate to key agroecological principles and concerns. Those initiatives include two innovative ecological farms – a 70-person collective with aims to develop the first fully organic village in BiH and a small family farm rooted in permaculture and aspiring to a community-supported model. Other examples presented are an international NGO influencing national-level policy and engaging in farmer training especially in organic practices, natural resource protection and efficient energy use; a local business offering community education in ecological beekeeping; a vocational high school providing basic courses in agroecology; and two universities engaged in the science of environmentally-friendly agriculture.

Further initiatives include a community resource centre focused on permaculture, and a local association dedicated to maintaining the country's only crowd-sourced heirloom seed bank. Much development regarding agroecology as a concept and practice is needed for BiH – a highly rural country with a fragmented political system and struggling economy, both of which combined are perceived as the main barriers to progress, not only in agroecology.

BOSNIA AND HERZEGOVINA

EXECUTIVE SUMMARY (IN BOSNIAN/CROATIAN/SERBIAN)

Agroekologija je slabo prisutna u Bosni i Hercegovini (BiH) u svim sektorima i uglavnom je slabo poznat koncept. Ipak, ovaj izvještaj pokazuje koliko se sektora bavi različitim pitanjima koja se mogu smatrati osnovom za budući razvoj agroekologije na različitim nivoima, od poljoprivrednih imanja do razvoja zakonodavstva i strategija. Ta pitanja uključuju organsku poljoprivredu, zaštitu životne sredine, direktne veze između proizvođača i potrošača, cirkularnu (kružnu) ekonomiju, pravedne ekonomske prakse i socijalnu uključenost.

Ovaj izvještaj se fokusira na opisivanje stanja agroekologije u BiH, te naglašava pozitivne uticaje, prepreke i izazove koji se nalaze pred nizom obećavajućih inicijativa koje su u vezi sa ključnim agroekološkim principima i problemima. Te inicijative uključuju dvije revolucionarne ekološke farme – kolektiv od 70 ljudi koji ima za cilj razvoj prvog potpuno organskog sela u BiH, te malu porodičnu farmu koja je ukorijenjena u permakulturi i koja teži modelu koji se temelji na konceptu uvezane zajednice.






Drugi predstavljeni primjeri su: međunarodna nevladina organizacija koja utiče na zakonodavstvo i strategije na nacionalnom nivou i koja se bavi obukom farmera, posebno u oblasti organske poljoprivrede, zaštite prirodnih resursa i efikasnog korištenja energije; lokalni biznis koji nudi obrazovanje u ekološkom pčelarstvu; srednja stručna škola sa osnovnim predmetima iz agroekologije; dva univerziteta koji se bave naukom o ekološki prihvatljivoj poljoprivredi. Druge inicijative uključuju resursni centar fokusiran na permakulturu i lokalno udruženje posvećeno održavanju jedine banke starih sorti sjemena u zemlji.

Potrebno je još puno rada na razvoju agroekologije kao koncepta i prakse u BiH, izrazito ruralnoj zemlji sa kompleksnim političkim sistemom i nestabilnom ekonomijom - dva faktora koji se percipiraju kao glavne prepreke napretku, ne samo u agroekologiji.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Bosnia and Herzegovina are summarised in Table 1.

Table 1: List of key informants in Bosnia and Herzegovina.

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED	
1	NGO	Sustainable rural development		
2	NGO	Permaculture design, education, and community-building		
3	Agriculture Ministry	Agricultural governance		

2. CONTEXT

The political and geographical structure of Bosnia and Herzegovina (BiH) plays a role in the way agroecology, along with agriculture and environmental policy has developed, and are important to take into consideration in this analysis. The country's structure is deeply fragmented and thus often functions inefficiently. There are four tiers of governance: the state, entity, canton, and municipal levels. The two entities, "Republika Srpska" (RS) and the "Federation of Bosnia and Herzegovina" (FBiH), are often working at counter-purposes due to fundamental political differences. They respectively represent 49% and 51 % of the country's surface. In 1999, a small separate autonomous district was created: the "Brčko District" (BD). It has many autonomous features similar to RS and FBiH³², further complicating the country's governance. The two entities plus BD often maintain separate statistics, and depending on how the statistics have been integrated may sometimes require separate figures and descriptions for an accurate picture of agriculture in the country.

Rural areas are dominant across BiH, covering 85% of the territory of FBiH, 95% of RS, and 95% of BD, with agriculture being the major activity in them (FAO 2021; Puška et al. 2021). There are 57,943 registered farms in FBiH covering 93,095 ha, of which 54,600 are family farms. In RS there are 25,005 farms, covering 129,137 ha, with 24,504 family farms. In BD, there are 3,107 farms (FAO 2021). It can be assumed, based on the trend from the other territories that the majority of farms in BD are family-run as well. The average size of family farms across BiH is 2 ha (50%), and 80% of farms in the country are less than 5 ha (FAO 2021).

The rural areas of BiH are described as having weak social and economic infrastructure, with a deficiency of employment opportunities, while also suffering from outmigration and brain drain. Agriculture does play an important role in the overall economy of each entity, with its share

³² <https://portal.cor.europa.eu/divisionpowers/Pages/Bosnia-Herzegovina.aspx>

in GDP being 5.1% in FBiH, 10% in RS, and 7.5% in BD (FAO 2021). 17.9% of the population (147,000 people) were employed in the sector across the country in 2015 (Mujčinović et al. 2017), but this probably does not include those working in the informal economy. More than half of rural households are engaged in agriculture production on some level. However, less than 10% of them earn revenue from their agricultural production, with over 90% producing food primarily for their own needs (FAO 2021). The structure of farms is often divided across several parcels that are frequently distant from each other. Most of these family farms are mixed production, focusing on securing various household food requirements.

On the one hand, the size and production model of family farms in BiH present challenges for market-oriented specialisation and classical models of economic development, which has prompted various modernisation strategies by the government and international NGOs to make the country more competitive (BIH-KI-1). The fact that most farms contribute to rural livelihoods may be perceived differently when viewed through the lens of agroecology, and may offer other opportunities within and outside market-oriented development models.

Though agroecology may theoretically have potential in this highly rural country, where most farms are small-scale and mixed production, there is hardly any related literature in BiH. One of the only existing scientific publications on this topic suggests that awareness about agroecology as a term is hardly recognised, and that its practical realisation is likewise almost non-existent (Šeremešić et al. 2021). The literature also suggests that agroecology sometimes may have negative associations in the country. This was also a point mentioned by a key informant in an interview, who noted that the term "agroecology" may be viewed negatively in BiH insofar as it may be associated with peasant lifestyles or subsistence, i.e., the antithesis of what is popularly considered modern and developed (BIH-KI-1, Table 1). Likewise, another key informant noted that the economic uncertainty faced by the rural households may discourage experimentation and the uptake of new or alternative models of production, unless they are perceived as strongly proven by successful practical examples (BIH-KI-1, Table 1; Initiative Informant later cite as "II" - II-4, 9 & 10, 2021).

Local/municipal associations, such as producer associations and cooperatives, dedicated to utilising principles which could be said to intersect with agroecological values (e.g., organic/chemical free farming, GMO-free production and local crop varieties) are present even if limited, according to some of the interviewees (II-06; II-09; II-10). However, the impact of their activities is unknown, and appears to be limited mostly to the direct exchange of information among members, and the organisation of talks/workshops featuring external speakers (II-09; II-06). In the Strategic Plan for Rural Development in Bosnia and Herzegovina³³ agroecology is not mentioned, and there is a significant variety of environmental viewpoints between the members who developed the plan (II-06).

BiH is at the same time facing a phenomena of heavy rural outmigration since the 1990s. This may further hinder the development of agroecological practices in the country. The ageing of the remaining rural population also has a negative impact on the possibility of uptake of agroecology (Šeremešić et al. 2021). However, both RS and FBiH, sometimes in cooperation with international NGOs like UNDP³⁴ and FAO, have implemented a number of initiatives that intersect with the key ideas of agroecology, even if the term "agroecology" is hardly ever used. Those initiatives are working to create policies and practices for the agricultural sector through

³³ http://www.mvteo.gov.ba/data/Home/Dokumenti/Poljoprivreda/Strategic_Plan_for_Rural_Development_of_BiHEng.pdf

³⁴ <https://www.undp.org/>

environmental protection and land conservation measures, short value chain support, investment in green business practices, and the preservation of local genetic material (Šeremešić et al. 2021; BIH-KI-1, Table 1; II-4).

The small number of market-oriented farms, relative to the number of family farms in BiH, appears to be the priority concern driving national agricultural activities aimed at improving the efficiency, business models, and production of farms in the country, with UNDP and FAO leading the charge in that area. In some cases, that priority also intersects with environmental issues (II-4). Other associations are also active in the country such as the Slow Food movement. Slow Food's presence in BiH focuses on its "Ark of Taste initiative"³⁵ – an international registry of endangered heritage foods which are "sustainably produced, unique in taste, and part of a distinct ecoregion". There are 23 Ark of Taste products listed for Bosnia and Herzegovina. Farms in BiH are also part of World Wide Opportunities on Organic Farms³⁶ (WWOOF), which links global volunteers with organic farmers for cultural and educational exchanges, and aims to "build a global community conscious of ecological farming and sustainability practices." There are five farm sites registered on WWOOF BiH accepting volunteers. The presence of organic agriculture and exchange on slow food and sustainable farming is relatively modest in BiH, but it does exist, and intersects with agroecological elements.

Despite the lack of widespread recognition of agroecology across sectors in Bosnian-Herzegovinian society, the concept has existed at an academic level since 1983 at least, first mentioned in the university textbook "Opće ratarstvo" ("General Agronomy"; Šeremešić et al. 2021). The author of the textbook also initiated a graduate-level course which covered the principles of agroecology. Currently different courses related to agroecology are offered in several agriculture faculties in BiH (Šeremešić et al. 2021).

Organic farming in concept and practice has more widespread recognition in BiH than agroecology, according to the literature and interviewees (Šeremešić et al. 2021; BIH-KI-1, Table 1; II-1). Furthermore, different initiatives described in this report, even if they align with values and principles that intersect with agroecology, did not define themselves as agroecological *per se* (II-06; II-10). Instead, "sustainable", "ecological" and "organic" were the most mentioned terms. 1,273 ha in BiH were under organic agricultural production as of 2019, representing 0.1% of total farmland in the country, farmed by 304 organic producers, which is low in comparison with neighbouring countries in the Western Balkan region (e.g., Serbia, Croatia, Slovenia) and in most EU countries overall (Lernoud and Willer 2019). However, the number of hectares under organic production has grown by 271% since 2011, when only 343 ha were reported as being under organic production (Mujčinović et al. 2017). Meanwhile, as of 2011, another 78,550 ha of land was utilised for the wild harvesting of medicinal plants, berries, other fruits, and mushrooms. Most organic farmers in BiH sell around 75% of their products on the domestic market (Mujčinović et al. 2017). There are two organic producer associations, each corresponding to the entity level, and both relatively new. The Organic Producers Association of the FBiH exists since 2019 and gathers 2,000 agricultural producers (Šeremešić et al. 2021). The Association of Organic Producers and Processors in the RS has existed since 2015, and appears to have at least 50 certified producers. Acting across entity levels is the Centre for Economic and Rural Development (CERD), a local NGO which is active in the development and promotion of organic production and awareness in BiH (Šeremešić et al. 2021).

³⁵ <https://www.fondazione Slow Food.com/en/nazioni-arca/bosnia-and-herzegovina-en/>

³⁶ <https://wwof.net/>

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



Despite the existence of vocational high schools dedicated to agronomy, along with long-standing research and teaching at universities, agroecology is only weakly presented in these contexts. In the curriculum of the vocational high-school in Republika Srpska, the term agroecology is not used (II-09). However, topics related to it are taught, either as self-standing courses in ecological agronomy, or as a part of a larger curricula in other broader courses.

In vocational high school courses used for training agricultural technicians in RS, the closest classes to agroecology are called "ekološka poljoprivreda" ("ecological agriculture"; II-09). In one vocational school in FBiH however, the word "agroecology" is directly mentioned in the curriculum for agricultural technicians as a part of "plant production" classes which take place during the first year of the course, as one of four teaching modules, under the title "agroecology and pedology" (Department of secondary vocational education FBiH 2009³⁸).

In vocational high schools, there is often resistance to ecological agriculture from students due to a lack of trust that this type of agriculture is practicable and/or profitable (II-09). Since many of the students come from traditional farming families, the resistance may be deeply ingrained. In these contexts, agroecological tools and approaches in the curriculum would likely be introduced only by more forward-looking and motivated teachers (II-09).

Informal agricultural education is mostly performed either by dedicated farmers' associations, and/or NGOs – both domestic as well as international (such as UNDP, USAID, World Vision, EkoDizajn; II-10). Despite limited reference and use, the concept of agroecology and some of its principles are implied through a growing number of initiatives with an emphasis on sustainability and the environment, as well as social diversity to some degree (II-02; II-07 2021; II-10). One initiative, for example – EkoJasmina – has educated at least 70 producers for ecological vegetable and fruit production (II-07), and another one – Košnica – regularly trains youth, the disabled, and offers opportunities for international knowledge exchange (KI-2, Table 1).

In terms of applied learning, farmers' acceptance of principles intersecting with agroecology is low, the main obstacle being a lack of trust that sustainable approaches are financially feasible. Interviewees have concluded that this can be best counteracted via real-life examples which illustrate the financially and practically successful application of such approaches (II-10; II-06). Education was also recognised as one of the main tools preventing the use of illegal and harmful substances in agriculture, even if at the same time, due to corruption, inspections and sanctions fail to hold those who are breaking laws and agreements accountable. Finally, rural out-migration and ageing are also considered to be a heavily restricting factor in terms of building sustainable informal education and training networks.

³⁸ http://www.vetbih.org/portal/index.php?option=com_content&view=article&id=100&Itemid=370&lang=en

3.2. LIVING LAB



Living labs are not yet identified as such in BiH. However, through informant interviews two examples of initiatives which include aspects of living labs can be mentioned (BIH-KI-1 & 2, Table 1). The first is "EkoDizajn" in Mostar, which is a socially responsible company that operates as a multi-functional resource centre and community-influencer. Its focus is on offering ecological farming and permaculture education, ecological design consultation, and opportunities to grow organic food in community with others. Revenue is reinvested in employment opportunities for young people. The second example is 'Factory of Joy' in Čelinac which maintains a crowd-sourced heirloom seed bank and seed library, engages in community outreach and education on the importance of seed collection and preservation as well as permaculture, and creates networks between local producers and consumers. Both examples represent innovative work that cross-cuts sectors and inspires action and the replication of agroecological ideas in the community.

3.3. MOVEMENT



Native and locally-grown agroecology initiatives which could be characterised under the movement category were not identified during this research. This may give a good indication about the situation of agroecology, as well as of grassroots movements in the country. Nevertheless, some of the examples of practical initiatives found had some movement-like qualities, with 'Factory of Joy' taking on the role of articulating the need to preserve indigenous seed varieties and engaging the community in the work, and 'EkoJasmina' aiming to create the first village in the country which is based on 100% ecological farming (KI-2, Table 1; II-7).

In place of movements which are rooted in grassroots mobilisation (either local, regional or transnational) and articulate a social conflict, NGOs, especially international ones, may be considered to be partially filling the role of movements. They often do the work of developing, promoting and implementing mission-driven work at a national scale, and work with policymakers to get their buy-in of policy frameworks and other tools which could lead to long-term, systemic change. This may be considered a legacy of the post-war period (i.e., 1995 and beyond) in which international NGOs have played a strong role in the peace-building process and other aspects of societal reconstruction. However, their role in post war-BiH has been criticised by being limited by provisional, short-term project-specific funding and the overall context in which they do their work is namely a fragmented political system (Carey and Richmond, 2003).

Today, international NGOs could arguably be viewed as playing a major role. For example, UNDP is a key player in agricultural development in BiH, and its activities are focused in four fields: circularity, competitiveness of the agricultural sector, sustainability of the agricultural sector, and finally the strengthening and diversification of the rural economy (II-4). They also currently play a leading role when it comes to the development of strategic frameworks and policies related to the EU Green Deal, and can be considered to be an actor promoting regenerative agriculture at the policy level. While UNDP rarely uses the term "agroecology", the work they undertake encompasses some of the principles behind it, such as biodiversity protection, renewable energy sources, short value chains, and social issues such as gender in the agriculture sphere (II-4).

3.4. PRACTICE



Most producers and farmers in the country seem to operate independently, outside the frame of any formal association or cooperative, though one example, 'EkoDizajn', which has the structure of a local NGO and also has community education goals (KI-2, Table 1), can be mentioned here. Other examples such as 'Košnica' and 'EkoJasmina', are doing work that furthers the cooperative, community elements of agroecology, such as knowledge exchange, although they are not acting formally as a cooperative or as part of an established network.

The examples found agroecology in practice are mostly small-scale undertakings. The production is largely oriented toward local markets, often selling directly to customers, and often starting and operating via social networks which seem to play a central role as means of advertising in small-scale production, alongside word of mouth (II-06). The communities in which the practices are embedded are not necessarily formally registered or recognised bodies, but rather operate as informal, tightly-knit groups (KI-2, Table 1; II-06). The products are usually of local character, relating in personal ways to the communities of which they are a part, and they operate in what they consider to be a more cooperative, transparent and fair way compared with the commercial norm (II-07; II-10).

Agroecology seems to be not a term often used by farmers (BIH-KI-1, Table 1), but some initiatives such as 'EkoJasmina', 'Žabac Povrće' and 'Košnica d.o.o.' use approaches and practices related to agroecological principles, especially around safeguarding soil and water quality, biodiversity conservation, the use of organic fertilisers and pesticides (including hand-removal, nets, and plant-based formulas for pests), community-building, and concern about fair labour relations (II-06; II-07; II-10).

Government support for farming seems to be mostly reserved for larger producers who work in classical ways, for example in the form of subsidies, such as those for fuel (II-06). This, as well as large amounts of imported produce, makes small ecological-oriented farmers feel that they are less competitive in the market. However, international NGOs, such as UNDP, USAID, and Caritas, provide support on some occasions, either through the organisation of workshops and seminars, programmes for employment, or through financial support for infrastructure and machines (II-06; II-10). Another major issue is brain drain, which impacts farms insofar as it causes labour shortages and interrupts community-building (II-06; II-09; II-10). Alongside financial issues for farmers, another stumbling block is the complicated legislative scenery, which makes it challenging to obtain certain inputs which are in line with ecological farming (II-06). It also makes finding sale channels difficult at times, and the high taxes for small producers seem to take a larger part of the earnings which could otherwise be reinvested in the business and local community. Due to these financial challenges, many farmers have another job on the side, which further constrains the creation and exchange of agroecological knowledge, practices and the development of networks such as producer associations and cooperatives (II-07; II-06; II-09; II-10).

3.4. SCIENCE



Academia has a considerable share in shaping future developments in BiH related to agroecology. An overview of higher education related to agroecology is provided in Šeremešić et al. (2021).

Table 2: Agroecology courses and curricula in Bosnia and Herzegovina (adapted from Šeremešić et al. 2021)










Universities with Agroecology related courses	Agroecology courses total	AGROECOLOGY CURRICULA		
		BSc	MSc	PhD
6	3	4	3	3

There is very limited literature available regarding agroecology as a science in BiH. In addition, according to key informants, agroecology still seems not to be perceived as a notable topic in the sphere of science and university education, even if the subject of ecology has a place in university agricultural departments. At the Faculty of Agriculture in Banja Luka, the term “ecological efficiency” is used in research activities (II-08) while the Agroecology course has existed in this specific faculty for more than ten years. This course has been the foundation for the development of other courses related to Agroecology on a master and PhD level. Additionally, at the Agro-Mediterranean Faculty in Mostar, courses exist in ecology and environmental management, nature protection, urban agriculture, water and waste management, among other topics – all of which theoretically link up with agroecology to different degrees, but do not refer specifically to agroecology (II-5).

In recent years, the Agro-Mediterranean Faculty in Mostar has developed cross-sector cooperation, offering practical training opportunities in the development of urban agriculture, has participated in environmental protection campaigns, and has cooperated with NGOs and other institutions to raise awareness about the environment and the green economy (II-05). Others, such as the aforementioned Faculty of Agriculture in Banja Luka, joined international research consortiums in order to develop technology which would lower the environmental impact of farming, such as water and pesticide use (II-08).

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 3: An overview about initiatives, cases and examples described and analysed.

INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Gradiška Vocational high School <i>Gradiška Srednja Stručna Tehnička Škola</i>	Local to regional	Public high school	Educating the future workforce as well as experts in several fields, including agriculture, animal husbandry, veterinary sciences					
2	Košnica d.o.o	Local to international	Private company	Providing expert education and guidance in order to promote healthy and sustainable beekeeping practices					
3	United Nations Development Program (UNDP) Bosnia and Herzegovina	National	UN organisation/ Inter-governmental organisation	Mission-driven work at a national scale mostly focused on economic circularity, increasing the competitiveness of the agriculture sector by focusing on improving its sustainability, and strengthening and diversifying the rural economy					
4	EkoJasmina	Local	Small-scale cooperative business	Production of organically farmed vegetables and fruits, as well as education through practice					
5	Žabac Povrće	Local	Small-scale organic farm	Organic farming for minimum-impact, environmentally responsible farming and a healthy and nutritious product					
6	Smart Water - Promoting smart agricultural water management in BiH	National and international	An international research consortium, headed by Banja Luka, Faculty of Agriculture	Developing smart-sensing technologies to minimise water use in agriculture in order to adapt to climate change and decrease resource use and environmental consequences, while raising the capacities of universities and of scientific workers in the field					



EDUCATION



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE

Gradiška Srednja Stručna Tehnička Škola
<http://ssts.gradiska.com/>

INITIATIVE N°1 – GRADIŠKA VOCATIONAL HIGH SCHOOL

GRADIŠKA VOCATIONAL HIGH SCHOOL

The “Gradiška Vocational High School” is a public school offering vocational training for agricultural and veterinary technicians, but also for others (e.g., medical staff, cooks or tourism workers). For 2021/2022, around 144 students were enrolled, and the school had 49 teachers. The school’s programme is aimed at educating skilled workers who can either start their careers as entry-level or mid-level managers and workers, or continue their education further. The education itself combines theory and practical work. The practical work takes place in the school-owned orchard/farm and/or in privately owned farms/orchards, depending on the type of work, since the school covers fruit, vegetables, and arable crop production.

KEY FEATURES

- **Type of education and training:** vocational high school
- **Main topic:** agriculture, farming, and veterinary related directions.
- **Training duration:** 4 years
- **Type of legal entity:** public high school
- **Founded in:** 1945
- **Accessible to:** high school students

Most of the course is focused on standard approaches to plant and livestock breeding, farming, and management. The concept and practice have links with agroecology, but the latter is not at the centre of the training material provided during the 4 years. Two courses⁴¹ spanning over two semesters have introduced environmental topics. One is called “Ecological agriculture” (“Ekološka poljoprivreda”) and is divided in two general segments. One segment is a more general introduction to the environment and pollution, while the second is dedicated to environmental issues in agronomy, with only a few classes related more closely to agroecology: ecological farming of fruit, ecological farming of vegetables, ecological farming of cattle and ecological beekeeping.

Some practical parts of the courses are done in tandem with commercial enterprises (farming businesses, veterinary science and other practices) and at times, students work with the city’s maintenance service on duties related to the city’s greenery, however, these activities do not relate more specifically to agroecology.

WHAT CAN WE LEARN?

The advantage of this institution is the potential it has in reaching out to youth, the future workforce, and emerging experts in the field in the early days of their professional development, as well as its credibility as a state institution. The students in this institution and similar schools in other cities, have an opportunity to learn a very wide base of agricultural knowledge. However, in its current state, agroecology’s presence in the curriculum is quite limited, as it relies on the students’ motivation and uptake of lessons taught. Theoretically, since it is a state institution affiliated with the Ministry of Education, it could also be easier to attract large donors necessary for widening and improving their work, compared to local NGOs and other informal education services.

⁴¹ The programme is a 3-4 years’ education module, which, after completed, provides a high school student with a qualified title, such as that of agricultural technician in this example. A course is a set of classes, taking place over the timespan of one, two or more semesters.



EDUCATION



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE

INITIATIVE N°2 – KOŠNICA D.O.O.



KOŠNICA

<https://kosnicagradiska.com/>

KOŠNICA D.O.O.

Košnica d.o.o. ('Društvo sa ograničenom odgovornošću') is a privately owned enterprise, which was founded in 2004, and is a business specialised in all things related to bees – from manufacturing and sales of beekeeping equipment to bee-related products (e.g., honey, propolis), as well as in providing expert advice and consulting services, mostly by its founder and owner. Currently, the team consists of at least 5 members (including support staff, such as designers, marketers, and others).

Next to its commercial operations, Košnica's activities are also in consulting and education. When not taking place within their own organisation, the workshops are organised by beekeeping organisations or groups such as USAID, World Vision, Farma, OIM, CRS, MPDL and others, with Košnica representatives acting as educators. Most of these workshops take one to three days, depending on the organiser and are mostly attended by practising beekeepers. The workshops where they teach transcend BiH boundaries as they have joint events in BiH, Czech Republic, North Macedonia, Serbia, Croatia, Slovenia, and Montenegro.

Next to general technical knowledge of beekeeping, a strong aspect of the work is promotion of environmentally responsible beekeeping approaches. The term "agroecology" is not necessarily used, but organic farming ("ekološki uzgoj") is at the heart of the practice, which includes organic certification, proper placement of beehives in order to avoid pollution, as well as social responsibility and sensibility, along with dedication to the highest quality standards (as is also stated by RS's law on beekeeping). Moreover, there is a strong emphasis on cooperative approaches to the market in which good practices are shared.



Picture 1: KOŠNICA D.O.O. headquarters.
Source: Igor Kalaba.

KEY FEATURES

- **Type of education and training:** workshops and activities on bee-keeping related knowledge and skills
- **Main topic:** bee keeping
- **Training duration:** one to several days
- **Type of legal entity:** private company
- **Founded in:** 2004

WHAT CAN WE LEARN?

The promotion of cooperation in different aspects (market, knowledge, etc.) between producers is one of the major strengths of this initiative. It allows for an increase in the communication between farmers and other stakeholders and experts. Additionally, being well-established and successful practitioners themselves, the educators are more likely to attract attention and inspire confidence. However, conducting workshops and disseminating information must be constantly done if a wider uptake in practice is to be achieved.



MOVEMENT



EDUCATION



PRACTICE



LIVING LAB



SCIENCE


<http://www.ba.undp.org>

INITIATIVE N°3 – UNDP BOSNIA AND HERZEGOVINA

UNDP BOSNIA AND HERZEGOVINA

The United Nations Development Program (UNDP) has operated in Bosnia and Herzegovina on issues that relate to agroecology at a national level for at least 15 years, with a country-wide geographical scope. With headquarters in the city of Sarajevo, it functions as a formal, private institution cooperating with government partners and a network of other development agencies and national NGOs.

A major source of its budget is European Union funds. In this country's context, UNDP was chosen as a movement for its role in developing and implementing mission-driven work at a national scale. It also works with policymakers to promote the implementation of initiatives that enable long-term, systemic change. Even though UNDP's work does not involve grassroots mobilisation, it does respond to a social problem, namely a vacuum of appropriate expertise of public institutions in the country in areas related to agroecology, a lack of support on the ground, and extremely limited public funding.

KEY FEATURES

- **Main goals:** community and farming development, farming innovation, linkages between producers and consumers, lobbying, landscape and environmental conservation, education and training and market access
- **Founded in:** 1996
- **Type of organisation:** International NGO
- **Farming sectors:** arable, livestock, fruits, vegetables, wine and diversification activities (e.g., mushrooms, medicinal herbs)
- **Scale of the organisation:** national

Four main programmes that intersect with agroecology are led by UNDP, each lasting several years and operating primarily with EU funds: EU4Agri⁴² and EU4Business⁴³, which are complemented by two further EU Recovery projects. All together, they have a budget of approximately 34 million euros. All four initiatives focus on economic circularity, increasing the competitiveness of the agricultural sector by focusing on improving its sustainability, and strengthening and diversifying the rural economy. They include various aspects of technical assistance, strengthening institutional frameworks, know-how, and institutional partners, and work to develop strategic frameworks and policies for the country looking towards the EU Green Deal as an overall guiding document to align with EU strategic frameworks. One of the programmes also focuses on regenerative agriculture. UNDP's leading programme, EU4AGRI, invests in primary production and processing capacities to strengthen market efficiency and strengthen advisory and extension services for the purpose of knowledge sharing and skills development.

UNDP does not use the term "agroecology" in this country's context, but it does engage in work that relates to agroecological issues, such as protecting the environment, especially biodiversity, supporting short value chains, and providing support to businesses with green commitments. It also deals with the cross-cutting issue of gender in the agricultural sector. It supports the agroecological principles of diversity, synergies, efficiency, recycling, resilience, human and social values, responsible governance, and circular economy.

⁴² <https://eu4agri.ba/en/>
⁴³ <https://eu4business.eu/>



Picture 2: Agricultural specialists at work in Bosnia and Herzegovina. Source: UNDP – EU4AGRI.

WHAT CAN WE LEARN?

It was not possible to identify the presence of authentically agroecological movements in the country, and an over-reliance on international NGOs to take up movement-like work. Therefore, the work of UNDP may be considered as filling an important temporary role in the absence of national/local movements. UNDP's actions might also be seen as potentially laying a foundation or framework that would enable local movements to develop in the future.

POSITIVE IMPACTS



EDUCATION: Most of the country's farms are small in size, which is a challenge for market competitiveness, but they provide other market, community, and environmental opportunities. UNDP is training smallholder farmers to improve small-scale production, move away from unsustainable use of chemicals, and follow international standards. It is also offering support for organic practices.



ENERGY AND WASTE MANAGEMENT: UNDP has funded several projects regarding installing renewable energy sources on farms, e.g., solar panels for production facilities, reducing and recycling waste.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Natural resources in the country represent a key opportunity for marketing agroecological products nationally and abroad, and UNDP is investing and training in this area.

LIMITATIONS & CHALLENGES



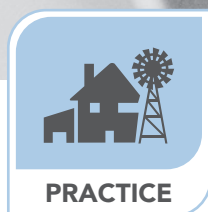
EDUCATION: People are often reluctant to adapt new practices, methods and technologies unless they are shown to be successful with on-the-ground examples.



GOVERNANCE: The agricultural sector in the country is highly politicised, which influences policy-making, limits national-level coordination, and impairs progress in this sector.



SUSTAINABLE AND FAIR ECONOMICS: The majority of local consumers are not willing to pay more for organic products, which is a disincentive for producers to go towards organic farming.



PRACTICE



EDUCATION



LIVING LAB



SCIENCE



MOVEMENT

INITIATIVE N°4 – EKOJASMINA



INSTAGRAM: @eko.jasmina

EKOJASMINA

EkoJasmina is a small-scale business in the city of Mostar, founded six years ago by one local woman, now cooperating with her family and 70 people (12 families) from the area in agricultural production. EkoJasmina produces and distributes fresh, organic vegetables and fruit, primarily in and around Mostar, but also across the country. It also has a small store in Mostar, in addition to other sales channels (e.g., via social media).

Currently, EkoJasmina produces 70-80 different types of organic vegetables. Taking advantage of farmland both in the Mediterranean climate and in the more temperate nearby mountains, they also have more than 3,000 fruit trees including plums, apples, cherries, pears, nectarines, peaches, and apricots. The farm team is also engaged in informal education and community-building, including among those employees who are from diverse backgrounds in an area which is otherwise considered to be segregated.

Though not formally a farmer association or cooperative (there appear to be limited examples of active, formal organic or agroecological cooperatives in the country), they could be considered a grassroots cooperative in some aspects. This is especially the case since they want to have direct and fair relations with customers and employees, and also in terms of how they view their future community ambitions.

EkoJasmina began by finding a niche market. The business started on social media with a survey of people in the community to find out what they need in terms of food, and the business plan was organised accordingly. Parents were ready to support the initiative, allowing them to quickly form a social media group with 5,000 followers and start arranging production and deliveries immediately. EkoJasmina built trust with local customers over a couple of years by taking orders via social media and by doing synchronous deliveries to a central point in town. When the store opened in Mostar, growth continued and they are now trying to find ways to keep up with the high demand.

EkoJasmina today trains others in organic farming through direct learning on the farm. Likewise, through direct sales and connecting with people personally, EkoJasmina tries to inform and educate consumers and the wider community about ecological production. Though the word “agroecology” is not regularly used by EkoJasmina to describe their approach and products, agroecological principles in practices are taking place, mainly through the forms of input reduction, protection of soil health and biodiversity, and economic diversification. EkoJasmina more often uses other words like organic farming and ecological agriculture. They are in the process of becoming organically certified in BiH.

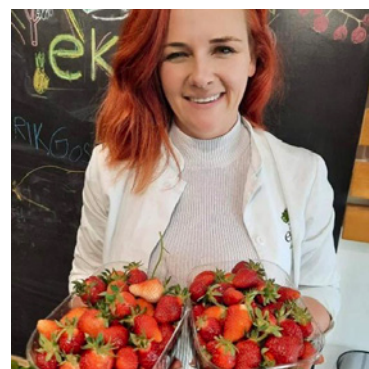
KEY FEATURES

- **Agroecological practices concerned:** input reduction, soil health, biodiversity and economic diversification
- **Founded in:** 2015
- **Farming sectors concerned:** horticulture (vegetables and fruit)
- **Lead organisation:** EkoJasmina
- **Number of stakeholders involved:** more than 70
- **Scale of the initiative:** local

Other than the community customers who are the main source of ongoing support for the business, some financial help has come from private investors, mainly from the USA. USAID also bought them agricultural material such as the most emission-reduced tractor available. However, so far, they have received no support from the state. Due to a perceived lack of relevant networks in the country, EkoJasmina is not part of a formal collaboration or cooperative. In the future, EkoJasmina plans to set up a special sales system for local farmers who want to transition to organic. During the transition period, they aim to help them manage production. In addition, they want the whole village (Višići) to become eco-producers. The team is also overcoming political divisions through co-working and celebrating all religious holidays (Islamic, Serbian Orthodox, Catholic) together. They also aim to be the first plastic-free shop in the country, and have already taken steps in this direction.

WHAT CAN WE LEARN?

EkoJasmina built a sustainable, fair, organic business based on direct relationships in the community, and has also influenced and educated its networks, especially local farmers and consumers. The business is a living example of how to creatively and successfully build and implement an agroecological practice in Bosnia and Herzegovina with the participation of local stakeholders. It also illustrates what the barriers to starting up and succeeding in this challenging country context are, and where community support is important.



Picture 3: EkoJasmina's founder presents some of their eco-friendly farm products. Source: EkoJasmina.

POSITIVE IMPACTS



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE:

EkoJasmina perceives itself as having a fair relationship with employees. They try to promote mutual care, involvement in decision making, good wages (double the market wage) among employees, and aim to structure the work equitably, according to individual capacities. They also have direct relationships and sales with consumers, welcoming feedback and offering products suited to the needs of the community.



EDUCATION: EkoJasmina's approach to its community of growers and the community at large is building local skills and knowledge in organic agriculture.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

EkoJasmina avoids the use of chemicals, and thus protects pollinators and the overall ecosystem.

LIMITATIONS & CHALLENGES



ENERGY AND WASTE

MANAGEMENT: There is a lack of sources for alternative packaging materials in the country, slowing down EkoJasmina's ambitions to become the first plastic-free shop in BiH.



SOCIETY AND EQUITY:

EkoJasmina is interested in working with collective projects and networks, but there are a lack of opportunities.



SUSTAINABLE AND FAIR

ECONOMICS: 70-80% of the initiative's revenue goes to the state through taxes instead of being reinvested in production, without any important state financial or other support in return.



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE



EDUCATION



Facebook: @Zabacpovrce

INITIATIVE N°5 – ŽABAC POVRĆE

ŽABAC POVRĆE

Žabac Povrće is a small, family-run farming operation dedicated to vegetable production and selling located in Gradiška. The production is organised and based on environmentally responsible methods using tools and techniques from permaculture and other similar approaches. Žabac is now entering its fifth year of operation. Its main motivation and goals are to produce healthy food, learn through practice and act as a demonstration site. Žabac Povrće sells their produce directly and one of its aims is to contribute to create a network connecting themselves and end-users. Žabac Povrće is a member of an organisation of organic producers on a municipal level.

KEY FEATURES

- **Agroecological practices concerned:** zero inorganic chemicals used
- **Founded in:** 2018
- **Farming sectors concerned:** vegetable production
- **Leading organisation:** Žabac Povrće
- **Scale of the initiative:** local

Up until now, their only funding was derived from sales of the produce, plus briefly through a grant from CARITAS to favour employment. At the moment, the farm is mostly run by three people.

The farm is based on ecological principles, employing biodynamic and permaculture techniques. They do not use the term “agroecology” itself, but the concepts utilised and overall approach does match with the approaches and principles of agroecology.

WHAT CAN WE LEARN?

The demonstration network Erbse/Bohne involved many stakeholders and showed the importance of increasing the share of beans and peas. The project aim was to analyse the impact of including legumes in crop rotations (in terms of yield, financial gain, reduction of pesticides, etc.) and to disseminate the obtained knowledge.

POSITIVE IMPACTS



COOPERATION: Their approach utilises a short distribution market, as their produce is sold and delivered personally and directly via social media and communication applications.



HEALTH: This initiative uses techniques/practices that avoid contamination of soil, water and air (e.g., biological pesticides, organic manure, pest nets), while trying to have the smallest possible negative influence on local biodiversity and the ecosystem, including the soil.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: The major issue at the moment is achieving and assuring profitability. The current legislative landscape is among the main reasons why profitability is harder to reach, especially for farmers who employ an agroecological approach (e.g., a lot of useful organic pest repelling products are still illegal to import). The current subsidy system in BiH favours industrially grown products which attracts consumers who, for the most part, have relatively low purchasing power.



SCIENCE



EDUCATION



PRACTICE



MOVEMENT



LIVING LAB

INITIATIVE N°6 – SMART WATER

SMART WATER
PROMOTING SMART AGRICULTURAL WATER MANAGEMENT
IN BOSNIA AND HERZEGOVINA

<http://www.smartwater-project.eu/>

SMART WATER PROMOTING SMART AGRICULTURAL WATER MANAGEMENT IN BIH

The Smartwater project officially started in January 2021, and will last until the end of 2023. The project “aims to boost adoption of smart water management techniques in BiH agriculture, in order to address issues like climate change and drought that prevent national agriculture improvement”. The lead partner is the University of Banja Luka, and among the activities and outputs is the promotion of twinning activities with other international organisations and reinforcing networking, research, science, and technology cooperation. Overall, the initiative will involve up to 100 experts across six partners from different countries. Of great importance is the capacity development of their staff, especially younger employees, as well as networking with farmers, experts and other stakeholders. The financing comes from the European Commission, via the Horizon 2020 programme.

Field research in BiH will be on the introduction of corn irrigation, as this crop is traditionally not irrigated in BiH, and using remote-sensing smart technology to enable farmers to sustainably manage and reduce water and other inputs (e.g., fertilisers). The project is related to agroecology in terms of its emphasis on input reduction and wise use of resources, albeit the key phrase used is “ecological efficiency”.

KEY FEATURES

- **Main goals:** to support and enhance the adoption of smart water management techniques in BiH agriculture in order to enhance climate change adaptation in agriculture
- **Started:** 2021
- **Main topics:** water management, capacity raising, sensing technologies, climate change adaptation in agriculture
- **Lead organisation:** University of Banja Luka
- **Type of actors involved:** scientists, farmers, local stakeholders.

WHAT CAN WE LEARN?

Banja Luka’s Agricultural Faculty uses scientific approaches to enhance sustainability in agriculture, and could be a suitable partner for future initiatives and further interlinkages with agroecology.

5. CONCLUSION AND FUTURE PERSPECTIVE

The term “agroecology” is not well-known in BiH and is primarily recognised only within science and higher education, but even there only to a very low degree. However, in each activity category investigated, many approaches and guiding principles that relate to agroecology, particularly around environmental protection and sustainability, could be found. Thus a foundation for the further development of agroecology seems to be present, even if weak in its current state. Other than a lack of knowledge and recognition of the term and the concept, rural out-migration, the ageing of villages and rural population, and brain drain were mentioned across sectors as some of the strongest barriers to the development of agroecology in the country, along with a lack of sufficient financing and other forms of support in science, education and training, and production. Other frequently mentioned barriers are producer preconceptions on the low cost-effectiveness and success rate of agroecological practices, and a complicated political context which affects relevant policies. In this respect, corruption was also mentioned several times. Grassroots movements and living labs associated with agroecology appear to be absent or weak, with an over-reliance on international NGOs as change-making actors.

BiH is perceived by most key informants and interviewees from initiatives to be far behind other European countries, not only in terms of agroecological developments, but also for organic agriculture. Associations of small, ecologically-oriented producers operate mostly informally and among close-knit communities and groups. There appear to be few examples of established producer-consumer cooperatives (none of which were available for interview), even if cooperative or solidarity modes of exchange may exist informally.

BiH is highly rural and most rural households produce food even if they are not earning from it, which may offer hidden advantages for the future of agroecology in the country. Furthermore, the country is perceived by interviewees to have a great potential for the development of agroecology, insofar as it is perceived to be rich in predisposing biophysical conditions and natural resources. Promoting agroecology through successful living examples, both at the farm level and association/cooperative level, seems to be the most important factor in increasing awareness, understanding, and increasing the number of initiatives. Furthermore, increasing grassroots motivation and capacity to articulate and sustain movements and form cooperative endeavours appears key in rooting agroecology at the ground level and scaling it up, rather than relying on international NGOs. However, in the meantime, these NGOs may be in the strongest position to spread knowledge about agroecology and organise and finance training. However, this runs the further risk of dependency on short-term funding which is usually tied to transnational policies and priorities, as well as dependency on external actors who are not rooted in communities in the long term. Domestic organic and eco-producer cooperatives and associations are important in this regard. Finally, legislative and budget changes are needed to support and scale-up agroecology in practice, science, education and training. Further research and action on agroecology might focus on both established and informal producer groups and the communities and consumer networks in which they are embedded, as they could be strengthened and regarded as a platform for further developments.

Further exacerbating the situation on the policy side is that sustainable agricultural development, like many other topics, is highly politicised. This limits national-level coordination and impairs progress. On the side of the farmers and the rural population, the development of local, grassroots movements outside the frame of international civil society organisations may be further limited by the heavy emigration from BiH, especially from rural areas (II-06). Currently, the backbone of the practice activity category appears to be strongly motivated individuals, quite often driven by principles and curiosity. All the interviewees have expressed the opinion that agroecology has the potential to further develop in BiH thanks to the resources provided by the region's environmental and climatic factors and to the potentials of high-quality, sustainable food exports if such farming was grown to a larger scale.

The interviewees recognise a lack of media coverage on agroecological issues and the weak state of overall knowledge exchange and uptake within science and between science and other spheres. Scientists do, however, view themselves as playing a role in bridging those gaps, and view strong empirical results as key for uptake in society, especially among the farming community.

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MAPPING AGROECOLOGY IN BULGARIA

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BULGARIA

EXECUTIVE SUMMARY

Agroecology in Bulgaria is largely understood as a set of practices at the farm level. Before the term came into wider use through the Rural Development Programmes of the European Union, it was introduced by academia such as the Agricultural University of Plovdiv and the University of Forestry in Sofia. In Bulgarian policies, the word "агроекология", which would literally translate as 'agroecology', is used when translating 'agri-environment' from English. Thus, agroecology in the country mostly refers to the payments which farmers receive to voluntarily adopt agri-environmental measures as a part of the aforementioned programmes.

The development of agroecology in Bulgaria gained momentum in the 1990s and early 2000s. By then, scientific institutions were familiar with the term, conducting research and teaching the subject. Various NGOs and movements were also working on promoting alternative agricultural methods, particularly organic agriculture. Currently, agroecology is promoted by movements that focus on organic agriculture, biodiversity protection, preserving traditional varieties, and shortening the link between consumers and producers. Further, financial support for agroecology comes only from subsidies related to the Rural Development Programmes' agri-environment measures at the farm level (larger introduction of nitrogen-fixing crops, anti-erosion measures, crop rotations, grassing the inter-rows of orchards, protein crops, organic farming, support for water-living birds, etc.). Most of these, however, lack monitoring and evaluation mechanisms. This contributes to the public's lack of understanding of their impact, and an attitude of mistrust regarding their implementation and the quality of the products. As a consequence, the term 'agroecology' has a negative connotation for the general public and farmers. Local demand for non-conventional produce is low and public procurement contracts are still granted to conventional food.

These are all reasons why many farmers and producers are reluctant to formally engage in alternative forms of agriculture or be associated with the term 'agroecology', even if they follow its practices and principles in their work. Usually smaller, family-owned farms use different agroecological practices, whereas many of the subsidies for agri-environmental measures go to larger farms. Farmer cooperatives and networks around agroecology are uncommon and civil society actors often lead agroecological initiatives. Within the scientific field, Bulgarian institutes have been actively participating in European research projects related to the topic. Further, outside of formal educational programmes at universities and vocational schools,

farmers, and practitioners can obtain knowledge on agroecology via courses by foundations or centres for vocational training. Transdisciplinary projects related to agroecology also exist, but none of them are developed as living labs, although this concept is gaining more support recently.

Building capacity, raising awareness, developing transparent monitoring and evaluation mechanisms, and strengthening local markets for non-conventional produce to ensure a more resilient economic environment for farmers and producers, are needed in order to overcome the main challenges related to agroecology, which this research identified. This could be achieved by preparing a robust policy framework for integrated multi-level governance, which could also outline specific objectives and define budgets. The desire to shift towards a more sustainable agriculture is present within Bulgaria, especially within civil society movements, but it is clear that there needs to be more stable support from state institutions, and local and regional governments, which is focused on long-term goals.



BULGARIA

EXECUTIVE SUMMARY (IN BULGARIAN)

В България, агроекологията е разбрана като набор от практики, които се извършват от земеделци. Преду понятието да навлезе в по-широка употреба чрез програмите за развитие на селските райони на Европейския съюз, то първоначално се използва в академичните среди, например от Аграрния университет в Пловдив и Лесотехническият университет в София. Значението на термина „агроекология“ предимно се свързва с плащанията, които се отпускат на земеделски стопани за изпълнението на агроекологични мерки от гореспоменатите програми.

Развитието на агроекологията в България набира скорост в края на 20-ти и началото на 21-ви век. Позната е като дисциплина в научните среди още от 80-те години, когато се провеждат научни изследвания и преподаване по темата. През 90-те, различни неправителствени организации и движения започват популяризирането на алтернативни земеделски практики, особено биологичното земеделие. Понастоящем агроекологията се насърчава чрез дейностите на движения и организации, които се фокусират върху биоземеделие, запазване на традиционните сортове, скъсяване на връзката между производителите и потребителите и опазването на биоразнообразието. Подпомагането за агроекология идва само от субсидиите за мерките по програмите за развитие на селските райони. Повечето мерки обаче нямат механизми за наблюдение и оценка. Това допринася за липса на доверие в изпълнението им, в качеството на неконвенционалните земеделски продукти, както и липса на разбиране на смисъла от такива мерки. По тези причини, понятието „агроекология“ има негативна конотация. Местният пазар за подобни продукти е малък, а обществените поръчки все още се възлагат на производители, които практикуват конвенционално земеделие.

Това са някои от причините, поради които производителите не се заемат с алтернативни методи на земеделие и избягват термина „агроекология“, дори и да следват агроекологични практики и принципи. Обикновено по-малки, семейни стопанства практикуват агроекология, а много от субсидиите отиват при по-големи производители. Мрежи и кооперативи на агроекологични земеделци са рядко срещани. Агроекологични инициативи често са водени от гражданското общество. По отношение на агроекологията в науката, български институти са активни в европейски проекти по темата. Освен в университети и професионални училища, знания за агроекология могат да бъдат придобити и чрез курсове от фондации или центрове за професионално обучение. Съществуват трансдисциплинарни проекти, свързани с агроекологията, които не са напълно развити като живи лаборатории, но тази идея намира популярност.









За справяне с основните предизвикателства пред развитието на агроекологията в страната са нужни изграждане на капацитет, повишаване на осведомеността, разработване на прозрачни механизми за мониторинг и оценка и укрепване на местния пазар на неконвенционални земеделски продукти, за да се осигури по-сигурна икономическа среда за производителите. Това изисква подготвянето на политическа рамка за интегрирано многостепенно управление, в която са описани ясни цели и има определен бюджет за тях. Налице е желанието за преминаване към по-устойчиво земеделие, особено в гражданското общество, но това проучване показва, че трябва да има по-стабилно подпомагане от държавните институции, както и местните и регионалните власти, което да е съсредоточено върху дългосрочни цели.

⁴⁴ На английски съществува разлика между agroecology и agri-environment, като agri-environmental се използва за мерките по програмите за развитие на селските райони, докато agroecology (което би било по-близък превод на „агроекология“) има по-широко значение (описано във Wezel et al., 2009).

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Bulgaria are summarised in Table 1.

Table 1: List of key informants in Bulgaria.

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED		
1	NGO / Research - university	Rural development			
2	NGO	Organic agriculture			
3	Research - university	Agroecology			

2. CONTEXT

Before the Second World War, land ownership in Bulgaria was fragmented - most farms were small and produced largely for their own consumption. The political and socioeconomic changes that followed meant that by 1989 agriculture consisted predominantly of large-scale mechanised farms organised into cooperatives that produced for national consumption, as well as export (Meurs and Bogushev, 2008). The focus was on modernization and the implementation of current scientific models (Marinova and Nenovsky, 2020). At the time, there were many active agricultural institutes working to make agriculture more efficient, by doing activities such as breeding and studying new crop varieties (BGR-KI-2, Table 1). A small fraction (14% in 1987) of land, mainly in the mountainous regions of central and southwest Bulgaria, remained unowned by the state. In that period, rural households were allocated plots that could be farmed to supplement their salaries. From 1989 onwards, after the redistribution of property rights, the share of agricultural land owned by individuals increased (Meurs and Bogushev, 2008). However, due to the quick and disorganised transformation of the agricultural sector, labour-intensive and value adding activities (such as animal breeding and fruit and vegetable cultures), and family farms have been disappearing ever since (Velikov, 2013). The overall amount of land utilised for agriculture fell significantly at this time. After the transition, the vast majority of land owners continued subsistence farming within about half a hectare of their land, and rented or sold the rest to share-holding companies, cooperatives, or other farmers (Meurs and Bogushev, 2008). In 2017, 1.5% of Bulgarian farms managed over 82% of the useful agricultural surface (Defourny, 2017). In mountainous regions with no prior mechanised grain production, land is still mostly utilised by small family farms (Meurs and Bogushev, 2008).

From 1989 onwards, the understanding and use of the term 'agroecology' in the country increased. Agroecology practice was, and is, oriented toward reducing the negative environmental impacts from agricultural intensification and learning about the benefits of extensive agriculture (Kirechev, 2012). (BGR-KI-3, Table 1). In academia, the understanding of agroecology as an analysis of agroecosystems in 'connection' with different aspects of the environment, including human activity, has existed for many years (BGR-KI-3, Table 1). This can be seen in the work of the Agricultural University in Plovdiv, south central Bulgaria, from that time period.

The concept of agroecology entered policymaking spheres after 2000, when agroecological measures began to be implemented as a part of rural development programmes (BGR-KI-1 & BGR-KI-3, Table 1; Moudrý et al., 2018). In Bulgarian policies, the term which literally translates to 'agroecology' ("агроекология") is often used when translating what we understand as 'agri-environment' in English (BGR-KI-1, Table 1). Thus, the current overall understanding of agroecology in the country is that it refers to the agri-environmental measures which are included in these programmes (BGR-KI-1 & BGR-KI-3, Table 1). These measures include conservation, sustainable use and development of genetic resources in agriculture, and sustainable management of agricultural lands in proximity to natural areas (Kirechev, 2012). In addition, the adoption of agri-environmental measures is linked with the development of organic agriculture in Bulgaria. Many equate the term agroecology with organic agriculture (Moudrý et al., 2018). There are overlaps in these principles, but this may also be due to the fact that policies related to both were introduced at approximately the same time. Further, organisations which worked on promoting these practices (described further under the movement activity category) started in the 1990s by advocating for organic agriculture.

When it comes to policies related to agroecology, the first relevant legislation was the Special Accession Programme for Agriculture and Rural Development (SAPARD), which was established by the European Union to support countries in Central and Eastern Europe with structural adjustment issues in their agricultural sectors and rural areas (SAPARD⁴⁵). In the SAPARD programme period 2000-2006, Bulgaria implemented a National Agriculture and Rural Development Plan (NARDP) with measures that supported organic agriculture for fruits, vegetables, medicinal plants and herbs, fodder crops, the protection of four heritage livestock breeds, the sustainable management of areas close to natural meadows, pastures, and wetlands, and the maintenance and implementation of anti-erosion practices (Kirechev, 2012). However, these measures came into action only in the final year of the program and only four pilot projects were realised (Kirechev, 2012). During the Rural Development Programme (RDP) in the period that followed (2007-2013), the National Plan for Development of Organic Farming (NPDOF) and the National Agri-Environmental Programme (NAEP) – which uses the word that in Bulgarian literally translates to 'agroecology' – were implemented. The main goals outlined in NPDOF were the development of a market for organic produce (both local and for export), research and training opportunities, certification and control systems, and legislation to support the organic sector, as well as to increase the amount of land that is farmed organically. (Republic of Bulgaria, 2006). The NAEP was implemented under the agri-environmental payment measures of the RDP and focused on payments to farmers who adopt measures on a voluntary basis (Republic of Bulgaria, 2011). It was largely based on the SAPARD agri-environmental measures (Kirechev, 2012). Thus, the areas of focus in the RDP programme period of 2007-2013 included organic agriculture for all types of crops and beekeeping, the protection of 27 heritage breeds, mountain herding, restoration and sustainable management of high value nature farmland areas, soil erosion control, crop rotation and maintenance of traditional orchards (Kirechev, 2012; Republic of Bulgaria, 2011). Payments to farmers as a part of the NAEP were launched in 2008 and continued to increase, with 58% more in 2011 compared to 2008 (FAO, 2016). Lastly, under the RDP of 2014-2020, the measures that are considered relevant for agroecology are Measure 10 'Agroecology and climate' and 11 'Organic Farming' (Moudrý et al., 2018). These measures are continuations of the agri-environmental payments of the previous RDP (Republic of Bulgaria, 2015). The RDP period of 2014-2020 is also the first time EU legislation used the English term 'agroecology'. Since the early 2000s, rapid development in organic farming, especially for crops more than livestock, has been observed in Bulgaria. Its growth, in part, is seen as a response to an increase in subsidised crops and exports to other European countries (Dimitrov and Ivanova, 2017).

⁴⁵ https://ec.europa.eu/neighbourhood-enlargement/policy/glossary/terms/sapard_en

Various NGOs, foundations and informal associations support agroecology and develop projects related to its different aspects for all stakeholders, while the main beneficiaries of agri-environmental payments are farmers. In order to receive such subsidies, farmers are required to have relevant qualifications, such as having attended an agricultural vocational school, university (Moudrý et al., 2018). Agroecological policy is administered by the Ministry of Environment and Water; the State Fund's 'Agricultural' programme; the Ministry of Agriculture, Food, and Forestry department's 'Rural Development', 'Crop Production', and 'Organic Production' programmes; and the National Agricultural Advisory Service (Moudrý et al., 2018). The National Agricultural Advisory Service (NAAS)⁴⁶ is part of the Agricultural Academy and provides free advice, training, and other services for the implementation of agroecological measures.

Practice and public perceptions

There is a rather insufficient understanding of the benefits of applying agroecological practices. Key informants suggest that the study programmes in many agricultural institutes are not up to date with sustainability matters or the latest technologies (BGR-KI-2, Table 1). Thus, the level of knowledge of the National Agricultural Advisory Service consultants on agroecology seems to be insufficient and any existing links they have with agribusiness may affect their advisory services (BGR-KI-2, Table 1). There is a general shortage of skilled employees and workers, both in scientific institutions and working in the field, which is largely due to a lack of state funding into such activities and the industry has particularly low wages (BGR-KI-2, Table 1). Farmers, especially older ones, prefer to continue farming in the ways they are familiar with (BGR-KI-3, Table 1). According to a key informant, the aforementioned issues and gaps exist because of ill-defined or insufficient funding for capacity-building and education (BGR-KI-2, Table 1).

There is also a general lack of transparent monitoring and evaluation in many agri-environmental measures due to the absence of defined indicators and goals (BGR-KI-2, Table 1). Measures that do have some form of monitoring and evaluation, such as the preservation of heritage livestock, can be considered successful (BGR-KI-2, Table 1). On the other hand, the benefits of measures such as those related to preserving natural areas on agricultural lands are unclear (BGR-KI-2, Table 1). Perhaps, this is due to the general belief that exists in Bulgaria that there is corruption and a waste of resources wherever subsidies are involved (BGR-KI-1 & BGR-KI-2, Table 1). Moreover, the state's efforts to promote agricultural goods which are produced in non-conventional ways on the local market are vastly insufficient, and public procurement contracts continue to be granted to conventionally produced foods (BGR-KI-2, Table 1). Scholars have observed this for organic products, and although local demand is slowly increasing (Agapieva, 2015; Dimitrov and Ivanova, 2017), most of these products are still destined for export (Ministry of Agriculture Food and Forestry, 2021). Overall, there is a lack of awareness and mistrust among the public about the quality of non-conventional agricultural products and the demand remains very low.

For these reasons, some producers who implement agroecological principles are not keen to be associated with the term 'agroecology' due to its connotation to subsidies (BGR-KI-2, Table 1). Further, many producers that engage in such practices are too small to receive such payments due to the bureaucracy and numerous regulations attached to them (BGR-KI-1, Table 1). Agroecology is not a driving concept for them, as they employ other related concepts and terms (e.g. permaculture, short food supply chains, organic agriculture). Lastly, since the market demand for organic and agroecological produce is still small, farmer practices are strongly motivated by the presence of subsidies.

⁴⁶ <https://www.naas.government.bg/en>

A vast amount of subsidies continue to go to large farms, most of which are located in Dobruja (Danube plain) and Southern Bulgaria (Thracian plain) (BGR-KI-2 & BGR-KI-3, Table 1). On the other hand, agroecological practices can be found in regions with more preserved natural areas (e.g. the central Balkan mountains). This is due to the fact that these areas maintained traditional methods of production and agriculture was not widely mechanised (BGR-KI-1 & BGR-KI-2, Table 1). Agroecological practices can also be found around larger cities such as Sofia, Varna, Burgas, and Plovdiv, likely due to the fact that there is a higher demand for alternative ways of consumption and production (BGR-KI-2, Table 1). Due to all of these factors, among the general public, as well as farmers and producers, there is a lack of understanding of what agroecology entails and, even more so, why it is important.

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



When Bulgaria was a socialist republic, agricultural education and science were actively supported by the state and focused on modernisation. Today, agriculture-related institutes and schools remain, but the curricula of many are outdated. For example, teaching about agricultural machinery which is no longer in use or the lack of discussions around sustainable agriculture (BGR-KI-2, Table 1).

The Agricultural University in Plovdiv was the first university where courses connected to agroecology were offered as part of bachelor and master degree programmes (Moudrý et al., 2018). The Agroecological Centre at the University⁴⁷ was established in 1987 in order to carry out research, training activities and to work with researchers, farmers, and consumers to help the development of organic agriculture and agroecology in Bulgaria. The Faculty of Agronomy at the University of Forestry in Sofia (west of Bulgaria) includes agroecology in the 'General agriculture' course, which is included in the 'Agronomy' and 'Plant Protection' bachelor programmes⁴⁸, and there is even a 'Special agroecology' course⁴⁹. Other institutions include agroecology in their general agriculture courses or offer agroecology training in their centres for continued education, which are supporting units of the universities or centres for professional education (Moudrý et al., 2018). For example, in 2019, the Agricultural Academy offered a course in agroecology at its Vocational Training Centre (Ministry of Agriculture Food and Forestry, 2020). The Agricultural Academy also runs demonstration sites and carries out workshops in the field of agroecology (Ministry of Agriculture Food and Forestry, 2021).

Apart from public institutions, the foundation BIOSELENA, which works on the development of organic agriculture in Bulgaria, has a Centre for Professional Training (licensed by the National Agency for Vocational Education and Training) that includes courses in agroecology and organic agriculture. There are also other centres for vocational training which offer qualifications in agroecology (e.g. Harmonia⁵⁰).

In conclusion, educational and training activities in agroecology exist in formal academic institutions, through vocational training centres and in other organisations. The understanding of agroecology in most training remains at the field, farm, and agroecosystem scale.

⁴⁷ <https://www.au-plovdiv.bg/en/>

⁴⁸ <https://itu.bg/en/faculty-of-agronomy/departments/agriculture-and-herbology/classes/3479-%D1%BB-general-agriculture-a,-pp>

⁴⁹ <https://itu.bg/en/faculty-of-agronomy/departments/agriculture-and-herbology/classes/3500-%D1%BB-special-agroecology-cp>

⁵⁰ Harmonia, n.d. Licensed Specialties - <https://www.harmonia1.com/en/article/licensed-specialties>

3.2. LIVING LAB



The concept of living labs is novel in Bulgaria, which is why there are currently no active agricultural living labs. However, the concept is gaining popularity and the creation of a living lab is currently being discussed at the Agricultural University of Plovdiv. Moreover, the Agroecological Centre at the university has elements of a living lab, although they do not identify as one. Besides being part of a research institution and offering training for students and farmers, the Centre also accommodates field trials for companies to test new biological fertilisers, bio-pesticides, and new crop varieties better adapted to climate change. These results are then showcased to farmers as part of the Centre's goal of being a demonstration, education, practice, and research site. Therefore, the Centre's work is transdisciplinary and is increasingly engaging with stakeholders and providing additional activities. However, it is still more a demonstration and education site than a living lab.

3.3. MOVEMENT



In Bulgaria, agroecology – as it is largely understood as a set of practices at the farm level – is intertwined with movements which deal with environmental protection or extensive agriculture (BGR-KI-1 & BGR-KI-3, Table 1). Therefore, while there are individual farmers and producers who employ agroecological production methods, they are normally not organised in networks or part of movements.

On the other hand, organisations that represent movements which are not directly in the agri-food sector have worked to promote agroecology in various ways. For example, the Bulgarian Society for the Protection of Birds are involved in raising awareness about, and supporting producers with, agri-environmental measures, as well as the conservation of high value nature areas. Another example is the Bulgarian Biodiversity Foundation which works on biodiversity conservation, with producers and farmer markets.

Up until the turn of the century, there was still no legislative support for organic agriculture, so the pioneering work of a few NGOs played a key role in the sector's development. Those included the BIOSELENA Foundation, ECOFARM Association for Organic Agriculture, and the AGROLINK Association (Karov, 2016).

The movements whose activities cover the entire food system and illustrate agroecological principles usually have a different focus or use different terms, such as organic agriculture, fairness and connectivity between producer and consumer, extensive agriculture, or biodiversity protection. BIOSELENA, for example, is a foundation which aims to contribute to the development of organic and sustainable agriculture through advocacy and training, covering a wide array of topics relevant for agroecology. Their work, and that of other movements described later in this report, has included actions related to food systems such as recurring weekly farmer markets, promoting interconnectivity between different stakeholders, and aiming to create a network. Therefore, these movements have been promoting agroecology at the scale of the whole food system, even though not necessarily using the term.

3.4. PRACTICE



Agroecology is practised mostly by smaller producers, usually individual or family farms (BGR-KI-1 & BGR-KI-2, Table 1). Studies show that a tradition of small-scale gardening has played, and still plays, an important role to ensure sufficient food supply and security. In fact, this type of subsistence farming has actually increased with the transition to a market economy (Di Falco et al., 2010). However, national policies, privatisation laws, and economic crises have been removing social safety nets from farmers and decreasing their flexibility to engage in such activities (Di Falco et al., 2010). Therefore, as mentioned above, farmer activities are strongly motivated by the presence of subsidies. Moreover, current subsidies are considered inadequate for new farmers who want to test and implement agroecological practices, which involve a period of trial and error and require a level of economic safety. Moreover, the state generally does not grant public procurement contracts to produce made in non-conventional ways, such as through organic agriculture (BGR-KI-2, Table 1). Although some smaller producers who follow agroecological principles have been able to continue their activities, many have done so by targeting market niches and focusing on specialised products (BGR-KI-2, Table 1). Thus, agroecological practices are not popular and are seen as a niche among the general public, as well as by farmers and producers.

When it comes to farmer organisations and consumer-producer relations, initiatives such as community-supported agriculture and cooperatives have not been successful and are not widespread (BGR-KI-1, Table 1). For the latter, the idea of cooperatives has a strong state character due to their existence during the years of socialism, and are understood as something that came from the USSR (Marinova and Nenovsky, 2020). This understanding may still be present, leading to the rejection of cooperatives in the post-communist period (Marinova and Nenovsky, 2020).

Many agroecological initiatives are civil-society-led and informal, and often lack structure, coordination, and movement towards a common goal⁵¹. When it comes to agroecological practices beyond the farm level, they also face challenges as local governments lack the understanding of the importance and positive impacts of agroecological initiatives (BGR-KI-2, Table 1). Thus, support for initiatives such as farmer markets is limited, and their support with one administration may change with the next one.

Among practitioners, agroecology is mainly seen as a set of farming practices and linked to agri-environmental measures coming from EU legislation (BGR-KI-1 & BGR-KI-3, Table 1). However, there are initiatives which do not employ the term but support agroecological practices and principles at various parts of the food system, as the initiatives described later in the report will illustrate.

⁵¹ For example, a key informant cited a Facebook group on no-till agriculture where people exchange experience and information. However, upon inspecting the group, it was not very active: engagement over the past year seemed negligible with the exception of a few irrelevant posts and advertisements.

3.5. SCIENCE



Thus far, research programmes related to agroecology in Bulgaria have been part of European projects and have not conducted analyses at the country level (BGR-KI-3, Table 1). Agroecological research has addressed mostly environmental issues and practices at the farm level.

There are a few primary institutions which conduct relevant research: the Institute of Soil Science, Agrotechnologies and Plant Protection (ISSAPP) 'Nikola Pushkarov' (under the Agricultural Academy); the Agricultural University of Plovdiv; and the University of Forestry in Sofia (Moudrý et al., 2018). There are also other institutes that are part of the Agricultural Academy which are not directly involved in agroecology related activities but participate in relevant European and transnational projects. For example, the Fruit Growing Institute in Plovdiv which participates in the DOMINO⁵² project; the Dobrudzha Agricultural Institute in General Toshevo; the Experimental Station for Soybean in Pavlikeni; the Institute of Forage Crops in Pleven, which are members of the Bulgarian Legumes Network and participate in the project Legumes Translated⁵³; and the Institute of Biodiversity and Ecosystem Research which participate in the STACCATO⁵⁴ project. In 2020, researchers from the Agricultural Academy were involved in the development of 42 research projects focusing on soil resources, agroecosystems, climate change mitigation, and technology and innovation in conventional and organic farming (Ministry of Agriculture Food and Forestry, 2021).

Overall, there are few larger research projects targeting agroecology in the country (Moudrý et al., 2018). The project 'Sustaining agricultural change through ecological engineering' (STACCATO, 2014-2018) is a significant recent example which included regional level analyses (BGR-KI-3, Table 1). Moreover, there is the national research programme 'Healthy Foods for a Strong Bio-economy and Quality of Life' from the Ministry of Education and Science⁵⁵.

In terms of research communication, there are two main conferences linked with agroecology: 'Ecological Problems of Agriculture' Conference, (AGROECO'93) which was held every two years from 1993 until 2009, and whose proceedings were published by the University of Plovdiv in their 'Scientific works' (Moudrý et al., 2018); and ISSAPP holds the annual international conference 'Ecology and Agrotechnologies - Fundamental Science and Practical Implementation', which discusses relevant content and publishes their proceedings, although they do not explicitly refer to agroecology.

⁵² <https://www.era-learn.eu/network-information/networks/core-organic-cofund/core-organic-call-2016/innovative-orchard-management-enhances-soil-fertility-biodiversity-and-economic-sustainability>

⁵³ <https://www.legumestranslated.eu/bulgarian-legumes-network>

⁵⁴ <https://www.era-learn.eu/network-information/networks/biodiversa2/promoting-synergies-and-reducing-trade-offs-between-food-supply-biodiversity-and-ecosystems-services-joint-call-between-biodivers-and-facce-jpi/sustaining-agricultural-change-through-ecological-engineering-and-optimal-use-of-natural-resources>

⁵⁵ <http://www.nnp-food.au-plovdiv.bg/en/>

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 2: An overview about initiatives, cases and examples described and analysed.












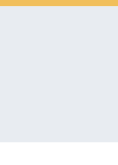


































INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Agroecological Centre, Agricultural University, Plovdiv <i>Агроекологичен център, Аграрен университет - Пловдив</i>	National	University - demonstration fields	Implementing field research and training in agroecology					
2	SOFERA <i>СОФЕРА</i>	National	Association	Promoting social inclusion through social farming					
3	Foundation for Organic Agriculture BIOSELENA <i>Фондация за биологично земеделие „Биоселена“</i>	National	Foundation	Supporting sustainable and organic agriculture, and environmental protection					
4	HRANKOOP <i>ХРАНКООП</i>	Local and national	Cooperative	Promoting local sustainable food systems					
5	Kurtovo Konare Fest <i>Фестивал на чушката, домата, традиционните храни и занаяти (Куртово Конаре Фест)</i>	Regional	Civil society – community centre	Preserving and promoting traditional crops and crafts					
6	Seeds Festival <i>Независим фестивал на семената</i>	Local and national	Civil society	Preserving and increasing the use of traditional crop varieties					
7	Balkan Ecology Project	Local and national	Family farm	Promoting healthy foods grown in regenerative landscapes					
8	ISSAPP “Nikola Poushkarov” <i>Институт по почвознание, агротехнологии и защита на растенията (ИПАЗР) „Никола Пушкарров“</i>	National	University – Research Centre	Conducting research and development in soil science					
9	Agricultural University, Plovdiv <i>Аграрен университет - Пловдив</i>	National	University	Conducting research and providing education on agriculture					

Table 3: Additional initiatives, cases and examples in the country - not included in this report.

INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
				EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
Society for Territorial and Environmental Prosperity Сдружение за териториален и екологичен просперитет - СТЕП	National	NGO	Supporting sustainable rural development through research and trainings					
National Research Program "Healthy foods for a strong bioeconomy and quality of life" Националната научна програма „Здравословни храни за силна биоикономика и качество на живот“	National	Ministry of Education and Science	Identifying models and technologies for the production of healthy foods for a strong regional bioeconomy					
Pendara Пендара	National	Initiative coordinated by LocalFood.bg	Support the development of local food business initiatives					
LocalFood.bg	National	NGO	Improve the business environment for small farmers and producers					
Green Balkans Зелени Балкани	National	NGO	Nature conservation, restoration, and sustainable management					
Ecocentric Foundation Фондация „Екоцентрик“	National	NGO	Providing non-formal education for sustainable development					
Bulgarian Organic Products Association Българска Асоциация Биопродукти	National	Farmer organisation	Supporting organic farmers and promoting organic agriculture					
The University of Agribusiness and Rural Development Висше училище по агробизнес и развитие на регионите	National	University	Providing trainings and education in rural development and agribusiness					
AgroBioInstitute АгробиоИнститут	National	University	Conducting research in bioeconomy and crop diversity					
University of Forestry	National	University	Conducting research and education in the field of forestry					

INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
				EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
Bulgarian Biodiversity Foundation <i>Фондация „Ура Гора“</i>	National	NGO	Increasing recognition of the opportunities and benefits of protected areas					
Association of Agroecological Farm Producers <i>Сдружение „Селище Зелено Училище“</i>	National	NGO (Farmers' Association)	Supporting farmers in implementing agroecological practices					
Ura Gora ("Hurray for the Forest") Foundation <i>ионите</i>	Local	2-4 family farms in an eco-community	Practising and promoting permaculture					
Green School Village <i>Сдружение на Българските Производители на Биопродукти</i>	Local	NGO	Promoting permaculture and natural building					
Association of the Bulgarian Producers of Bioproducts (SBPB) <i>Добруджанско аграрно и бизнес училище</i>	National	NGO	Protecting the interests of organic producers on national and EU levels					
Dobrudzha Agrarian and Business School <i>Селскостопанска академия</i>	National	Research and education centre	Providing vocational training and research in business and sustainable rural development					
Agricultural Academy <i>ионите</i>	National	University	Conducting research and providing services related to agriculture					
AGROLINK <i>Сдружение „АГРОЛИНК“</i>	National	NGO	Facilitating a network to develop and support organic farming					
Bulgarian Society for the Protection of Birds <i>Българско дружество за защита на птиците</i>	National	Civil society organisation	Supporting the protection of birds and their habitats					
Botanica Life Foundation <i>Фондация „Ботаника лайф“</i>	National	NGO	Advancing youth participation in sustainable agriculture					
AlterAgro Festival <i>Фестивал „Алтер Агро“</i>	National	Civil Society and local government	Promoting alternative agriculture					



EDUCATION



LIVING LAB



PRACTICE



SCIENCE



MOVEMENT

INITIATIVE N°1 – AGROECOLOGICAL CENTRE



<https://www.au-plovdiv.bg/en/центрове-и-звена/агроекологичен-център>

AGROECOLOGICAL CENTRE AGRICULTURAL UNIVERSITY OF PLOVDIV

Created in 1989, the **Agroecological Centre at the Agricultural University (AU), Plovdiv**, is a field site which performs activities related to the organisation and implementation of research, training, and projects in the fields of organic farming, agroecology, and environmental protection. Their main goal is to conduct applied research, offer training and other educational programmes to various stakeholders, and demonstrate how agroecological methods work, all with the aim to promote organic agriculture and agroecology.

Training varies in length and is offered to different stakeholders such as farmers, farmer organisations, agri-food enterprises, and public institutions. These are held through various channels and programmes, for example, the course on organic agriculture (which consists of a few hours of instruction completed within 10 days) includes not only theory but also practise days on the fields of the Agroecological Center. Students from other study programmes at AU, also go to the site for the practical part of their studies. Additionally, the centre conducts workshops and programmes for schoolchildren, and rents their base to farmer associations, organic fertiliser companies or other relevant organisations to demonstrate trials of how their products work. Through these demonstrations, they facilitate connections and discussions between stakeholders. Activities within the centre's programmes focused on providing a holistic understanding of agroecosystems and have covered topics related to agroecological practices, arable crops, livestock, horticulture, permanent crops, and the transition towards agroecology and organic agriculture. They also teach detailed knowledge on insect-plant relations for establishing effective monitoring for natural pest control. Finally, mechanisation in farming is also included to increase knowledge about different machines and their best use for sustainable cropping and soil management.

The concept of agroecology and organic farming is at the heart of the initiative with a focus on practices and techniques that conserve and favour soil fertility; promote efficient water management; avoid contamination of soil, water, and air; increase natural biodiversity; and protect ecosystems. A further goal is to demonstrate that agroecological practices can be as productive as conventional agriculture, in order to convince farmers to adopt them.

KEY FEATURES

- **Type of education and training:** workshops and activities promoting agroecology
- **Main topic:** agroecological practices
- **Training duration:** varied length
- **Type of legal entity:** university
- **Accessible to:** farmers, farmer organisations, agri-food enterprises, and public institutions

The Agroecological Centre is a member of international and national networks such as IFOAM (International Federation of Organic Agriculture Movements), SCAR (Standing Committee on Agricultural Research of the European Commission), and has collaborated with other relevant stakeholders, such as the Avalon Foundation (the Netherlands), Bulgarian Bioproducts Association, BIOSELENA Foundation, and Bulgarian Association for Plant Protection.

The centre wants to be a leading example for how sustainable agriculture can be realised in practice, and where everyone who is interested – be it researchers or farmers or members of the public – can visit demonstration sites, and learn about the practices and sustainable alternatives to conventional agriculture.



Picture 1: Field of the agroecological centre. Source: <https://www.au-plovdiv.bg/en/центрове-и-звена/агроекологичен-център>.

WHAT CAN WE LEARN?

The Agroecological Centre demonstrates that it is key to combine practice and theory, and to show (future) farmers and people who work with the land, what sustainable agriculture looks like. In this way, they can be equipped with the experiential knowledge to recognise what is happening in agroecosystems and how to best manage them. The centre works with different stakeholders and has a farm-to-fork outlook. A main strength is that the centre examines the entire agroecosystem, focusing on things such as natural pest control (so entomology and insect-plant relations are also considered).



EDUCATION



PRACTICE



LIVING LAB



SCIENCE



MOVEMENT

INITIATIVE N°2 – SOFERA



СОФЕРА

СОЦИАЛНА ОБУЧИТЕЛНА ФЕРМА

<https://www.sofera.org>

SOFERA

SOFERA is an association which was founded in 2018 by experts from various fields related to environment and agriculture, as well as educators and therapists. SOFERA operates a biodynamic farm currently occupying over 2 ha of land and organises educational activities for children (especially children with disabilities), and promotes social inclusion through social farming (also known as ‘green care’) and sustainable agriculture. They are located in the village of Ilindentsi in south-western Bulgaria. Currently, the organisation has over 120 members, mostly 25 families and their children.

The association started as an initiative motivated by educational activities for children; however, it offers a community-supported agriculture programme through which members get seasonal vegetables from the farm and uses biodynamic farming methods. Such methods include diversified crop rotations and composting. The vegetables are grown from organic seeds which they preserve each year. Their seeds include both traditional varieties (sourced from the Kokopelli Association and the civil-society-led Seeds Festival (described later under the ‘practice’ activity category) and ‘exotic’ plants in order to focus on plant diversity. They also have orchards (which are primarily made of popular regional varieties) flower and herb gardens, and arable crops. Farm animals are also integrated, with rabbits, goats and different breeds of chickens which are raised free-range. Overall, SOFERA touches upon the topics of arable crops, horticulture, permanent crops, sustainable food systems, and livestock production. The word ‘agroecology’ is thus far not really used by the initiative, but the key concepts of agroecology are applied.

The educational programmes for 7-14 year old children aim to nurture a connection with the earth, a holistic way of thinking, and an understanding of sustainable resource use. They use the principles of the Waldorf and Steiner methods of teaching, focusing on engaging the children to work with their hands and senses first, and introducing concepts and theory later. One of SOFERA’s main activities is a gardening programme organised in collaboration with the Waldorf School Prof. Nikolay Raynov in Sofia. This programme is based on hosting three consecutive camps at the farm during autumn (when the soil is prepared), spring (when the planting is done), and summer (when yields are collected). Another main activity are therapeutic educational camps for children with developmental disabilities. Engaging in gardening activities and interacting with the farm animals were found to have therapeutic and educational effects, encouraging play, confidence, and teaching responsibility. SOFERA’s activities are funded through annual membership fees – there are three different types of membership, which gives members access to the educational programmes – as well as donations, and the activities related to the community-supported agriculture basket scheme. Their scope is national since children from around the country attend the camps.

KEY FEATURES

- **Type of education and training:** gardening and therapeutic camps
- **Main topic:** biodynamic and social agriculture
- **Training duration:** varied in length
- **Type of legal entity:** association
- **Accessible to:** families and their children

The Association also collaborates with national and international networks. They welcome volunteers from ecological associations, private training centres and schools in the region, and private therapy practices. For example, they hosted students from the Sofia-based youth NGO Green Association for two days where the students learned about biodynamic farm practices and preparing compost.

In the future, SOFERA plans to have all of their agricultural land cultivated using biodynamic agriculture methods, and for the fruits and vegetables grown and sold by the farm to provide all the funding required for the training the association hosts. Their vision is that the children participating in their programmes are empowered to be active members of society, making their own decisions and boldly following their chosen life paths. SOFERA is also looking to collaborate with companies, organisations and individuals who offer services or products related to biodynamic and organic farming, including social farming, as well as Waldorf and health pedagogy.



Picture 2: (left) Children visiting the grounds of SOFERA's biodynamic farm; (right) Produce for sale from a farmers' market event and in the community-supported agriculture basket scheme. Source: SOFERA.

WHAT CAN WE LEARN?

This initiative is unique, as it combines sustainable methods of agriculture with societal goals through green care. One of their strengths is that multidisciplinary teams work on their projects and that the environmental and the social aspects of the programmes are developed equally well. The practical orientation of learning through experiencing, coupled with the creation of a safe environment, is innovative in the context of teaching in Bulgaria. This approach – especially the camps that follow farming seasons and activities – more clearly illustrate to the children how we can produce food and care about the environment through our actions.



MOVEMENT



EDUCATION



PRACTICE



LIVING LAB



SCIENCE


<https://bioselena.com>

INITIATIVE N°3 – FOUNDATION FOR ORGANIC AGRICULTURE

FOUNDATION FOR ORGANIC AGRICULTURE BIOSELENA

The main aim of the foundation **BIOSELENA** is to contribute to the development of organic and sustainable agriculture through advocacy and lobbying in order to provide political support and effective access for stakeholders to European and national programs. In particular, their mission is to:

- 1) Aid the development of regulations and measures supporting the production and consumption of organic food.
- 2) Provide consulting and training to organic farmers and processors, introducing innovation throughout the food chain.
- 3) Support and promote short food supply chains, ensuring improved access to organic and artisanal products in local markets.
- 4) Help increase the incomes of farmers in Bulgaria's mountain regions, while promoting sustainable natural resource use.

KEY FEATURES

- **Main goal:** promoting the development of sustainable agriculture
- **Founded in:** 1997
- **Farming sectors:** livestock, horticultural arable crops
- **Type of organisation:** foundation
- **Scale of the organisation:** national

The foundation was established in 1997 by the Research Institute of Organic Agriculture (FiBL) in Switzerland as a part of the project 'Development of Sustainable Agriculture in the Central Balkan Mountains'. Although it started off as a Swiss organisation, over time it became Bulgarian-governed. There are seven employees currently at BIOSELENA⁵⁶. The foundation's funding is entirely project-based, and the scope of their activities is national. The general themes of the projects are organic and sustainable agriculture, which encompass many of the elements of agroecology, although the term itself is directly mentioned. Their activities have focused on the promotion of biodiversity, soil health, traditional production methods, food waste reduction, short food supply chains and renewable energy. A result of the project 'For the Balkan and the People' was developing standards for and registering the label 'Made on the farm' ("Произведено във фермата") for sustainably produced products. One of their recurring activities is a weekly farmers market in the centre of Sofia, showcasing the produce of farmers and small producers who follow traditional Bulgarian recipes. BIOSELENA's projects thus far have covered arable crops, horticulture, and the livestock sectors. The foundation works with different stakeholders along the food system – including consumers (especially in their work related to food waste) – but engaging with farmers and producers is a priority. This is done through training events, by participating in national and regional events to showcase project results, and through informational brochures. They also have a Centre for Professional Training in Agroecology and Organic agriculture licensed by the National Agency for Vocational Education and Training.

Since 1998, the foundation has been a member of the International Federation of Organic Agriculture Movements (IFOAM), and since 2011, the IFOAM-EU Group. They are also a supporting member of Farmhouse and Artisan Cheese & Dairy Producers European Network (FACE). Moreover, they are partners

⁵⁶ <https://bioselena.com/%d0%b7%d0%b0-%d0%bd%d0%b0%d1%81/%d0%b5%d0%ba%d0%b8%d0%bf/>

with other local and international organisations, such as the Bulgarian Organic Products Association, the Agricultural University in Plovdiv, WWF-Danube's Carpathian Programme, the Ministry of Agriculture and Food, HRANKOOP, the Norwegian Cooperation and Development Programme – INNOVATION NORWAY, and others⁵⁷.

In the future, BIOSELENA will continue to organise the farmers market, participate in projects, assist and consult with farmers and producers, as well as lobbying for legislation that supports sustainable agriculture.



Picture 3: (left) The pilot edition of BIOSELENA's weekly farmers' market, June 2017. Source: <https://www.facebook.com/media/set/?set=a.1223386167773304&type=3> (right) Demonstration of techniques for dealing with invasive species, organised by BIOSELENA. 21 November 2019. Source: <https://www.facebook.com/media/set/?set=a.2342797255832184&type=3>.

WHAT CAN WE LEARN?

BIOSELENA's main strength is that through their work, they have addressed different parts of the issue of creating more sustainable food systems - going from farm to fork through training, facilitating demonstration sites, participating in festivals and events, and lobbying decision-makers. For example, they have provided training for farmers in organic agriculture, introduced renewable energies to dairy farms, supported short food supply chains, as well as raised awareness about food waste among consumers.

POSITIVE IMPACTS



COOPERATION: They have shown active participation in collective projects and networks at local and European levels. Their partners include both local and international organisations and stakeholders, and are well-known to other organisations in their field. BIOSELENA is a member of IFOAM and FACE.



EDUCATION: Their programmes provide training on a variety of aspects related to sustainable agriculture, including energy and waste management. The foundation has hosted not only farmer training but also training of trainers to ensure capacity-building continues in the long term.

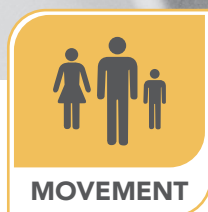
LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR ECONOMICS:

A key limitation is linked to funding: they rely entirely on the projects they participate in. For this reason, sustaining their work with long-term perspectives is challenging.

⁵⁷ <https://bioselena.com/en/%d0%b7%d0%b0-%d0%bd%d0%b0%d1%81/membership-in-other-organizations/>



MOVEMENT



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE

INITIATIVE N°4 – HRANKOOP

<https://www.hrangoop.com>

HRANKOOP

HRANKOOP is a cooperative whose main aim is to promote and develop socially, economically, and environmentally sustainable food systems. There are five full-time employees, and a few part-time employees helping with farmers markets. There are up to 80 full members, around 30 of which are producers and farmers, while the rest are their customers. The cooperative includes 60-70 associate members who are producers who attend farmers markets. Producers and farmers set their own prices. Around 150 people have employment in relation to HRANKOOP, and over 90 families are fully supported by their activities.

KEY FEATURES

- **Main goal:** food sovereignty
- **Founded in:** 2010
- **Farming sectors:** all
- **Type of organisation:** civil society organisation - cooperative
- **Scale of the organisation:** local and national

The cooperative started in 2010 as an informal civil society group of people who wanted to buy food from local producers. Their first large campaign saved 10 tonnes of organic lentils after a producer lost a contract, and through the campaign all of the lentils were sold. After that, they grew steadily, and producers began to contact them. The cooperative is at the core of their activities, and it includes a platform where customers pre-order from farmers for weekly deliveries and where members communicate for making decisions on their work. They also organise weekly farmers markets (which are more festivals-like events, as they include workshops and other activities). These markets are their most visible activity and have been organised in various cities, featuring hundreds of producers.

Since 2016, HRANKOOP has also developed shops. They had a shop, located in a mall, selling goods from local farmers. However, it could not be economically sustained. A shop they have for natural cosmetics, on the other hand, is still in operation.

Another of HRANKOOP's key activities is quality control: they set aside 5% of their annual budget for a guarantee system with a set of rules they have developed for producers to comply with. A team regularly visits both new and old farms to monitor these rules through activities such as lab testing for pesticides and nitrates. They also focus on solidarity actions, which are voluntary activities to help farmers (e.g. fruit picking, ploughing), and educational campaigns on other food system topics (e.g. food waste, urban agriculture). Many of their producers are just starting in the agricultural industry and their farmers markets help them grow.

HRANKOOP's activities are funded mainly from membership fees, but they get occasional sponsorship from other sources too. Their scope is national and local – farmers from various places sell at their markets and the markets improve the economy of the entire area in which they are located. In terms of collaborations, they regard local governments as their key partners since they are the ones who should consider the health and development of their communities. They also work and co-organise events with other organisations.

The term agroecology is so far not used, but through their activities they promote agroecological principles (e.g. facilitate local production distribution channels, strengthen producer-consumer relations, create community development and food sovereignty, engage in awareness building for sustainable food systems and promote sustainable farming through the guarantee system).

For their future development, they aim to facilitate the creation of farmers markets in every regional city (28 in total) and to have a network of markets and cooperatives. A major task they are still working on is to convince local governments of the value of such initiatives.

Moreover, they want to be active in supporting and promoting urban agriculture, expanding on the idea of a cooperative supermarket, and creating a demonstration site for biodynamic agriculture with educational programmes for farmers.



Picture 4: HRANKOOP's farmers' market at Alexander Nevsky Cathedral in the center of Sofia. Source: HRANKOOP.

WHAT CAN WE LEARN?

A main strength of HRANKOOP is their commitment to transparency and how they uphold the values that the cooperative is centred around – food sovereignty and encouraging a committed relationship between producers and consumers – combining theory with practice. They strongly advocate that farmers markets are the natural way for how consumer-producer relations should look like. They have developed and enacted their own guarantee system for the products of their farmers and producers.

POSITIVE IMPACTS



COOPERATION: At the core of their activity is the cooperative which promotes synergies and collaboration between actors of the food chain, enabling a direct relationship between consumers and producers.



SUSTAINABLE AND FAIR ECONOMICS: The initiative sustains itself, participating farmers set their own prices, and they practise social solidarity principles as they are a cooperative. Farmers and producers from the respective regions are supported through HRANKOOP's work and entire areas where markets are set up thrive.



GOVERNANCE: All decisions in the cooperative are made in a horizontal and participatory manner. They also aim to work with municipalities and connect different actors. They want to have farmer markets in every regional city and recognise how these markets can revive places that are socio-economically underdeveloped (as some of their markets have done).

LIMITATIONS & CHALLENGES



GOVERNANCE:

There are no legal mechanisms in place to sustainably stimulate farmers markets in Bulgaria. As a result, a main challenge faced by HRANKOOP is related to the lack of support from local governments. Any changes that occur in a local governments' administration can mean that existing support for markets can decrease or disappear completely. This uncertainty discourages farmers from selling at farmers markets.



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE



EDUCATION

INITIATIVE N°5 – KURTOVO KONARE FEST



@KurtovoKonareFest

Фестивал на чушката, домата,
традиционните храни и занаяти
(Куртово Конаре Фест)"

KURTOVO KONARE FEST

Kurtovo Konare Fest, the 'Festival of the pepper, tomato, traditional foods and crafts', is a three-day annual festival organised by the local community centre of the village of Kurtovo Konare (Stamboliyski municipality, Plovdiv region). It aims to support local producers, preserve and raise awareness about traditional crop varieties and crafts, and promote cooperation between institutions and communities. There are around 30 stalls at the festival, 20 of them from producers and the rest from craftspeople - contributing to approximately 500 participants per day.

The village of Kurtovo Konare has a tradition for farming peppers, tomatoes, and was the first in Bulgaria to cultivate certain varieties of vegetables. However, its former agricultural fame had faded, and livelihoods were at risk, so the local community came up with the idea of an annual festival to revive the village and preserve its traditions. The first festival took place in 2009.

The term 'agroecology' is not really used by the festival but some agroecological principles and practices are addressed which include: their support for species diversity and small-scale food producers; connecting producers and consumers; and building a food system based on the culture, identity, and traditions of local communities.

The festival is funded by the Stamboliyski municipality, the Kurtovo Konare local government, donations, and participation in EU programmes. Attending the festival is free of charge and organisers supply food to the participants. The festival visitors come from around the country and even abroad. It includes not only food and craft stalls, but also a cultural programme with workshops (e.g. how to make lyutenitsa – a traditional pepper and vegetable spread), entertainment, and activities for children. Famous Bulgarian performers, professional dance ensembles, and international artists have participated in the festival. The community centre prides itself on providing a festival which is also a key cultural event for the municipality, while promoting local foods and crafts.

In terms of network participation, the Kurtovo Konare community centre is a convivium of the organisation Slow Food. Other organisations, regional and national, are participants in the festival. The community centre has received awards for the impact the festival has had and they have gone to present their work at other events and organisations. They are the only (or among the very few) Bulgarian villages that actively takes part in projects at a European level as a partner.

KEY FEATURES

- **Main goal:** preserving traditional varieties
- **Founded in:** 2009
- **Farming sectors:** all
- **Type of organisation:** civil society - community center
- **Scale of the organisation:** regional

The organisers are optimistic for the future development of Kurtovo Konare Fest, as the festival has become a tradition. The community centre aims to have more cooperation and exchanges, as well as to create the infrastructure for a donation fund which is active throughout the year. This would enable them access to funding the festival, independent of local government grants.

WHAT CAN WE LEARN?

This initiative demonstrates how an active local community can power bottom-up initiatives that create traditions and can thus revive regional economies. In this case, the support from the local and regional government was also of key importance for sustaining the festival throughout the years. This highlights that cooperation between different stakeholders – civil society, local administration, as well as farmers, producers, and local craftspeople – can make a significant change for the livelihoods of many and bring life back to rural communities. This also demonstrates an initiative that was proactive and successfully made use of available funding at the European and national level.

POSITIVE IMPACTS



TRADITIONAL FOOD AND HERITAGE

CONSERVATION: Through the festival, traditional tomato and pepper varieties are promoted and marketed. Traditional knowledge and gastronomic cultures are also preserved through stalls selling local products and hosting relevant workshops. They provide the space for creating and strengthening networks for knowledge exchange.



SUSTAINABLE AND FAIR ECONOMICS:

By promoting a variety of traditional local crafts and products, the festival has been key in supporting producers in the region and contributing to the local economy.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE:

The festival is free thus, there is no income from the activity which does not allow for savings and/or reinvestment in it. Their sources for funding come through local governments, programmes, and donations.



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE



EDUCATION

INITIATIVE N°6 – SEEDS FESTIVAL



Facebook: @seedsfestivalbg

SEEDS FESTIVAL

The annual one or two-day **Seeds Festival** (also known as the Independent Festival of Seeds or the Festival for the free exchange of seeds, seedlings and saplings) aims to enable the free exchange of the seeds of traditional crop varieties and to provide a platform for the simultaneous exchange of ideas related to more sustainable and nature-connected lifestyles. Up to 1000 people from all over Bulgaria and abroad attend the festival annually.

Since 2012, the Seeds Festival has facilitated the exchange of seeds and saplings of heirloom varieties. When they were starting out, the festival organisers travelled to villages all over the country in order to connect with farmers who still preserve traditional varieties and collect seeds. The approach is inclusive: people coming to exchange seeds do not need to be farmers, anyone can come and participate. Moreover, they can participate in the festival without needing to exchange seeds at all. There is an associated Facebook group called the Independent Bulgarian Seed Bank where members can continue the seed exchange and share relevant information throughout the year. The event itself takes place in an outdoor venue on the outskirts of the town of Elin Pelin (Sofia region).

The festival is organised by the civil society group 'Green Team' which is run by volunteers. The Green Team is not a legal entity but have been active in organising events and activities related to environmental protection and sustainable development since 2007. They do not explicitly use the term agroecology but support agroecological principles and the practices of preserving heirloom varieties, promoting biodiversity, facilitating the exchange of knowledge between different actors, and increasing connectivity between food and culture, and producers and consumers.

The festival mainly focuses on horticulture through vegetable, herb and flower seeds. The free seed exchange is at the core of the festival, but there are also seminars and workshops led by other organisations and individuals in topics related to sustainable living, as well as concerts, activities for children, and a few stalls for handmade crafts. The festival is free of charge and essential costs are covered through donations gathered at the festival. It relies on volunteer work and the free participation of speakers. The Green Team of Bulgaria have connected with similar initiatives or organisations, such as the Peliti Seed Festival organisers in Greece and the Association Kokopelli in France.

The aspirations for the future of the Seeds Festival are that it continues to grow, attracting more diverse participants from Bulgaria and abroad such as young people, farmers, artists, and scientists. The aim is that it becomes a more popular tribune for independent thought and that more people from the general public can attend and be exposed to alternative ideas and lifestyles that are conscious about natural resource use. The organisers hope to continue to facilitate the exchange of traditional seeds, along with the stories of their origin communities, as well as ideas which are also 'seeds' that people can plant in each other's minds.

KEY FEATURES

- **Agroecological practices concerned:** preserving traditional varieties
- **Founded in:** 2012
- **Leading organisation:** Green Team of Bulgaria
- **Farming sector concerned:** horticulture
- **Number of stakeholders involved:** up to 1000 festival visitors
- **Scale of the initiative:** local and national

WHAT CAN WE LEARN?

This festival is a good illustration of how a bottom-up initiative can unite people of very different backgrounds around the same goal to grow naturally and become a force for change without any support from state and local governments. A particularly interesting feature of the festival is that it has been running and expanding for almost a decade, solely based on voluntary efforts. The Seeds Festival has also been successful in connecting people and ideas – the inclusive and collaborative character of the festival is evident in various parts. Awareness-raising is an important part of the initiative, as well as training around different topics through workshops, seminars, and lectures which the festival provides a platform for. Thus, the initiative is a great example of a platform for knowledge sharing and exchange among stakeholders.

POSITIVE IMPACTS



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Promoting a non-monetary economy is a key element of the festival, as the goal is to connect people and promote a different way of relating to one another and nature. Selling seeds is not something they endorse.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Promoting traditional seed varieties and knowledge are main goals of the festival. They also create space to meet, exchange and strengthen knowledge.



COOPERATION: They have an inclusive approach to everyone who comes to the festival and aim to create the space for the sharing of ideas all around the topic of sustainable living and connecting to nature. People coming to exchange seeds do not need to be farmers.

LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR ECONOMICS: There is a scarcity of resources, time and funds in particular. All Green Team members are volunteers, which means they usually have other, full-time work, making the organising of the festival challenging. The fact that the Green Team is not a legal entity means they cannot apply for certain support and funding through programmes and projects. These limitations can bring uncertainties and limits to how much they can invest.



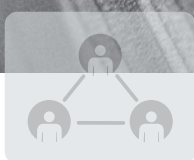
COOPERATION: Another challenge stems from the fact that they are not a legal entity – because they are an entirely volunteer-led operation, they are not able to participate actively in collective projects or programmes.



PRACTICE



EDUCATION



LIVING LAB



SCIENCE



MOVEMENT

INITIATIVE N°7 – BALKEP



<https://www.balkep.org>

BALKAN ECOLOGY PROJECT

Balkan Ecology Project is a permaculture-inspired grassroots project located in the town Shipka, central Bulgaria. They are a demonstration and educational site on 7.8ha, with 0.7ha devoted to farming. They host courses and events throughout the year, and manage a forest garden and plant nursery. Their aim is to develop and promote practices that provide nutritious, affordable food while enhancing biodiversity.

The project started in 2010, and is family-run with four core team members. They began by developing productive ecological gardens and sharing what they were learning. They have a plant nursery and market garden from which people can order crops, and offer consultancy and design services, educational courses, and share information from their polycultural experiments. They also practise land stewardship by strategically purchasing scattered plots of land to protect large areas from intensive farming.

In 2014, they started recording the inputs and outputs from their garden annual polycultures, and in 2015, the data from a newly established market garden. All descriptions and results of their studies, as well as step-by-step replicable models for food growers in similar climatic zones, are included on a dedicated website⁵⁹.

The Balkan Ecology Project offers an online 20-weeks course on Regenerative Landscape Design and a four-day Design and Build a Forest Garden course. These training activities focus on sharing knowledge through action and experiential learning, as well as through dialogue and reflection. Their work is mainly linked to horticulture (vegetables), permanent crops, and forestry.

They are funded through profits from their crop sales, garden produce, training, and recently received funding from a European project. The scope of their activities is both local (the project has a large focus on helping the local community), national, and potentially international, as their research results and online course are in English and can be accessed from anywhere. Moreover, their Facebook page is followed by over 9000 users from all over the world⁶⁰.

Balkan Ecology Project use the term agroecology in their work but it is not central – it is linked with the other concepts they use such as permaculture and regenerative agriculture. They support the development and adoption of agroecological practices and sustainable food systems through researching, designing, and implementing systems on the ground; sharing all aspects of their work; disseminating results freely (including opening their sites for the public to visit); providing education and training; and growing, selling, and promoting the use of plants and plant communities that have high ecological and nutritional value.

KEY FEATURES

- **Agroecological practices concerned:** conserving traditional varieties, input reduction, practices for soil health and sustainable land and resource governance
- **Founded in:** 2010
- **Leading organisation:** family farm
- **Farming sector concerned:** horticulture (vegetables), permanent crops, forestry
- **Number of stakeholders involved:** team members (farmers)
- **Scale of the initiative:** local and national

⁵⁹ <https://www.thepolycultureproject.com/annual-polyculture-results.html>

⁶⁰ <https://www.facebook.com/balkanecologyproject/>

The Balkan Ecology Project collaborates with other farmers in order to share information and plants from their bio nursery. For the European Solidarity Corps project, they work with teachers from the Green School Village⁶¹ who provide a 72-hours Permaculture Design course. For their future development, the project would like to create an edible park and visitor centre showcasing a world-class example of Regenerative Landscape Design, which is freely open to all. They would also like to collaborate with researchers to improve the quality of the experimental information they provide.

WHAT CAN WE LEARN?

An interesting feature of Balkan Ecology Project is how they have been doing research based on their own practice, documenting their activities step-by-step and freely sharing their findings. This is another way – other than the courses that they organise – that they provide specific knowledge to other farmers or interested individuals, caring about the environmental conditions of the region. The fact that the information is in English has made it accessible to people in other parts of the world.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

They engage in a diversity of practices on their land to conserve natural resources and biodiversity. They share information and results from their practices on their blog with other stakeholders.



TRADITIONAL FOOD AND HERITAGE CONSERVATION:

At the project's nursery, they have a collection of seeds native to the Balkan region, which people can order through their website. In this way, they are conserving and promoting these traditional varieties.



EDUCATION: They freely share information based on their experiences and courses which address the specific needs and challenges of local growers.

LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR

ECONOMICS: Balkan Ecology Project's main challenges stem from limited finances.



EDUCATION: The fact that the information and courses are in English may present a barrier for local farmers to access them.

⁶¹ <https://greenschoolvillage.org/?lang=en>



SCIENCE



LIVING LAB



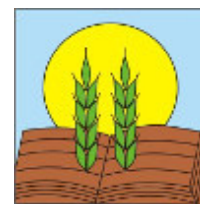
PRACTICE



MOVEMENT



EDUCATION



<http://www.issapp-pushkarov.org/en>
 Институт по почвознание, агротехнологии
 и защита на растенията (ИПАЗР)
 „Никола Пушкаргов“

INITIATIVE N°8 – INSTITUTE OF SOIL SCIENCE

INSTITUTE OF SOIL SCIENCE, AGROTECHNOLOGIES AND PLANT PROTECTION "NIKOLA POUCHKAROV"

Initiated in 1947, the **Institute of Soil Science, Agro Technologies and Plant Protection (ISSAPP) 'Nikola Poushkarov'** is part of the Agricultural Academy and supports the state to implement agrarian policies under the Common Agricultural Policy. It administers research in the field of soil science, mechanisation, and plant protection. Its department on Agricultural Chemistry, Agri-Environment and Farming Systems aims to develop, research, and test methods for analysing soil-water-plant systems, as well as technologies to improve soil fertility and identifying good practices. A focus of their research is the utilisation of waste products and bioresources, including organic waste, wastewater sludge, organic fertilisers, composts, and biochar. They also monitor environmental quality and work with farmers to promote sustainable agriculture. 14 researchers currently work at the institute⁶².

At the moment, it has five departments, a lab complex, and 22 field experimental bases across the country. The Agricultural Chemistry, Agri-Environment and Farming Systems Department has existed since the institute was established. In the Bulgarian title of the department, the 'Agri-Environment' is 'Агроекология' which would literally translate as 'Agroecology'.

Due to the topic of the institute, farm-level practices that promote soil health seem to be at the core of their work and understanding of agroecology. They primarily conduct agrochemical analyses for soil quality, testing different types of fertilisers regarding plant requirements. They perform this research for farmers, companies, treatment plants, and the Ministry of Environment and Water. The scientific disciplines involved in their work are agronomy, ecology, and plant science; and their scope is national. The department's activities have been funded through projects and programmes by the Ministry of Agriculture, Food and Forestry, the Ministry of Education and Science, and the Ministry of Environment and Water.

The department of Agricultural Chemistry, Agri-Environment and Farming Systems supports agroecology's development by testing practices for improved soil health at their field sites, researching and promoting more integrated (soil-water-plant systems) approaches for farming.

KEY FEATURES

- **Main goal:** research and test practices and technologies for improved soil-water-plant systems
- **Founded in:** 1947
- **Main topics:** agroecological practices, arable crops, horticulture
- **Leading organisation:** agricultural Academy
- **Type of actors involved:** government, farmers and companies, researchers
- **Funded by:** Ministry of Agriculture, Food and Forestry - Agricultural Academy - Ministry of Education and Science - Ministry of Environment and Water

⁶² <http://www.issapp-pushkarov.org/agrohimiya-agroekologiya-i-sistemi-na-zemedelie>

In the future, the Agricultural Chemistry, Agri-Environment and Farming Systems department is focused on promoting the utilisation of plant residues and other organic matter in various forms as fertiliser to improve soil health. They also hope to increase knowledge on the various systems for cultivation of different soil types, crops, and agro-technical means for weed control.

WHAT CAN WE LEARN?

The department's work illustrates that it is key to improve the understanding of interactions in the soil, including plant physiology (for different crops), environmental conditions, and fertiliser modes of actions. Something that stands out is their focus on finding innovative methods to recycle and utilise organic waste into fertiliser in ways that are efficient and fit plant requirements.



⁶¹ <https://greenschoolvillage.org/?lang=en>



SCIENCE



EDUCATION



LIVING LAB



PRACTICE



MOVEMENT


<http://www.au-plovdiv.bg>

INITIATIVE N°9 – AGRICULTURAL UNIVERSITY - PLOVDIV

AGRICULTURAL UNIVERSITY PLOVDIV

The **Agricultural University** (AU) is a public university in Plovdiv, central-south Bulgaria, established in 1945. Its goals include providing students with theoretical knowledge, practical skills, and nurturing an entrepreneurial approach in them; conducting fundamental and applied research geared towards agricultural practice; promoting a responsible attitude towards agriculture as a provider of public services, including climate change adaptation and mitigation; and to highlight the preservation and development of traditional products and production methods.

The university is among the first in Bulgaria to be engaged in agroecology. The Faculty of Plant Protection and Agroecology was founded in 1983 with plant and environmental protection as its primary focus areas. There are eight full-time professors, 17 associate professors, 14 assistant professors, and seven experts and specialists that make up the faculty⁶³. In 1987 the Agroecological Centre was established. In 1993, the university organised the 'Ecological Problems of Agriculture' (AGROECO'93) conference in collaboration with the Union of Scientists in Bulgaria. Its aim was to connect science and practice stakeholders and, in this way, further the development of agroecology and organic agriculture. In 1999-2001, researchers at AU worked with the Association for organic agriculture ECOFARM on a project on agri-environmental measures in Central and Eastern Europe, developing pilot schemes and supporting the government in preparing a plan for implementing agri-environmental measures⁶⁴. Since then, AU has been involved in various projects on the topic of sustainable agriculture and innovation in food systems.

Their main topics of focus include agroecology and biodiversity, bioeconomy, climate change and sustainable agriculture, and agroecological approaches for sustainable mechanised production of fruit and rootstocks. Agroecology seems to be one of the key concepts in AU's research and education. In teaching, the concept is taught as an "ecology of food systems". The main topics in the study programmes include agroecological practices, arable crops, horticulture, sustainable food systems, rural development, transition towards agroecology. AU supports the development of agroecology both through their teaching programmes and researchers' involvement in national and international projects on relevant topics.

The university collaborates with farmers, NGOs, business, and governmental agencies. AU is one of the two EIT Food⁶⁵ hubs in Bulgaria thus acting as a catalyst for partnerships that aim to increase knowledge and skills uptake by stakeholders in the agri-food sector.

KEY FEATURES

- **Main goal:** conducting research and providing education on agriculture
- **Founded in:** 1983 (Faculty of Plant Protection and Agroecology)
- **Main topics:** agroecological practices, arable crops, horticulture, sustainable food systems, rural development, transition towards agroecology
- **Leading organisation:** university
- **Type of actors involved:** researchers
- **Funded by:** state, tuition fees, donations, EU programmes

⁶³ <https://www.au-plovdiv.bg/en/факултети-и-департаменти/факултет-по-растителна-защита-и-агроекология>

⁶⁴ http://nauchnitrudove.au-plovdiv.bg/wp-content/uploads/2019/06/01_02_2016.pdf

⁶⁵ <https://www.eitfood.eu/in-your-country/country/bulgaria>

AU's research strategy for 2018-2030 highlights a focus on digitalisation and automated technologies for precision agriculture, production of safe and healthy food, adaptation of crops to climate change, and sustainable development. Through their work on these, AU aims to provide a contribution to the sustainable and smart growth of agriculture, tourism, and rural development.

WHAT CAN WE LEARN?

AU Plovdiv has a transdisciplinary approach both when it comes to research and teaching, which is exemplified in the establishment and work of the Agroecological Centre. Their engagement with other stakeholders and active participation in international projects have enabled the university to improve their expertise and gain a good reputation beyond the country borders.



⁶¹ <https://greenschoolvillage.org/?lang=en>

5. CONCLUSION AND FUTURE PERSPECTIVE

The concept of agroecology in Bulgaria entered the policy sphere in the 1990s due to the Rural Development Programmes, although it has been known in academia for some time before that. The term became known to farmers and producers in relation to the agri-environmental payments, which were part of the aforementioned programmes, in the 2000s. Agroecology is thus linked to these payments, which lack transparent monitoring and evaluation measures, contributing to a lack of awareness of their impacts among the general public and farmers themselves. While the term agroecology is not widely used outside agri-environmental measures, initiatives exist that promote agroecological principles.

The primary challenges found within these initiatives are mainly related to funding and institutional support. Further, due to the lack of awareness on the positive impacts of non-conventional agriculture, the local market for it is small. Moreover, public procurement contracts have not been granted to such produce. Consequently, farmers are reliant on subsidies and agroecological initiatives, including research projects (largely on project-based funding). EU legislation has been instrumental for kick-starting change and setting agendas. However, for sustainable change to occur, institutional support is key and needs to be embedded within national policies in a way where implementation continues regardless of changes in administrations, on all levels. Initiatives which were supported by local governments (e.g. Festival of pepper, tomato, traditional foods and crafts) grew steadily but others (e.g. HRANKOOP) met challenges in continuing their work due to changes in local administration. Key informants highlighted how important it is for the government to define budgets specifically for the activities that promote agroecology and send a clear message of support (BGR-KI-2, Table 1). This was the case especially when it comes to building capacity and raising awareness among stakeholders. Key informants also questioned whether introducing the term 'agroecology' is necessary, as it can add confusion and be seen simply as another buzzword "imported" from the EU - they suggested focusing on practices themselves (BGR-KI-1, Table 1).

Increasing the understanding of environmental issues, the meaning and positive impacts of agroecology, and facilitating collaborations between actors in the food system and beyond, will continue to nurture the development of agroecology in the country. This research showed that there is a willingness among various stakeholders to make a change and initiatives have been demonstrating the benefits to all those, as well as the wider community. However, it is clear that there needs to be more sustainable support from state institutions, and local and regional governments, with a focus on long-term goals.

ABBREVIATION

AU: Agricultural University (Plovdiv)
 FACE: Farmhouse and Artisan Cheese & Dairy Producers European Network
 FiBL: Research Institute of Organic Agriculture
 IFOAM: International Federation of Organic Agriculture Movements
 ISSAPP: Institute of Soil Science, Agrotechnologies and Plant Protection
 NAAS: National Agricultural Advisory Service
 NAEP: National Agri-Environmental Programme
 NARDP: National Agriculture and Rural Development Plan
 NPDOF: National Plan for Development of Organic Farming
 RDP: Rural Development Programme
 SAPARD: Special Accession Programme for Agriculture and Rural Development
 SCAR: Standing Committee on Agricultural Research of the European Commission

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MAPPING AGROECOLOGY IN CROATIA

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CROATIA

EXECUTIVE SUMMARY

This report contains key findings from research conducted in 2021 that aims to provide an overview of agroecology in Croatia and detail initiatives that are dedicated to agroecology in terms of research, movement, living labs, education and training, and practice. Through interviews with key informants and the representatives of these initiatives, new insights are provided on the state of agroecology in Croatia.

The term agroecology is not widespread among Croatian people and only a few reference it directly. Nevertheless, interviewees were aware of certain aspects related to the term, and used it in different context and meaning such as the importance of healthy food, tradition, and a real connection to its production. Beyond that, big concern is shown for the environment, and understanding that human activity is a key factor in preserving or destroying it. On the other hand, agroecology is well-known to many scientists and researchers, and the topic is included in the studies of important research and education centers, like the Faculty of Agronomy, Zagreb. There, it is described as applied ecology, indicated as an action of studying and setting rules of sustainable food production, and observing the impact of agriculture on the environment. Other initiatives related to agroecology are mainly found within NGOs and non-formal entities aiming to provide training to the public on the ideas and principles of agroecology and related practices. However, a major related drawback identified is the lack of applied examples found within Croatia that facilitate the efficient spread of knowledge among farmers.

Regarding agroecological practices, it appears that the popularisation of integrated systems and mandatory education of producers, connected to the direct payment programmes under the EU's CAP and related state aid measures, promoted the partial implementation of certain agroecological practices by farmers. However, agroecological practices implemented in a more holistic manner are used mainly by only a few organic producers.

One of the primary obstacles found for the development of agroecology is a lack of organisation among actors and governance which results in the continued creation of agricultural policies that support industrialised agriculture, rather than ones that prioritise the problems the farming sector is facing, including environment-related ones. Nevertheless, Croatia shows great potential for developing agroecology with regards to its natural and human resources, if organisational and broader recognition issues are overcome.

CROATIA

EXECUTIVE SUMMARY (CROATIAN)

Ovaj izvještaj sadrži ključne nalaze iz istraživanja provedenog tijekom 2021. godine s ciljem pregleda stanja agroekologije u Hrvatskoj i opisa inicijativa koje su posvećene agroekologiji u smislu istraživanja, društvenog pokreta, "živićih laboratorija", obrazovanja i prakse.

Kroz razgovore s ispitanicima i predstavnicima inicijativa koji su sudjelovali u ovom istraživanju dobiveni su novi uvidi u stanje agroekologije u Hrvatskoj, nastavljajući tako rad na ovoj temi započeto u 2020. godini od strane Mreže mladih Agroecology Europe. Značajno je da pojam agroekologija nije raširen među građanima u Hrvatskoj i da ga samo rijetki koriste. Unatoč tome, ispitanici su bili svjesni različitih konotacija ovog termina, te su ga koristili u različitim kontekstima i uz različita značenja, primjerice kao važnost zdrave hrane, tradicije i povezanosti s proizvodnjom hrane. Osim toga, mnogi iskazuju brigu za okoliš i prihvaćaju značaj ljudskih aktivnosti za njegovo očuvanje ili uništavanje. S druge strane, agroekologija je znanstvenicima i istraživačima vrlo poznata, a i studira se na Agronomskom fakultetu u Zagrebu koji je najveće središte istraživanja agronomije u Hrvatskoj. Tamo se opisuje kao primijenjena ekologija i naznačeno je da je to radnja u proučavanju i postavljanju pravila o načinima proizvodnje hrane na održive načine. Odnosi se na promatranje utjecaja agronomije na okoliš. Druge inicijative koje se odnose na agroekologiju uglavnom su nevladine organizacije i neformalne skupine koje pokušavaju educirati javnost o idejama i načelima agroekologije, te koliko god mogu, poučavati praksu. Više je ispitanika utvrdilo kako postoji problem nedostatka poljoprivrednih gospodarstava koja su primjenila agroekološke prakse te ih dijele s drugima javno i transparentno za brže i učinkovitije širenje znanja među poljoprivrednicima.







Popularizacijom integriranih poljoprivrednih sustava i obveznim obrazovanjem poljoprivrednika za pristup programima izravnih plaćanja prema Zajedničkoj Poljoprivrednoj Politici Europske Unije i mjerama državnih potpora za plaćanja, u sve većem broju poljoprivrednih pothvataparcijalno se primjenjuje neka agroekološka praksa. Ipak, holističku primjenu agroekoloških praksi uglavnom provodi samo nekolicina entuzijastičnih ekoloških proizvođača.

Jedna od glavnih prepreka za razvoj agroekologije je nedostatak organizacije među različitim akterima i državnom upravom, što kao posljedicu ima nastavak poljoprivrednih politika koje podržavaju industrijaliziranu poljoprivredu, umjesto da rješavaju važne probleme poljoprivrednog sektora, uključujući one koji se odnose na brigu za okoliš. Ipak, Hrvatska pokazuje veliki potencijal za razvoj agroekologije s obzirom na svoje prirodne i ljudske resurse, ako se uspiju prevladati organizacijski nedostaci i općenito prepoznavanje važnosti agroekologije.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Croatia are summarised in Table 1.

Table 1: List of key informants in Croatia

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED
1	University	Agroecological practices	
2	NGO/ University	Livestock	  
3	Private entity, company	Transition towards agroecology	
4	University	Transition towards agroecology	

2. CONTEXT

Croatia is a small country in South-eastern Europe with a total land area of 56,594 km². The population is almost equally distributed among rural and urban regions; 52% of the population living in cities on less than 10% of Croatian land. The land use is mostly rural (92%) and there are 1,504,445 ha dedicated to agricultural production, accounting for 27% of Croatia’s land surface. That land is mostly occupied by family farms (76%) therefore small producers are a predominant element of the farming sector (Putar 2020). In 2019, the average farm size was 7 ha (Putar 2020). The average age of Croatian farmers is 61 years, a progressively aging workforce that is not promising for the advancement of the sector (HRV-KI-2, Table 1). The average education of farmers is relatively low, with the majority having high school education as their highest level (Putar 2020). Experts in the field also suggest there is much to be done in regards to gender equality since there is still a disproportionate number of male agricultural business holders and a lack of visibility of women's work within these enterprises (HRV-KI-4, Table 1).

Croatia's cooperative activities in agriculture have been around since the 19th century, with the foundation of the first cooperative in Korčula in 1864. Additionally, the Croatian farmer’s bank was established in 1902 and since it was state-supported, it was used to provide farmers with available funds. During the years of 1894 to 1918, the cooperate movement grew significantly in the Dalmatia region. In 1945, these cooperatives moved from private to state ownership due to the communist regime of Yugoslavia. Finally, in 1991 the Republic of Croatia was established and it was determined that cooperatives would be based on principles of democratic management and responsibility, volunteering, and high ethical standards. Nevertheless, the previous experiences of cooperatives under the past regime made this approach unpopular in Croatia. After 2010 however, certain collective actions started to manifest through Community Supported Agriculture.

Unlike agroecology, organic agriculture is a term broadly recognised in Croatia, which benefits agroecology indirectly since its production principles are compatible with agroecology. Historically, three stages of development can be distinguished for organic agriculture in Croatia:

- (i) the early stage which takes into account ecological principles and the importance of sustaining functional and healthy ecosystems in food production, which took place before 1991 when few enthusiasts and agronomists started to promote the notion,
- (ii) the 2nd phase from 1991 to 2012, when the first specialised shops and NGO's interested in organic agriculture started to appear and become organised, and
- (iii) a 3rd phase starting in 2001, when organic farming regulations were implemented which transformed the practice into a governmental matter (Nakić 2018). Currently, the fraction of organic production is about 7% of the total agricultural land (Putar 2020).

There is evidence of dramatic loss of soil fertility on soils of Croatia in the last 100 years (Vidaček et al. 2005). Further development of agroecological practices within Croatia could reverse the negative impacts farming has had on Croatian soils and the land degradation that occurred when traditional farming practices occurred. Croatia lost most of its traditional karst habitats, specific habitat⁶⁶ that arises on the surface made of limestone, whose loss is greatly visible in the loss of biodiversity and soil fertility that was once provided by cattle maintaining the pastures and meadows that are now overgrown with thickets. Moreover, in places like the Velebit region (centre of Croatia) and many Croatian islands, the local population has largely abandoned food production and now primarily focuses on tourism (HRV-KI-2, Table 1).

Many differences are found in the development of organic agriculture between regions due to various climatic and ecological situations. Istria (North-West of Croatia), for example, which is ahead of other regions in the implementation of a few agroecological principles, is a region primarily focused on vegetable crops. Slavonia (North-West of Croatia), on the other hand, is less economically developed and mainly focuses on cereal cropping, which is harder to certify under sustainable or organic production (HRV-KI-4, Table 1). In regions where tourism and natural landscapes of interest are abundant, there is a rise in agrotourism which tends to be environmentally friendly (HRV-KI-1, Table 1). This can be observed on the coast and in mountain terrains. Further, the islands have a tendency to appreciate agroecological principles and practices due to the nature of island dynamics where environmental pollution and waste management are more apparent since they have an increased impact on the day to day life of their communities (Initiative Informant (II) n°6 – Table 2). Some other parts of Croatia are economically underdeveloped and show great potential for the expansion of agroecology due to their natural resources and land accessibility, such as Banija and Kordun in central Croatia (II-2, Table 2).

Most initiatives and short supply chains related to agroecology are organised near the main cities: Zagreb, Osijek, Rijeka, Pula, and Split. The north is also showing development in agroecological principles through the organisation and protection of their traditional heritage in food products, seeds, and by incorporating local food and health values. The most notable regions that are developing more connected and sustainable food systems are the Varaždin and Koprivnica-Križevci counties. They are making steps towards conservation and supporting local farm businesses to develop well-known local plant varieties such as the now-famous Varaždin cabbage.

As mentioned above, the term agroecology is not widespread in Croatia but key informant interviews have shown that there are two different approaches in defining the term: (i) one is encompassing socio-economic dimensions in its meaning, and (ii) the other is in relation to agronomic research. The latter is generally more well-known to the public through education programmes provided at the University of Zagreb, where it is used to describe the relationship between agriculture and its environment. However, broader elements of agroecology, which include the social and economic dimensions are also present such as the Slavonian region's traditional family dynamics. Due to lack of funds, many farmers cannot afford workers, therefore family members gather to help out with labour intensive work such as harvests. During these occasions, families exchange food amongst themselves, providing local and healthy nutrition without monetary exchange. These interactions are agroecological, even though those involved do not see them as such (HRV-KI-4, Table 1). Additionally, there are civil society initiatives that use the term agroecology with recognition of the socio-economic aspects involved to promote and implement these principles and practices.

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



In Croatia, initiatives that organise education and training are often related to the other activity categories of agroecology, such as movement or research.

Formal education in agronomy is widespread throughout the country and it is implemented by vocational schools and faculties, including study programmes of agroecology (University of Zagreb), of organic agriculture (University of Zagreb, University of Osijek), and applied ecology in agriculture (University of Zadar). University of Zagreb division of Agroecology consists of the Department of Plant Nutrition, Department of Land Reclamation, Department of General Plant Production, Department of Pedology, Department of Microbiology and Department of Chemistry.

Mandatory education is provided for any farmer who applies to the integrated administrative control system ("Integrirani Administrativni Kontrolni Sustav" - IAKS), which was part of the country's Rural Development Programme for the 2014-2020 period. Measures related to this system include information on agroecology. For example, Measure 10 - Agriculture, Environment and Climate Change, Measure 11 - Organic Production, Measure 13 - Payments to Areas with Natural or Other Special Restrictions, and Measure 14 - Animal Welfare⁶⁷. Such education though, is provided by advisory services that are not familiar with agroecology (HRV-KI-1, Table 1) and efforts are currently being made towards filling this knowledge gap (II-6, Table 2).

Certain initiatives by NGOs that give training on agroecology also exist. ZMAG initiative (described below) is an NGO that represents one of civil society educational centre for topics connected to agroecology. Other NGOs that are involved in agroecology are Vestigium, Eko Pan and Permakultura Dalmacija. They all include knowledge sharing as a common practice and most of them have some sort of public education programs, such as workshops on gardening. Permaculture Design courses are also conducted by a few NGOs which provide certificates of attendance.

⁶⁷ Advisory Portal (Savjetodavni portal). 2021. - Uprava za stručnu podršku razvoju poljoprivrede i ribarstva 2021. <https://www.savjetodavna.hr/> (Accessed 19 Jul 2021)

3.2. LIVING LAB



Living labs seem to not be present in Croatia, or at least are not using this terminology. Only one of the key informants who participated in this research knew the term.

3.3. MOVEMENT



Movement seems to be the most widespread activity category of agroecology in Croatia. Most of these activities are carried out in various forms by civil society initiatives, including through the dissemination of information, education, and gathering farmers in NGOs, GSR (Groups of solidary exchange – “Grupe Solidarne Razmjene”), SEG (Solidary ecological groups – “Solidarne Ekološke Grupe”), or other associations or forms of short supply chain initiatives.

Namely, there are 2,231 associations that are listed with sustainable development as an area of their activity, and 1,520 with rural development according to the Register of Associations of the Republic of Croatia. Few focus on agroecology as their main area of interest and action. Nevertheless, some initiatives with an interest in broad ecological issues, contain agroecology as a small part of their programmes.

Civil associations in Croatia are mostly dependent on funding coming from projects; however, the number of projects they can apply to are limited since agroecology is still not recognised by the government. Philanthropy, as a form of financing, is underdeveloped in Croatia which affects the ability of NGOs to work towards their missions and goals.

3.4. PRACTICE



Since Croatia entered the European Union (EU) in 2013, many of the practices applied by farmers have become more environmentally friendly, especially due to the Common Agriculture Policy (CAP) and to measures from the Rural Development Programme for the Period 2014-2020 (RDP). Many farmers are now abiding by recommended practice protocols such as the “Good agronomic practices” (GAP) or the FAO’s principles for developing sustainable agriculture (HRV-KI-1, Table 1). Farmers are also implementing different integrated plant and water protection practices in association with the EU Nitrate directive for restricting the use of nitrogen. Still, while the situation may have improved in the last few years, most farmers only comply with the minimum requirements and laws which creates little momentum for the implementation or development of agroecology (HRV-KI-1, Table 1).

Organic agriculture in Croatia includes different aspects of agroecology but for most farmers with organic certifications, practice only an augmented version of conventional farming. For example, many of them use the same practices as in conventional farming, like monocultures and different chemical formulas that are permitted for organic production. This could be seen as a transitional phase to agroecology, as it is giving some attention to problems of agriculture-related to impact on the environment (II-1, Table 2). On the other hand, the county of Zagreb has developed an action plan with experts on organic agriculture to achieve 100 % organic agriculture by 2030 which could expand the presence of agroecology in the country (Karoglan Todorovic and Znaor 2020).

Within the last few years, more initiatives have been found that taking agroecology beyond organic and considering practices that are beneficial and regenerative to the environment, not just reductive or neutral in harm (II-6, Table 2). They may still be few, but this gives an indication that agroecology is moving forward in Croatia.

3.5. SCIENCE



The inception of scientific research associated with agroecology in Croatia was mainly found on topics of soil science such as those related to rational fertilisation and the effects of tillage (Seremesic et al. 2021). Some important research on agroecology was done by M. Gračanin (1901–1981), succeeded by V. Mihalić, A. Butorac, and F. Bašić at the Faculty of Agronomy, University of Zagreb. The most recognised scientists on the topic are in the University of Osijek -Z. Mađarić and I. Mušac.

The biggest institution that conducts research and education in the field of agronomy is the Faculty of Agriculture in Zagreb⁶⁹. There, agroecology research is conducted mainly through soil science, soil biology, soil management, agroclimatology, plant nutrition, and general plant production departments (Seremesic et al. 2021). Agroecology research is also conducted at the University of Osijek, in the Faculty of Agro Biotechnical Sciences through organic production topics, and at the University of Zadar where they are currently working on different topics related to theory such as agroecosystem resilience under climate change through pollination and beekeeping. Nevertheless, none of these institutions recognise agroecology as a separate discipline. Seremesic et al. (2021) state that "most agroecologists in Croatia study complex relationships among members involved in agrobiocenosis, the relationships between intertwining factors interacting within agroecosystems, the plant cultivation system in larger agricultural areas, and the agricultural landscape as an ecosystem".

Croatia has a formal institution that is in charge of research in the field of agronomy called the Croatian Agency for Agriculture and Food (HAPIH, Znaor and Landau 2014). It is organised in centers that focus on different fields of agronomy but to date, has no recognition of agroecology or mention of organic agriculture. In the past, there was a Council for research in agriculture (VIP) but their program were substituted by the European Innovation Partnership projects in 2018. In their report of granted research projects from 2016, there are several topics related to agroecology such as "Sustainable soil management measures in organic agriculture for climatic conditions of Mediterranean Croatia" and "Increasing the competitiveness of sugar beet production by introducing alternative and non-pesticide methods of pest control".

The Croatian Foundation for Science supports a project called ACTIVE soil that is creating an assessment of conservation soil tillage as an advanced method for crop production and prevention of soil degradation.

Apart from universities, some private businesses are also conducting research to develop environmental sustainability. For example, OIKON Ltd. – Institute of Applied Ecology, has subjects in agronomy and has led a few projects to develop sustainable agriculture. Moreover, the Ruđer Bošković Institute, Division for Marine and Environmental Research, researched and catalogued traditional Croatian varieties of agricultural crops and breeds of domestic animals, which contributes to agroecology related research.

⁶⁸ <https://ceraneo.hr/objavljen-indeks-odrzivosti-ocd-a-u-hrvatskoj-za-2019-godinu/> (Accessed 21 Jul 2021)

⁶⁹ The biggest institution that conducts research and education in the field of agronomy is the Faculty of Agriculture in Zagreb - AKIS. 2020. Strategija razvoja poljoprivrede i ruralnog prostora (STARS RAS), Popratni dokument Sustav znanja i inovacija u poljoprivredi (AKIS) u Hrvatskoj. Europski fond za pomorstvo i ribarstvo mjera VII. 1. Tehnička pomoć sufinancirano sredstvima europske unije europski poljoprivredni fond za ruralni razvoj <https://poljoprivreda2020.hr/wp-content/uploads/2020/06/Sustav-znanja-i-inovacija-u-poljoprivredi-AKIS.pdf>

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 2: An overview about initiatives, cases and examples described and analysed.

























































INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Permaculture Dalmatia <i>Permakultura Dalmacija</i>	Regional	NGO	Contribute to a healthy and supportive society based on equitable economics and social connections					
2	Satellite and compost and context <i>Satelit i Kompost i kontekst</i>	National	Civil society	Educating the general public on ecology, permaculture and regenerative agriculture					
3	Croatian Alliance of Associations of Organic Producers (HSEP) <i>Hrvatski Savez Udruge Ekoloških Proizvođača</i>	National	NGO	Promote sustainable development of organic production, to help implement just ecological policies and to take care of national natural resources					
4	Green Network of Activist Groups (ZMAG) <i>Zelena Mreža Aktivistički Grupa</i>	National	NGO	Spread eco-social awareness through examples and education					
5	Istrian Eco Product <i>Istarski Eko Proizvod</i>	Regional	NGO	Organise a market with products exclusively from organic agriculture					
6	Regenerators <i>Regeneratori</i>	National	Unofficial cluster	Analysis, design and education for the implementation of regenerative agriculture					
7	Faculty of Agriculture in Zagreb <i>Agronomski fakultet u Zagrebu, Sveučilište u Zagrebu</i>	National	University	Research and education institution					

Table 3: Additional initiatives, cases and examples in the country - not included in this report.

INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	ADIPA - Society for Research and Conservation of Croatian Natural Diversity	National	NGO	Conservation of Croatian natural diversity through research, education, and promotion					
2	Bio garden <i>Bio Vrt</i>	National	NGO	Seed bank and organic gardening education					
3	BIOM	National	NGO	Nature conservation					
4	Biomara <i>OPG Željko Iličić</i>	Local	Farm	Biodynamic farm – food production					
5	Change we care	International	Project	Climate change adaptation plan					
6	Dalmatia EKO <i>Dalmacija EKO</i>	Regional	NGO	Association of organic producers from Dalmatia					
7	EKO Center Latinovac <i>Eko Centar Latinovac</i>	Regional	NGO	Making the Latinovac village into a lively, inclusive, and sustainable community					
8	EKO Pan <i>Eko Pan</i>	Regional	NGO	Environmental Protection					
9	EKO Zadar <i>EEKO Zadar</i>	Regional	NGO	Support for organic agriculture, nature conservation and sustainable development					
10	Economy of togetherness <i>Ekonomi-jazajedništva</i>	International	NGO	Promoting economic systems working towards the common good					
11	Garden Bed	Local	NGO	Promotion of sustainable ways of living through educational and practical activities					
12	Green Tools Tech <i>Udruga "Gredica"</i>	International	Private sector	Innovative technology to support regenerative agriculture					

INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
13	Lika Cluster <i>KlasterLika</i>	Regional	Branding project	Creating sustainable tourism destination of protected areas					
14	Little market <i>Mali plac</i>	Regional	Farmers market	Selling food from non-industrial sources					
15	Međimurski štacun <i>Mešimurje "Štacun"</i>	Regional	Food retail store	Association of producers and a shop with local products					
16	'OPG Džakula' - Educational Center <i>Sjeverovac</i>	Local – regional?	Education	Educational activity based on farm activity					
17	Ospera <i>Osječki permakulturni aktivisti</i>	Regional	NGO	Permaculture activists through gardening, cultural and pedagogical activity.					
18	Parktipicijacija <i>Parktipicijacija</i>	Regional	Civil society	Promoting urban permaculture					
19	PLANTaža	Regional	NGO	Promoting sustainability through culture					
20	Real food <i>Pravahrana</i>	National	Civil society	Webpage for promotion of local producers					
21	Rewilding Velebit <i>Podivljajmo Velebit</i>	International	European rewilding network	Restoration of natural processes					
22	Smutek	Regional	Utility company	Local street food					
23	Vestigium	Regional	NGO	Development of sustainable food systems and community					
24	Zogeterra	Local	Farm	Agroecological farm providing also educational workshop					



EDUCATION



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE

INITIATIVE N°1 – PERMACULTURE DALMATIA



PERMAKULTURA DALMACIJA
<https://permakultura-dalmacija.hr>

PERMACULTURE DALMATIA

Permaculture Dalmatia is an NGO that started out as an informal permaculture movement in 2012 when three permaculture design courses were organised in Dalmatia. In 2014, they formalised their organisation and started educational projects, such as workshops and lectures. The main aim of this initiative is to contribute to a healthy and solidary society that is based on equitable economic and social connections.

The Permaculture Design Course is internationally recognised and is responsible for educating individuals on many of the practices and values of agroecology. This initiative has given more than a hundred people a course certificate, and thousands more have learned about permaculture through this initiative.

Today, the organisation has around 50 members, with private businesses and other NGOs making up some of the representation. In 2021, they received their first major project through the KA2⁷¹ European project, to work on the rehabilitation of socially marginalised people through urban permaculture.

Permaculture Dalmatia work primarily in the Dalmatia region on the east shore of the Adriatic Sea and are recognised as important guides that are sought for gardening projects, plans, and designs. In the future, they are hoping to explore other aspects of permaculture like green building and good economics. The initiative is financed through projects, memberships, donations, and their registered economic activities such as education, design, and the implementation of projects.

This initiative explores agroecology through permaculture and the “natural agriculture” principles established by Fukuoka and his students. They are spreading permaculture through promoting practices like agroforestry, and connecting individuals who practice natural farming through a “natural agriculture” group. The initiative is also active in working with citizens on problems regarding everything connected to growing food and they channel their problems through helpful sources and organise education on food, waste management, nutrition, the establishment of seedlings, etc.

Many activities are organised regarding food and gardening, and the organisation works closely with other NGOs and projects, such as BioVrt to organise seed exchange. Seeds connect them to citizens, farmers, and local governments through their lobbying for the importance of seed banks and their encouragement of stakeholders to sponsor such projects. Permaculture Dalmatia is collaborating and partnering with many projects in order to leave administrative tasks to NGOs that have better capacities to write grants

KEY FEATURES

- **Type of organisation:** formal NGO
- **Main goal:** transition toward agroecology
- **Founded in:** 2014
- **Farming sectors:** permaculture
- **Scale of the organisation:** regional

⁷¹ KA2- Key Action 2: Cooperation among organisations and institutions - https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-b/key-action-2_en

and get projects funded. Their collaborations include Sunce (Sun), BIOM, Fenix, Županijska Liga Za Prevenciju Ovisnosti (County League for Addiction Prevention), and Maslinari Kašteli Maslinka (Olive Growers Association Kaštel Maslinka).

The initiative also collaborates with elementary schools to create garden education programs for students and teachers on permaculture design. Additionally, they also partner with other NGOs to enlarge such projects in the Dalmatinska Zagora region to further help educate children to be conscious about the environment.



Picture 1: Permaculture Dalmatia working with children in creating garden designs. Source: <https://www.facebook.com/permakulturadalmacija/photos/4459877347367923>.

Permaculture Dalmatia has been an active supporter of many political initiatives that fit within their vision, such as the “Seed is our human right” and “Green renovation of Petrinja” that fought against ecologically harmful and economically not viable projects.

One of their primary ambitions for the next two years is to establish a city garden in Split. The NGO Gredica, a Croatian pioneer of city gardens in Varaždin, is an unofficial guide to the process. Further, Permaculture Dalmacija are members of ZMAG's community seed bank. Due to the four climate zones in Croatia, the members realised that there is a need for specialisation in the conservation of Dalmatian seeds. They hope to raise awareness and act in the protection of biodiversity and food sovereignty by advocating for the Dalmatian Seed Bank project.

WHAT CAN WE LEARN?

The initiative works to empower individuals to take responsibility for their hopes for society and encourages them to take action into their own hands. Permaculture, as a theory, gives individuals the tools to act positively, and this initiative has permaculture at its heart and mind. They encourage people to explore their strengths and ambitions, and support them on their individual path to this realisation. The synergy found within initiative has led to many influential projects. Finally, one of their members has started a project that could create deep momentum in the development of agroecology in the region near the city of Sinj. He is cooperating with the initiative “Ne budi panj, posadi stablo” (Don't be a stump, plant a tree) in order to afforest the area and develop large wind protection for the Sinj fields that have degraded in the last few decades due to neglect.



EDUCATION



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE

INITIATIVE N°2 – SATELLITE AND COMPOST AND CONTEXT



SATELIT | KOMPOST | KONTEKST
<https://www.satelit-edukacije.eu>

SATELLITE AND COMPOST AND CONTEXT

Compost and Context is a small crafts business aiming to educate the public on ecology, permaculture, and regenerative agriculture, while providing consultancy related to the management and design of agricultural systems. Apart from educational workshops it also provides training for farmers. The initiative began in 2019, and since then has held various activities on the themes of sustainability, responsible management, and especially on how to make compost.

The organisation implements agroecology by striving for a more active role for farmers and society at large through regenerative activities, including farming. Their regeneration practices focus on environmental services, the functions of soil, and sequestering CO₂ from the atmosphere by encouraging the use of multiple farming practices on a single space and by moving away from monocultures.

Compost and Context is now collaborating with 'Architectural studio Armano Linta', which was founded in 2020 as an informal team of educators called Satelit. Satelit promotes sustainability through education and channels a wide range of experience and knowledge in sustainable design.

Through collaborations with numerous different actors such as civil society organisations, foundations, faculties, local communities, professional associations, students, pupils, teachers, and citizens, the organisation provides a programme of participatory education to anyone who wants to learn about regenerative and sustainable ways of living.

The main topics covered in their education programmes are agroecological principles, perennial crops, the transition towards agroecology, sustainable food systems, regeneration, a culture of cooperation and participatory decision making, UN global goals, sustainable development, and the four dimensions of sustainability (environmental, economic, social and cultural).

Their work helps individuals create projects, to recognize potential partnerships, and to feel empowered into positive action as an answer to ecological, climate, and socio-economic crises. They use a transdisciplinary approach with practical tools that can help better understand a range of concepts and the actions required for transition. Education is mainly carried out through workshops, presentations, and by participating in public dialogues and forums.

KEY FEATURES

- **Type of education and training:** participative education
- **Type of legal entity:** non-formal education team/ regenerative design
- **Main topics:** transition towards sustainability
- **Members:** designers
- **Training duration:** 1 day to 1 week

⁷¹ KA2- Key Action 2: Cooperation among organisations and institutions - https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-b/key-action-2_en



Picture 2: Compost and Context organises workshops to show principles of composting in practice. Source: Compost and context.

WHAT CAN WE LEARN?

Teamwork is impactful even in small sizes. The team's ability to creatively adapt to the needs of other users makes this knowledge exchange memorable and efficient.



MOVEMENT



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE



HRVATSKI SAVEZ UDRUGA
EKOLOŠKIH PROIZVOĐAČA
<https://hsep.hr>

INITIATIVE N°3 – HSEP

CROATIAN ALLIANCE OF ASSOCIATIONS OF ORGANIC PRODUCERS (HSEP)

The Croatian Alliance of Association of Organic Producers aims to be the voice of organic producers in discussions with decision-makers. The initiative started in 2014 and was formalised into an association in 2017. It is made up of 11 organisations with around 200 members from different regions of Croatia. Their member organisations are "Istrina Eko Product", "Eko Karlovac", "Izvor 2007", "Dalmacija EKO", "Duga", "Stolisnik", "EKO Plod", the "Association of Organic Producers Velebit", "Eko Čazma", the "Association of Organic Producers from the Island of Brač" and "Zagreb Eko" - which together represent almost every region of the Croatian territory.

Their vision of agroecology is localised food systems that directly connect producers and consumers, which implies practices and principles that bring positive change to society at large. HESP concentrates on organic production by advocating innovative models of farming like biodynamics, permaculture, and similar ideas that are compatible with legislation that defines organic agriculture. To ensure the rights of everyone involved in food systems, HESP insists on organic certification as it is the only accreditation that restrains some of the harmful practices in food production.

The alliance is involved in projects some of which are: "Diversity is sustainable", "Eco-logical!", and "Mediterranean agroecological caravan: We learn and share agroecology". All these projects promote agroecological values and are important for the development of organic agriculture in Croatia. They also participate in the informal initiative "Living Villages" that advocates for food sovereignty. They have international collaborations and networks with various organisations such as La Via Campesina, MedNet, and Arche Noah.

Their main activity is lobbying agroecology to decision-makers with the aim to promote the sustainable development of organic food production, to help implement ecological and just policies, and to preserve the country's natural resources. The association promotes knowledge exchange and support among producers, connecting them to one another in order to form stronger markets and share their innovations towards sustainable production. In their efforts to establish productive dialog with policymakers and to lobby for the interests of small and medium-size organic producers, the initiative has become a member of the Committee for "Monitoring the Implementation of Rural Development Measures", Committee for the Protection of Plant Genetic Resources in the Ministry of Agriculture, and the National Rural Network. They are active in their dialogue with the Ministry of Agriculture and have presented them

KEY FEATURES

- **Type of organisation:** formal NGO
- **Main goals:** promoting sustainable development in organic production, helping to implement just ecological policies, taking care of national natural resources
- **Founded in:** 2017
- **Farming sectors:** organic agriculture
- **Scale of the organisation:** national

with the perceived challenges of achieving the Farm to Fork legislation's goal of achieving 25% of total farmland under organic production by 2030. Instead, they are advocating for the increase of real production and organic food supplies on the market instead of focusing on the land surface under organic production.

Together with NGOs "BioVrt u skladu sa prirodom" they are running the campaign and "Život" they are running the campaign "Seed is our human right". The campaign's main goal is to support seed sovereignty as the foundation of any agricultural production. They are highlighting that the lack of ecological seed production in Croatia is due to strict and complicated procedures.

The initiative is funded through membership and short-term projects and is based on voluntary work.



Picture 3: Member of the Croatian Alliance of Associations of Organic Producers farming with permaculture principles. Source: Hrvatski savez udruga ekoloških proizvođača.

WHAT CAN WE LEARN?

Changing policies and legislation that would enable the further development of organic agriculture requires patience, knowledge, and large numbers of voices on the side of change. Even if the preconditions are met, it is a long-term process, but without an initiative such as this change at the systemic level is not very feasible.

POSITIVE IMPACTS



GOVERNANCE: The initiative is active in promoting the farmers' right to produce their own seeds and is currently in continuous dialogue with the authorities to reduce restrictions on seed production. Members of the initiative sit in committees that create and amend laws and measures applied in the sector of agriculture. The initiative has continued to push policymakers to take into consideration all those working in the field before they make their decisions.



COOPERATION: The initiative has developed extensive associations of organic producers at the national level. This is the largest initiative in Croatia that connects individuals that want to implement agroecological principles and practices in the field. Due to their extensive membership, they are likely to have further impacts on policymakers and make room for agroecology in the future.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: The initiative has organised groups of solidary exchange, organic farmers' markets, and manifestations to help market local produce and to strengthen the link between rural and urban places.

LIMITATIONS & CHALLENGES



SOCIETY AND EQUITY:

This initiative has knowledge and willingness to implement real innovation, such as small food refineries fit for smaller communities. Funding available to this type of organisation is projects, but those tenders that involve larger investments require pre-funding, which the organisation cannot afford. While the initiative is actively trying to bring about change and improvements to the food system, and to find support, new ways to implement larger and more impactful projects are needed to create concrete impacts.



MOVEMENT



EDUCATION



PRACTICE



LIVING LAB



SCIENCE



ZELENA MREŽA AKTIVISTIČKI GRUPA
<https://www.zmag.hr>

INITIATIVE N°4 – ZMAG

GREEN NETWORK OF ACTIVIST GROUPS (ZMAG)

ZMAG or the Green Network of Activist Groups have been active in Croatia since 2002. During this time, their activities have created an impact on agroecology in Croatia. They are primarily an NGO that brings together various actors in the field of green living and sustainability. They organise themselves in line with strategic areas of activity, namely education on sustainability, agroecology, sustainable construction, and solidarity economy. In 2013, they signed a contract with the National Foundation for the Development of Civil Society in Croatia and became one of the nine centers of knowledge for social development in Croatia.

KEY FEATURES

- **Type of education and training:** workshop and activities of promotion of agroecology
- **Type of legal entity:** NGO
- **Main topic:** permaculture
- **Members:** activists
- **Training duration:** 1 day to 1 year

ZMAG is involved in the movement, education, and practice of agroecology. They use scientific research in the field of agroecology to expand their knowledge but do not actively participate in the creation of such knowledge. They promote agroecology in order to change attitudes on soil for food, producers, and to encourage consumers to establish sustainable food chains that are fair to everyone.

Their headquarters and center is located in Vukomerić, near Zagreb. The NGO has eight employees and about 15 further associates. ZMAG has a dynamic community whose main goal is to spread ecosocial awareness through examples and education. Therefore, they organise practical and theoretical workshops mainly on the topics of sustainability and permaculture. They provide non-formal education and collaborate with schools within classrooms or outside.

Their education programmes include permaculture design courses, eco gardening workshops, gardening for beginners, and natural construction. Training is available to anyone interested and their duration range from a one-day workshop to a full year course. Their natural construction trainings are through their Academy of Natural Construction - the largest education program ZMAG provides, with more than 100 hours of lectures and practical classes. They also organise events such as Permaculture Day, the Conference on Good Economy, and public lectures. Moreover, they are involved in assisting policymakers to reform curricula in the field of sustainable development.

They cooperate with local governments, civil society, non-governmental organisations with similar interests, communities, farmers, and entrepreneurs. This includes cooperation on a regional level with the city of Ludbreg and Pregrada, and internationally with the Geneva Chamber of Societies and Solidarity Economy, Switzerland, on the topic of the UN's 13 goals for sustainability; with ZEF- Cooperative for Ethical Financing; and the European Network for Solidarity Economy RIPESS that works with partners from Greece, Italy, the Czech Republic, and France.

Currently, they have several ongoing projects such as Our Good Food, Social Seeds Bank, and Cooperative for a Good Economy that uses the Food for Good platform - Short Supply Chains.



Picture 4: Green Network of Activist Groups headquarters- modified traditional Turopolje house. Source: ZMAG Zelenamrežaaktivističkihgrupa - <https://www.zmag.hr>.

WHAT CAN WE LEARN?

ZMAG members have created valuable publications on agroecology, making multiple guides on seed production, how to start a community seed bank, a guide to permaculture design, how to best manage soil, and many more that helped shape the movement and practices in this region. Further, they have helped establish short-chain food supply schemes, workshops on how to produce vegetables, honey, and mushrooms, and have made a difference in knowledge and efforts to sustain local culture by managing their community seed bank.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

ZMAG provides a good example of sustainable living and is effective in managing their natural resources and biodiversity on site, as well as using these examples for education and training.



SUSTAINABLE AND FAIR

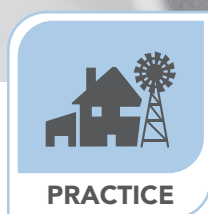
ECONOMICS: ZMAG participates in solidarity economy networks and has its own projects that create and strengthen social links.

LIMITATIONS & CHALLENGES



TRADITIONAL FOOD AND HERITAGE CONSERVATION:

When it was founded, the organisation was hoping to achieve independence in the food supply of its members. Over the years, they have focused more on other projects, and this ambition was never realised. In the future, they would like to invest time and resources to make this initial wish come true.



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE



EDUCATION

INITIATIVE N°5 – ISTRIAN ECO PRODUCT



ISTARSKI EKO PROIZVOD
<http://iep.com.hr>

ISTRIAN ECO PRODUCT

Istarski Eko Proizvod is an NGO that organises a local market that sells organic products and connects organic farmers to consumers in Istria, a peninsula in the north part of the Adriatic Sea. When the organisation was founded in 2012, it was an informal gathering of a few vegetable producers, one dairy farmer and Slavonian producer of organic apples. It soon became apparent that these type of products attracted consumers which encouraged them to further organised and developed a marketplace on an old and unutilised market in Šijana, one of Pula's (biggest city in Istria County) neighbourhoods.

To be a part of this organisation, producers must be certified organic farmers. The initiative also maintains several businesses that regularly buy from producers within the group. They see their consumers as the voices that express needs and doubts, and as such, are a good representation of the larger market demand. The administrators of the organisation are active in their response to such needs and often find new producers or create new products. At first, they were organised as a GSR (group of solidarity exchange) but later decided that the SEG (Solidary Ecological Group) model of organisation worked better for them. Today, they have 200 active members. The organisation is made up of only volunteers, with no paid employees.

The initiative also organises two further markets in Istria, in Rovinj and Novigrad. All markets are open to the public. While local producers have priority, when there is a product missing that consumers are demanding, the organisation reaches out to other Croatian organic producers from other counties. All stalls in the market are free for producers.

Agroecology is found through their support of organic production which provides healthy food and environments for all, as well as a sustainable livelihood for the farmer. By participating in scientific research on olive oil, the initiative also supports knowledge building on the topic.

The organisation is financed through membership and at times, through small outside funding from short-term projects linked to their activity. The initiative sometimes collaborates with other NGOs, most notably ZMAG who supported the project when the initially started the market and now, to run it. They also maintain a notable collaboration with the Poreč institute for agriculture and tourism who works with olive makers to research and producing the highest quality olive oil.

KEY FEATURES

- **Leading organisation:** Istarski Eko Proizvod
- **Founded in:** 2012
- **Agroecological practices concerned:** solidary exchange of organic food produce
- **Farming sectors concerned:** organic agriculture
- **Scale of the initiative:** 200 members
- **Number of stakeholders involved:** producers and consumers



Picture 5: Istrian Eco Product marketplace. Source: Istarski Eko Proizvod - <http://iep.com.hr>.

WHAT CAN WE LEARN?

By providing a space for organic producers to sell their products, they not only give these farmers economic resilience, they are also giving them the rare opportunity to connect with other producers in their region. Further, in a market of all certified organic producers, the farmers don't have to compete with the conventional prices that would be found in ordinary markets that are common in Croatia. This ensures that the farmer has a reliable place to sell their produce, at a fair price, with easy consumer access. This is also an interesting opportunity for the consumer to access a diversity of organic, local products.

POSITIVE IMPACTS



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: This initiative has a direct and significant impact on the local economy for organic agricultural products. By creating this space, the initiative has helped many producers become financially stable, especially those that did not have a stable sale point beforehand.



SUSTAINABLE AND FAIR ECONOMICS: By developing a market for organic products, farmers became interested in the prospect of transitioning to organic practices. The initiative has helped several producers to begin growing organically and becoming certified, including the first producer of organic citrus fruits in Croatia.

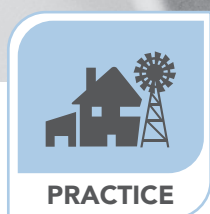
LIMITATIONS & CHALLENGES



COOPERATION: Organic food production is more controlled than conventional production and so it should guarantee the authenticity and quality of its products. Initiative Istarski Eko Proizvod had high hopes for the integrity of its producers and the benefits that this kind of production could have on society and the environment. However, they had some farmers that were selling more products than they could produce considering their land size. This endangered the integrity of the entire organisation.



SUSTAINABLE AND FAIR ECONOMICS: Since many of the organisations members are farmers themselves, they have little time to work for the initiative, making the volunteering aspect of the initiative a challenge. Further, if they wanted to hire any employees, they have no financial to do so.



PRACTICE



MOVEMENT



EDUCATION



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SCIENCE

INITIATIVE N°6 – REGENERATORS

REGENERATORS

Regenerators is an informal cluster which started in 2018. Currently, it is comprised of a socially-owned enterprise "Održivo" (Sustainable), architecture and design studio "Armano Linta", consulting trade business "Kompost i Kontekst" (Compost and Context), two agronomists, and a hydrogeophysicist. They aim to facilitate and speed up the process of implementing agroecological practices and principles in regenerative agriculture. They work as a transdisciplinary team offering different levels of services that lead to holistic agroecological systems.

One of their major missions is to provide design and knowledge in order to transform land into agroecological landscapes. Their clients include anyone, from small landowners that have decided to make their land more sustainable and productive, to public institutions that have large amounts of land that they want to transform in order to develop local communities.

To aid the process of implementing regenerative agriculture, the team offers to make agroecological analyses of the current state of terrains, offer conceptual solutions and sketch out main ideas, and design a new system. The team also offers education on the topics they are competent in: regenerative agriculture practices, permaculture, development of eco villages, community building, and natural construction.

Many of their finished projects can be found throughout Croatia. They have had projects on landscapes as large as 160 ha for public institutions and small private landscapes as small as 2 ha.

The basis of agroecology for this cluster is regenerative farming, whose principles and practices are completely compatible with agroecology. For them, agroecology is manifested through the three elements of science and research, as a social movement, and a set of practices. They are a part of the movement through their engagement and education of individuals on agroecology. Science and research are the primary sources that inspire and support their ideas although they are not at this point engaged actively in this element.

The collaborative nature of the cluster makes this initiative highly synergistic through its different but similar parts. The initiative has no public representation but most of its members are engaged in the public sphere for Croatian agroecology.

One of Regenerator's goals is to implement as many agroecological projects in Croatia as they can, and to speed up the transition towards sustainability. For now, their volume of work is still rather small and the hope for growth is that more entities will recognise the need for implementation of these practices.

KEY FEATURES

- **Founded in:** 2018
- **Agroecological practices concerned:** link with regenerative farming
- **Scale of the initiative:** 2 design and architecture studios, one consulting company and forestry experts.
- **Number of stakeholders involved:** three business entities and three professional associates and clients.



Picture 6: Members of Regenerators co-creating agroecological designs. Source: <https://www.zmag.hr>.

WHAT CAN WE LEARN?

Although it is an informal initiative, the team shows great achievements in implementing principles of just community dynamics in their work. Members of the initiative are highly competent in different aspects of agroecology and together collaborate innovatively and efficiently by using alternative organisational methods. This is a very complex endeavour and every member contributes in their own way on various elements to create a holistic system.

POSITIVE IMPACTS



SUSTAINABLE AND FAIR

ECONOMICS: The initiative manifests equity in decision-making through practicing sociocracy internally.

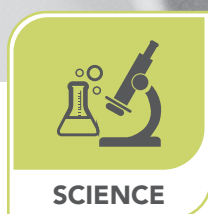


EDUCATION: Services of this initiative train their clients in more comprehensive and practical ways to implement regenerative practices and principles. Agroecology is presented as a circular and holistic concept, more so than through the education and training practices which are available in other organisations.

LIMITATIONS & CHALLENGES



SOCIETY AND EQUITY: The need for the development projects and services that Regenerators can provide is substantial, but the monetary resources of the public Croatian funding are limited, as well as their knowledge on the topic. The initiative offers services that consumers have not yet used and are an important steps in achieving complete solutions such as monitoring and holistic context.



SCIENCE



EDUCATION



LIVING LAB



PRACTICE



MOVEMENT



AGRONOMSKI FAKULTET U ZAGREBU,
SVEUŠILIŠTE U ZAGREBU
<https://www.agr.unizg.hr>

INITIATIVE N°7 – FACULTY OF AGRICULTURE

FACULTY OF AGRICULTURE, UNIVERSITY OF ZAGREB

This institution was founded more than 100 years ago and has trained up to 19,000 agronomists to date. It has about 450 employees and about 2,500 students per year in all fields of agronomy. Two study programmes are more directly connected to the topic of agroecology: the BSc and MSc study programme in agroecology, BSc in Organic Agriculture and MSc in Organic agriculture and Agrotourism.

The institution conceives agroecology as a branch of science, and researches the interactions between the environment and agronomic practices. Organic agriculture represents the primary study of practice and implementation of the general agroecological principles. Related studies programmes are the MSc in Renewable energy sources in agriculture and an MSc in Environment, agriculture, and resource management, both of which are conducted in English.

They publish around 280 scientific papers a year and have 160 research ongoing projects, of which 75% are Croatian, and 25% international. Their goals include contributing to sustainability, quality agronomy in Croatia, and sustainable economic and societal development.

Some of the active scientific research related to agroecology are: management planning and restoration of Dinara dry grasslands to save biodiversity and support sustainable development; socio-ecological challenges of rural development; indicators of resilience of Croatian rural socio-ecological systems; solidarity economies with an anthropological perspective; climate change adaptation measures for sustainable management of natural resources; agrobiodiversity - the basis for adaptation and mitigation of climate change in agriculture; and sustainable food chains through public policies and public sector food procurement.

All the departments in this institution link in some way to agroecology by working on challenges regarding for instance, to the overuse of manure, farm waste and pollution, water contamination with nitrates, and ground erosion.

Some collaborations regarding agroecology are made with foreign institutions. They have collaborated with many institutions including University of Nebraska-Lincoln and Japan Science and Technology Agency. Active expert education and projects in the field of agroecology are done in the field of viticulture, for example by introducing vine varieties that are resilient to fungal diseases and appropriate for the Kutjevo region, or through the introduction and characterisation of vine varieties that are adequate for organic production in the Zagreb county.

KEY FEATURES

- **Founded in:** 1919
- **Main goals:** development of education and scientific activity
- **Main topics:** agronomy and biotechnology
- **Leading organisation:** University of Zagreb
- **Type of actors involved:** academics
- **Funded by:** the state



Picture 7: Students working on faculties organic garden. Source: Lana Zubčić.

WHAT CAN WE LEARN?

This institution has a wide array of fields of research and they have many specialised laboratories. This kind of organisation gives space for interdisciplinary collaboration in the field of agroecology.



5. CONCLUSION AND FUTURE PERSPECTIVE

Nowadays, Croatian agriculture faces multiple issues, which result in about 50% of food imports⁷². Some pioneering initiative were describe and analyse in this research with regards to projects and practices that try to develop a holistic approach to food systems and implement agroecology through its different principles (HRV-KI-1, Table 1). Depending on the activity category considered, agroecology is at different stage of development in Croatia, with clear regional differences but remaining at the national level, generally at a small scale, reaching few stakeholders.

Institutions in the field of agronomy started to contemplate on agroecology not long after the Republic of Croatia was established when Croatia had to reconfigure its economy and establishment for its new context. Croatian entrance to the EU has helped accelerate the transition towards more agroecological practices among farming communities mainly through CAP policies. Science and research link with agroecology are quite developed in certain universities with a long tradition of taking into account agroecology through agronomy disciplines and with ongoing related projects.

Faculties that are related to agronomy have different courses on agroecology focusing on science and research aspects of it. Education of farmers on agroecology is mostly conducted through the Rural Development Programme measures that include agroecological principles. These types of education are mandatory for a farmer to get financial benefits by participating in those measures. The education done through these programmes have been beneficial to situations in fields. It is nevertheless a slow process due to a lack of education toward agroecology and agroecological practices in these institutions. Non-institutional education programmes offer often a more holistic views of agroecology and introduce socio-economic dimensions in agroecology teaching but their curricula are aimed more towards general public and less to farmers.

During this research, living labs were not identified as the term remains mainly unknown among actors in the field of agroecology. Movement initiatives are mostly focusing on sustainable and ecologically friendly solutions in agriculture. Different civil society stakeholders are organising short food supply chains. They open dialogues with policymakers, inform and challenge them to make positive changes and make paths for farmers more feasible to implement alternative systems of production.

Since organic agriculture is a more known term to the public than agroecology, it represents a more developed form regarding the implementation of some agroecological practices. Among organic producers, some work on implementing holistic systems in their approach toward farming and recognise that the position of the farmer in Croatia is far from ideal in economic and social context. They tend to associate more through NGOs trying to advocate for the betterment of their socioeconomic position in Croatian society.

Little private investment can be found in this sector and according to some initiative the mentality is not on the side of collaboration and sustainability (II-4, Table 2). As time is progressing, new generations are more aware of problems and perspectives in agriculture and become a hope for innovation and shifts towards sustainability. Croatian people are still aware of and in contact with rural heritage, the traditional agriculture (II-4, Table 2) that was implemented before the green revolution, and the importance of extracting valuable knowledge from it (II-4, Table 2).

⁷² Trako Poljak T. 2020. „Zaorimo hrvatska polja“ ili o važnosti nacionalne poljoprivredne proizvodnje – <http://hsd.hr/hr/2020/04/16/zaorimo-hrvatska-polja-ili-o-vaznosti-nacionalne-poljoprivredne-proizvodnje/> (Accessed 19 Jul 2021)

Agroecology seems to suffer in its development from a lack of recognition from the government (KI- 2 & HRV-KI-4, Table 1). There is also a lack of knowledge on agroecological practices in civil services, which makes it difficult to register such practices in official registers (II-5 & II-6, Table 2). Laws that rule standards in food production and distribution are the same on the industry level as for small producers, and are stricter than in the rest of the EU such as mandatory egg packing facility for producers who have more than 50 laying hens (II-3 & II-5, Table 2). Convoluted bureaucracy (II-3, Table 2), a small number of people working in the government related to topics and dimension of agroecology and organic agriculture, lack of education for advisory service in this field (II-3 & II-5, Table 2), bad communication between science and policy (HRV-KI-4, Table 1), and no realistic strategy for sustainable development (Matešić 2009 ; HRV-KI-4, Table 1) are different barriers to a larger development of agroecology mentioned by some of the key informant.

There is a positive shift with consumers that are willing to buy products that are seen as sustainable (HRV-KI-4, Table 1), and there is an increase in awareness of citizens who have changed their habits in diets and buying food to support more sustainable and local production (HRV-KI-4, Table 1).

Despite that, agroecology might have the potential to develop further as younger generations are more educated on the matter (HRV-KI-1, Table 1). Croatia has unused agricultural land which is more accessible than in western EU countries due to low prices (HRV-KI-3, Table 1), natural resources, like water and biodiversity, are also regarded to be in good condition.

ABBREVIATION

CAP: Common Agriculture Policy
 CSA: Community Supported Agriculture
 EAFRD: The European Agricultural Fund for Rural Development
 FAO: The Food and Agriculture Organisation
 GAP: Good agronomic practices
 GSR: Grupa Solidarne Razmijene: Solidarity Exchange Group
 HZPSS: Hrvatski zavod za poljoprivrednu savjetodavnu službu: Croatian Institute for Agricultural Advisory Service
 IAKS: Integrirani Administrativni Kontrolni Sustav: integrated administrative control system
 LAG: Lokalna Akcijska Grupa: Local Action Group
 PDC: Permaculture Design Courses
 RDP: Rural Development Programme of the Republic of Croatia for the Period 2014-2020
 SEG: Solidarne Eko Grupe: Solidarity Eco Group
 VIP – Vijeće zalstraživanja u Poljoprivredi- Council for research in agriculture
 ACTIVE soil
 ZMAG – Zelena Mreža Aktivističkih Grupa: Green Network of Activist Groups

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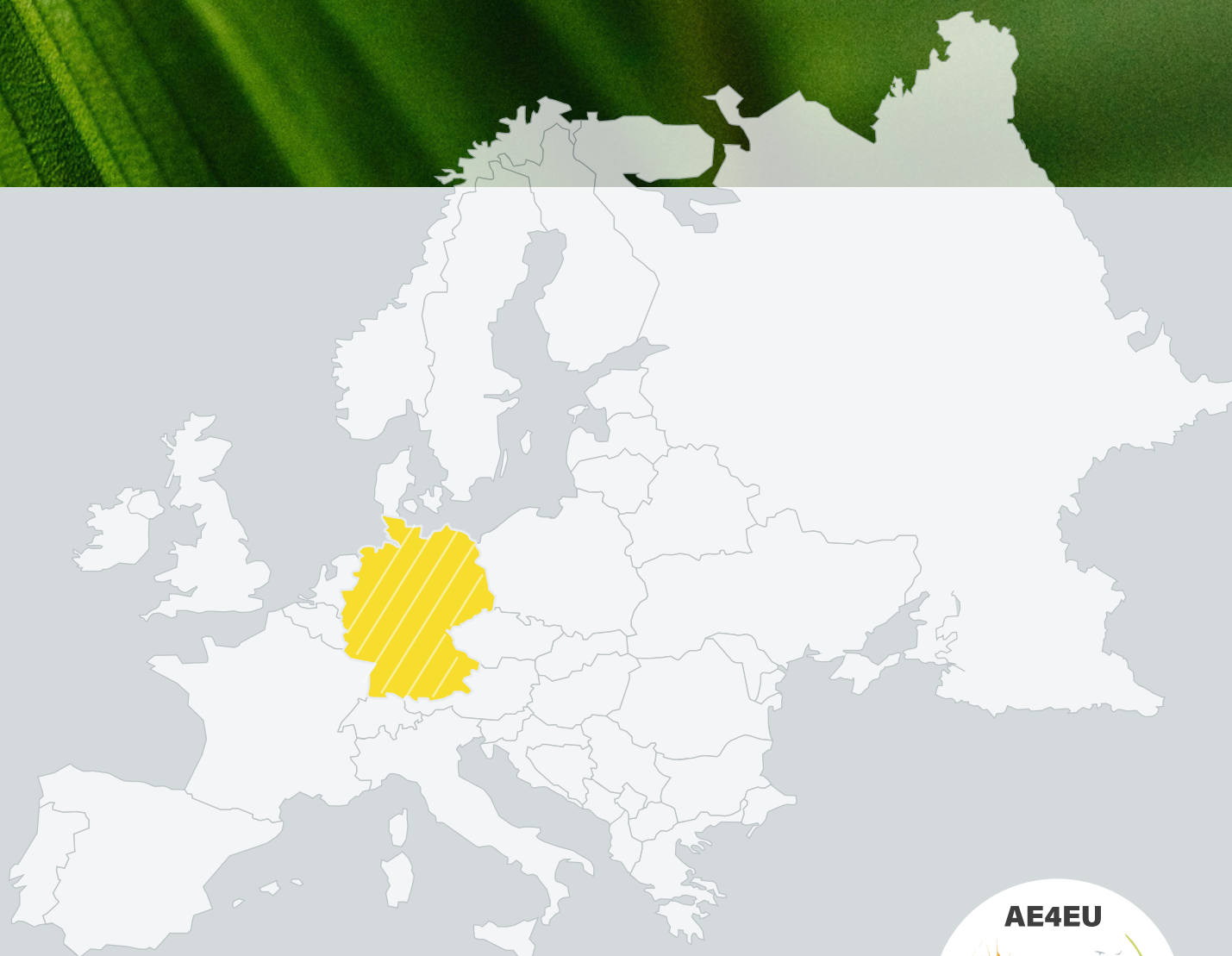
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MAPPING AGROECOLOGY IN GERMANY

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GERMANY

EXECUTIVE SUMMARY

This report analyses the current state of agroecology in Germany and is part of the H2020 project Agroecology for Europe⁷³ (AE4EU). Information and data provided here are results from interviews conducted with 13 experts (named key informants), 15 initiatives representatives and desktop research held between March and July 2021. In this study, information on the development and existing initiatives were collected according to five activity categories: Education and Training, Living Lab, Movements, Practice, and Science.

Agroecology is mainly understood as a science in Germany. Consequently, the concept itself is not much used outside of research institutions. In comparison, organic agriculture is well understood and recognised throughout German society. This lack of recognition can be seen as a major barrier for the development of agroecology, next to economic and political barriers.

Existing initiatives presented here, show that many ways exist to change the status quo. There are different movements, scientific projects as well as networks which were created recently and financed by the state. It aims to bridge the gap between science and practice by linking farmers, advisors and researchers. These initiatives also work to help the cooperation between farmers and nature conservation associations, which was considered as a conflict by many key informants. Education and awareness raising plays an integral part of the initiatives' work and is central for the agroecological transition.

⁷³ www.ae4eu.eu

GERMANY

EXECUTIVE SUMMARY (IN GERMAN)

Dieser Bericht analysiert den aktuellen Stand der Agrarökologie in Deutschland und ist Teil des H2020-Projekts Agrarökologie für Europa (AE4EU). Die hier bereitgestellten Informationen und Daten sind Ergebnisse aus Interviews, die zwischen März und Juli 2021 mit 13 Experten (genannt Schlüsselinformanten), 15 Initiativenvertretern und Desktop-Recherchen geführt wurden. In dieser Studie wurden Informationen zu Entwicklung und bestehenden Initiativen nach fünf Säulen gesammelt: Bildung und Ausbildung, Living Lab, Bewegungen, Praxis, und Wissenschaft.

Agrarökologie wird in Deutschland hauptsächlich als Wissenschaft verstanden. Folglich wird das Konzept außerhalb von Forschungseinrichtungen kaum verwendet. Im Vergleich dazu ist der ökologische Landbau in der deutschen Gesellschaft gut verstanden und anerkannt. Dieser Mangel an Anerkennung kann, neben wirtschaftlichen und politischen Hindernissen, als großes Hindernis für die Entwicklung der Agrarökologie angesehen werden.

Die hier beschriebenen bestehenden Initiativen zeigen, dass es viele Möglichkeiten gibt, den landwirtschaftlichen Status quo zu ändern. Es gibt verschiedene Bewegungen, wissenschaftliche Projekte und Netzwerke. Die vom Staat finanzierte Netzwerken, die Landwirte, Berater und Forscher miteinander verbinden, um die Kenntnisse der Wissenschaft in Praxis zu implementieren. Diese Initiativen dienen auch der Zusammenarbeit zwischen Landwirten und Naturschutzverbänden, die zu oft im Konflikt sind, laut Schlüsselinformanten. Aufklärung und Sensibilisierung sind integraler Bestandteil der Arbeit der Initiativen und zentral für die agrarökologischen Transformation.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Germany are summarised in Table 1.

Table 1: List of key informants in Germany.

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED
1	Research infrastructure	Ecosystem services for sustainable agricultural systems	  
2	University	Organic agriculture, agroecology	 
3	NGO	World nutrition and global agriculture	
4	University	Organic agriculture, agroecology	 
5	Research infrastructure	Experimental and applied ecology pollinators, biodiversity	
6	University	Sustainable use of natural resources	 
7	Ministry of agriculture	Research and innovation	
8	Ministry of agriculture	Coordination of the Research area	
9	University	Research and innovation, Coordination of the Research area	 
10	Research infrastructure	Zoological Biodiversity	
11	Chamber of agriculture	Farm economics	
12	Research infrastructure	Rural development	
13	Chamber of agriculture or Research infrastructure	Biodiversity in agricultural landscapes, botanic	 

2. CONTEXT

Germany has a farmland area of 167 153 km², covering 47 % of the land area (Eurostat, 2019). The average size of agricultural holdings is 60.5 ha (BMEL, 2017), with a great disparity in the different regions in which smaller farms are in Southern and Western Germany (Gindele et al., 2015) and larger farms are in eastern Germany. In the last 30 years, the number of farms has been decreasing while the average size has been increasing. In 2020, 14 % of the agricultural holdings farm owned 62% of the agricultural land⁷⁴. Of the 263 500 farms, 25 % are under 10 ha and 5 % over 200 ha (1500 over 1000 ha)⁷⁵. Germany has had one of the highest declines of very small farms (Domptail et al., 2018). In 2019, around 10 % of the farmland was farmed organically (Bundesministerium für Ernährung und Landwirtschaft, 2021). In Germany, organic agriculture goes beyond the European organic standard regulations for most organic farmers with many established labels and their guidelines such as Bioland, Naturland, and Demeter⁷⁶ (KI-4 & KI-10, Table 1).

The term agroecology is not commonly used in Germany. The concept is understood very differently among various stakeholders. The majority of key informants interviewed for this study defined agroecology as a scientific discipline studying the relationships and connections between species (including humans) in agricultural systems. Two informants stated that agroecology is based on the principles of organic farming or includes organic farming (DEU-KI-1 & KI-8, Table 1). Three informants in Germany also insisted on the notion/idea that agroecology represents a transformative process towards a sustainable food system (KI-2, KI-3 & KI-10, Table 1). The position paper of different NGOs (INKOTA, 2019), called for the German federal government to take a series of supporting measures for agroecology. These include specific financial support for research as well as the development of farmer-led research.

On top of the Common Agricultural Policy (CAP) and EU organic regulations different strategies and policies like the 'Biodiversitätsstrategie' (biodiversity strategy; DEU-KI-1, KI-2, KI-7 & KI-8, Table 1), 'Nutztierstrategie' (livestock strategy; KI-8, Table 1), 'Ackerbaustrategie' (arable farming strategy; KI-2, KI-7 & KI-8, Table 1), the 'Düngeverordnung' (fertiliser regulation; DEU-KI-1, KI-3, KI-7, KI-11 & KI-13, Table 1) as well as the recent 'Insektenschutzgesetz' (insect protection law; KI-2 & KI-13, Table 1), and 'Naturschutzvertrag' (nature conservation agreement; KI-9, KI-11 & KI-12, Table 1) were mentioned by different key informants in Germany. These strategies and policies have some favourable elements for the development of agroecology, e.g. limiting the amount of fertiliser, or protecting specific species.

⁷⁴ https://www.destatis.de/DE/Presse/Pressemitteilungen/2021/01/PD21_028_412.html

⁷⁵ https://www.destatis.de/DE/Presse/Pressemitteilungen/2021/01/PD21_028_412.html

⁷⁶ https://www.umweltinstitut.org/fileadmin/Mediapool/Downloads/07_FAQ/Lebensmittel/vergleich_richtlinien.pdf

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



Education plays a central role in agroecology. In Germany the field was described by key informants as being very fragmented (DEU-KI-1 & DEU-KI-3, Table 1). Different German universities offer courses and programmes in the field of agroecology. Only a few of the courses use specifically the term agroecology (listed in Table 2). Some have courses or programmes in organic agriculture, or about agroecological aspects related to landscape ecology and environmental sciences. The university of Göttingen has several courses in the Bachelor degree of agricultural sciences that are related to agroecology and was mentioned by the majority of key informants. The University of Kassel was the first university to introduce a degree course in organic agriculture in 1995.

Table 2: Courses and programmes in German universities.

UNIVERSITY	COURSE OR PROGRAMME NAME
Göttingen	<ul style="list-style-type: none"> - 'Agrarökologie und Biodiversität' (agricultural ecology and biodiversity, B.Sc. internship and seminar) - 'Agrarökologie und Umweltpolitik' (agroecology and environmental politics, B.Sc. lecture) - 'Agrarökologie, Agrobiodiversität und biotischer Ressourcenschutz' (agroecology, agrobiodiversity and biotic resource protection, B.Sc. lecture, exercises and seminar)
Hohenheim	<ul style="list-style-type: none"> - EUR-Organic: master in organic agriculture and food systems - M.Sc. Environmental Protection and Agricultural Food Production - Field course agroecology and biodiversity (lecture with exercises and seminar) - Agrarökologie (lecture) - Agroecology and Biotic Resource Conservation (lecture in M.Sc. Landscape Ecology)
Kassel - Witzenhausen	<ul style="list-style-type: none"> - B.Sc. and M.Sc. in organic farming - M.Sc. in sustainable international agriculture
Giessen	<ul style="list-style-type: none"> - Agrarökologie und integrierter Pflanzenschutz (Agricultural Ecology and Integrated Crop Protection, B.Sc.) - Agroforest und Mischkultursysteme - Umstellungen und Optimierungsplanung im Ökologischen Landbau
München-Weihenstephan (TUM)	Agrarökosysteme (agroecosystem, B.Sc. course)
Humboldt - Berlin	Agroecology as a community-based strategy for building resilience in contexts of shocks and crises (project seminar)
Greifswald	Landscape ecology and nature conservation, M.Sc.
Münster	"Agroökologie" (agroecology seminar, M.Sc. & Landscape Ecology, B.Sc.)
Bonn	Organic agriculture

In addition, different organisations provide trainings, for example the Demeter Akademie proposes courses on biodynamic agriculture. The Vilm Nature Protection Academy (see initiative description – part 3.1) organises a yearly conference series called "nature conservation and agriculture in dialogue" to improve cooperation among stakeholders.

3.2. LIVING LAB



As living labs are not well known and just emerging, key informants had difficulties to name some. Nevertheless, some could be found in the DG-AGRI survey⁷⁹: patchCROP and the model biodiversity farms in the federal state of North-Rhine Westphalia (see initiative description – part 3.2). PatchCROP is an on farm experiment studying temporal and spatial crop diversification. The model biodiversity farms test and implement biodiversity favouring measures. The other initiatives that were considered as living labs here involve many different stakeholders who cooperate (and sometimes co-designed the projects) to transform the food system. These networks (grassland biotope network, network for animal well-being and network for stock protection) develop practices that get tested by farmers with close scientific monitoring.

Other potential living labs are linked to insect protection like FINKA⁸⁰ ('Förderung von Insekten im Ackerbau', promotion of insects in arable farming), DINA⁸¹ (Diversity of Insects in Nature protected Areas), FInAL⁸² (Facilitating Insects in Agricultural Landscapes through renewable resources), BROMMI⁸³ ('Biosphärenreservate als Modelllandschaften für Insektenschutz', biosphere reserves as model landscapes for insect protection).

Other initiatives especially in the practice activity category, also have living lab characteristics. The model eco-region in Bavaria and the demonstration network pea/bean both have the aim to link farmers and consumers and have established close long-lasting cooperations between the different stakeholders.

3.3. MOVEMENT



Many movements were mentioned by key informants, a lot of organisations exist and advocate for a paradigm shift in agriculture. The majority of them refer to organic farming and rarely use the concept of agroecology.

The 'save the bees' initiative is a good example of a successful grassroots movement that started in Bavaria and spread in other German regions. The petition for the referendum 'Artenvielfalt & Naturschönheit in Bayern' (biodiversity and beauty of Bavarian nature) known by its motto 'rettet die Bienen' (save the bees) to the most successful referendum in Bavarian history in terms of participation. In 2019, the Bavarian Nature Conservation Act was modified to ensure the development of biodiversity in flora and fauna on a permanent basis and to maintain and improve the existing habitats. In Baden-Württemberg a law regarding biodiversity conservation was changed in 2020.

Since 2011, the 'wir haben es satt' (we are fed up,- satt also in the sense of "we are full and cannot eat anymore") movement uniting 50 different organisations has focused on agriculture, environmental, animal and consumer protection, and organised demonstrations all over Germany every year asking for a paradigm shift in agriculture. The "AbL" ('Arbeitsgemeinschaft bäuerliche Landwirtschaft') is an association of rural farmers advocating for sustainable, socially and environmentally compatible agriculture.

Food policy councils (FPCs), starting in 2016 with Berlin and Cologne, are aiming to involve citizen in the decision-making process within the food systems (Sieveking, 2019), create a

⁷⁹ <https://ec.europa.eu/eusurvey/runner/FirstScreeningAELLRI2020> - ⁸⁰ <https://finka-projekt.de> - ⁸¹ <https://www.dina-insektenforschung.de/konfliktmanagement-isoe>

⁸² <https://www.final-projekt.de> - ⁸³ <https://brommi.org> - ⁸⁴ <https://volksbegehren-artenvielfalt.de> - ⁸⁵ <https://volksbegehren-artenvielfalt.de/2019/03/14/jetzt-ist-es-offiziell-rettet-die-bienen-ist-das-erfolgreichste-volksbegehren-in-der-bayerischen-geschichte> - ⁸⁶ <https://wir-haben-es-satt.de/>

new appreciation for food and its producers, and promote local, sustainable and fair food supply. FPCs are gaining in recognition in German cities. The FPCs are gaining in recognition in German cities and the FPC Frankfurt is described in the initiatives section (see initiative description – part 3.3).

'Solidarische Landwirtschaft' (solidary agriculture) is a further movement that has gained recognition, and the association of CSAs in Germany ('Netzwerk Solidarische Landwirtschaft e.V.') created in 2011 lists over 362 CSA (community supported agriculture) schemes⁸⁷.

3.4. PRACTICE



Key informants mentioned mainly five practices that they consider as implemented and as agroecological practices: flower strips, organic farming, agroforestry, reduced or no tillage, and intercropping. One informant specified that while flowering strips are very commonly used since the last years, they probably only represent maximum 1% of agricultural surfaces (DEU-KI-11, Table 1). Furthermore, flower strips can be established for different purposes, e.g. supporting natural enemies to reduce the application of insecticides can be considered as an agroecological practice. Organic farming was often mentioned by key informants (DEU-KI-1, DEU-KI-2, DEU-KI-4, DEU-KI-8, DEU-KI-10 & DEU-KI-11, Table 1). However, it is formally not an agroecological practice (Migliorini and Wezel, 2017; Wezel et al., 2014) but a set of practices, under the regulation of organic certification and currently covering 10% of agricultural surfaces in Germany ('Bundesministerium für Ernährung und Landwirtschaft', 2021). The practices mentioned by key informants are being implemented by farmers, but it is not possible to easily identify the implementation at the country level. Moreover, they are not necessarily labelled in Germany as being agroecological.

In Germany different federal states are actively promoting organic farming at regional or territorial scale with the aim to increase surfaces farmed organically and provide higher amounts of regionally produced organic products: the "Öko-Modelregionen" (eco-model region) in Bavaria (see initiatives descriptions – part 3.4) and Hesse, the "Öko-Musterregionen" (eco-exemplary region) in Baden Württemberg, the "Bio-Regio-Modellregionen" (bio-regional model region) in Lower Saxony. North-Rhine-Westphalia is just starting to develop such initiatives.

3.5. SCIENCE



In Germany, many universities have research groups working on agroecology related themes as is shown in Table 3. Key informants named several research institutions (listed below), which are involved in many different research projects, of which some are presented later in the section on existing initiatives. Main research topics related to agroecology are: (conservation) biological control, non-chemical plant protection, organic farming practices, agroecological practices, biodiversity conservation, agriculture under climate change, evaluation of agro-environment schemes, land use conflicts, alternative supply chains and food systems. Several institutions carry out specific work with research infrastructures such as the Biodiversity Exploratories (see initiatives descriptions – part 3.5).

⁸⁷ <https://www.solidarische-landwirtschaft.org/solawis-findnen/karte#>

- FiBL Germany: Research Institute of Organic Agriculture, Frankfurt
- Thünen Institute: Federal Research Institute for Rural Areas, Forestry and Fisheries, Braunschweig
- Julius Kühn Institute (JKI): Federal Research Center for Cultivated Plants, Quedlinburg
- Helmholtz-Zentrum für Umweltforschung (UFZ): Center for Environmental Research, Leipzig/Halle and Magdeburg
- 'Leibniz-Zentrum für Agrarlandschaftsforschung ZALF e.V'.: Leibniz Centre for Agricultural Landscape Research, Müncheberg
- Institut für Agrarökologie und Biodiversität(IFAB): Institute for Agro-ecology and Biodiversity, Mannheim

Table 3: Research groups in German universities.

UNIVERSITY	RESEARCH GROUP
Göttingen	Agroecology; Functional Agrobiodiversity
Hohenheim	Ecology of Tropical Agricultural Systems
Kassel - Witzenhausen	Organic Agricultural Sciences
Freiburg	Nature Conservation and Landscape Ecology
Munich - Weihenstephan (TUM)	Life Science Systems
Humboldt - Berlin	Agricultural and Food Policy
Giessen	Animal Ecology - Landscape Ecology
Kiel	Landscape Ecology
Bonn	Economics of Sustainable Land Use and Bioeconomy Fachgebiet Agrarökologie und Organischer Landbau (AOL)* des Instituts für Nutzpflanzenwissenschaften und Ressourcenschutz (INRES)
Lüneburg	Ecosystem Functioning and Services Lab
Greifswald	Landscape Ecology and Ecosystem Dynamics
Münster	Applied Landscape Ecology and Ecological Planning
Koblenz - Landau	Ecosystem Analysis
Btu Cottbus-Senftenberg (BTU)	Ecology department, focus agroecology: Organic Pest Management Chair of Social Science Environmental Issues

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 4: An overview about initiatives, cases and examples described and analysed.

INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Agriculture management and biodiversity	National	State academy	Master level course to teach advisors on biodiversity management					
2	Bridging generations in agroecology	International	University (and associations)	Develop methods of knowledge transmission in agroecology					
3	Field – vegetable academy	International	Association	Strengthening awareness of the importance of nature and the appreciation of food					
4	patchCROP	Regional	Farm, University	Increase agricultural diversification by temporal and spatial approaches at the landscape level					
5	Network for animal welfare	National	Farms, Chambers of agriculture, Association, Research institute	Animal welfare, environmentally friendly and sustainable livestock farming					
6	Grassland biotope network	Regional	Farms, University, Research institute	Create and maintain biotopes in grasslands					
7	VSnet, Network for stock protection	National	BLE (central German implementation authority for agriculture and food)	Sustainable post-harvest protection					
8	Biodiversity model farms in North-Rhine Westphalia	Regional	Farms, Chamber of agriculture	Implementation and adaptation of agri-environmental measures					


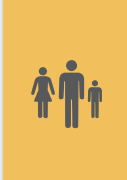



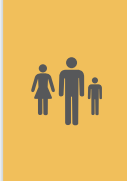































INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
9	Aktion Agrar	National	NGO	Actions for agricultural turnaround					
10	DeFAF (German Association for Agroforestry)	National	NGO	German network of agroforestry					
11	Food policy council Frankfurt	Local / National	NGO	Promote regional, fair and ecological food supply					
12	Model eco-regions Bavaria	Regional	Farms, Businesses, local decision-makers	Increase organic production, create regional value chain					
13	Demonstration network pea/beans	National	Farms, Universities	Support the cultivation and processing of Peas and broad bean and bring together demand and supply					
14	Biodiversity Exploratories	Regional/ National	Research infrastructure, farms	Fundamental research on ecology					
15	F.R.A.N.Z.	National	Research institutes, farms	Implementing effective biodiversity promoting measures					

Table 5: Additional initiatives, cases and examples in the country - not included in this report.

INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
				EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
Soil & More impacts	National	Company	Advising companies in the food industry on climate protection and sustainability (true cost accounting, carbon footprint, among other)					
My agriculture - we are fed up with the agricultural industry <i>Meine Landwirtschaft - wir haben Agrarindustrie satt</i>	National	Alliance	Initiator of the "es satt movement" ('it fed up movement')					
Solidarity network in agriculture <i>Netzwerk Solidarische Landwirtschaft</i>	National	Organisation	Spreading of solidarity agriculture					
Young working group of peasant agriculture <i>jAbL- junge Arbeitsgemeinschaft bäuerliche Landwirtschaft</i>	National	Association	Young farmers, gardeners, beekeepers and other people from the agricultural environment working together on agricultural policy issues					
Agroecology on the upper rhine <i>Agrarökologie am Oberrhein</i>	Regional	EU INTERREG-Project	Support efforts to develop and anchor agroecology in the Upper Rhine region					
Agricultural initiative and sustainable leasing <i>Agrarinitiative und nachhaltige Verpachtung (Verein Greifswalder Agrarinitiative e.V.)</i>	Local	Association	Develop nature conservation measures through a dialogue between owners and farmers (working beyond rigid property boundaries)					
KOPOS-New cooperation and pooling models for land use and food supply in the urban-rural network	Regional	Project	Establish regional supply structures to reconnect urban and rural areas and to practice environmentally friendly management					
Facilitating insects in agricultural landscapes through renewable resources - FInAL	National	Research project	Demonstrate how diversity, biomass and functionality of insects can be enhanced in agricultural landscapes, through integration of renewable resources and implementation of methods of integrated pest management.					
Green grass	National	Research project	Development of innovative technologies for pasture farming					
The agronomists <i>Die Agronauten</i>	National	Non-profit research company	Research company for sustainable, regional agricultural and food culture					



EDUCATION



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE

Bundesamt für
NaturschutzAGRARMANAGEMENT
UND BIODIVERSITÄT
<https://www.bfn.de/>

INITIATIVE N°1 – AGRICULTURE MANAGEMENT & BIODIVERSITY

AGRICULTURE MANAGEMENT AND BIODIVERSITY

Agrarmanagement und Biodiversität is an optional master level course for future agricultural advisors for biodiversity and nature conservation. The course is accessible to all master students studying either agriculture, agroecology or nature conservation (and related fields) in Germany and has been proposed since 2018 by the International Academy for Nature Conservation Isle of Vilm (INA) in cooperation with the IFAB (Institute for Agroecology and Biodiversity), in Mannheim.

Because agricultural advisors often either have knowledge on agriculture or on nature conservation and ecology, and rarely on both, therefore this course aims to consolidate the links between those two fields of knowledge.

The course is recognised by German universities and comprises 130 hours (50 hours optional additional work for more ECTS). After every cycle an evaluation is made with the students and the course is adapted and modified for the next year. A total of 18 students has been set per year. Often more students apply (e.g. over 80 students in 2020) and in this case, an equilibrium of students coming from agricultural universities and students in nature conservation is targeted.

The course is organised as follows:

1. Two days introductory module, including theoretical input, in Göttingen, during Spring;
2. One month practical work (55 hours) in April – September (near the students' universities). Students help and interview a farmer and monitor species on their agricultural land;
3. Five days at the INA to discuss results, exchange experiences and to learn more about concrete measures.

The INA is a facility of the Federal Agency for Nature Conservation (BfN) and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), which finance the course. The course is promoted until 2022. A future objective is to create a nationwide uniformly certifying qualification for biodiversity advisors. Currently the biodiversity advisor job is still very new and there is no comprehensive training in Germany yet. Advisors often have a very good ecological and nature conservation background but do not have the farm management knowledge which often leads to little or unsustainable implementation of measures (which are often not adapted to farmers' reality and economic possibilities).

The IFAB is responsible for organising the theoretical teaching in the course, inviting experts (advisors, farmers) and supervising students. They learn about different agri-environmental measures, the elements of the current CAP, how to implement these and create new ones (or adapt existing measures).

KEY FEATURES

- **Type of education and training:** master level course
- **Main topics:** agricultural management and biodiversity
- **Training duration:** 1 semester
- **Course language:** German
- **Founded in:** 2018
- **Accessible to:** master students in agriculture or nature conservation (and related topics)



Picture 1: The participants of the course agriculture management and biodiversity in October 2021 at the International Academy for Nature Conservation Isle of Vilm under Corona hygiene measures. Source: Kathrin Bockmühl.

WHAT CAN WE LEARN?

The course provides a first training for students interested in becoming agricultural advisors for biodiversity, and it is currently the only one in this form in Germany. The course is made up of a didactic mix of theoretical lectures and interventions by experts which are followed by practical work at a farm.

A very positive element is the fact that students get to give feedback on the course at the end of each cycle, which leads to the improvement of the course. For the moment, each university decides how many credits are provided, usually it is around 6 ECTS when the 180 hours are done.



EDUCATION



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE



bridging
generations
in agroecology

INITIATIVE N°2 – BRIDGING GENERATIONS IN AGROECOLOGY

BRIDGING GENERATIONS IN AGROECOLOGY (BAG)

<https://www.hnee.de/de/Fachbereiche/Landschaftsnutzung-und-Naturschutz/Forschung/Forschungsprojekte/Aktuelle-Projekte/BAG/Bridging-Generations-in-Agroecology-K7197.html>

Bridging generations in agroecology is an ERASMUS+ project on the transmission of knowledge in agroecology, that started in September 2020. The Eberswalde University for Sustainable Development (Hochschule für nachhaltige Entwicklung Eberswalde – HNEE), a university of applied sciences, is one of the six European partners of the project. The partners exchange on educational methods in the field of agroecology sharing their experiences and developing facilitation methods of knowledge transfer. As the project just started recently the partners are still in the process of gathering themes and setting the topics. The next step will consist of developing educational courses and seminars on organic agriculture, cultivation methods, marketing and processing for example, as well educational material such as videos and podcasts. All courses will include practical work. The main target group of the courses are farmers. The developed courses will support young farmers just starting and anyone interested in becoming a farmer.

KEY FEATURES

- **Type of education and training:** courses and seminars
- **Main topics:** agricultural management and biodiversity
- **Type of legal entity:** university
- **Project duration:** 3 years

The project is coordinated by ZIARNO an association for environmental education and training in organic agriculture in Poland. The other partners are: Toekomstboeren, a farmers' association focusing on access to land, connecting and sharing best practices in the Netherlands; InterAfocg, a French national network of farmer's organisations; Schola Campesina, a school and action-research center on agroecology and food sovereignty; Verein für biologisch-dynamische Landwirtschaft, an association offering courses in biodynamic agriculture in Switzerland.

Defining agroecology and develop a common understanding of its principles has been one of the initial steps in the project which referred to the Declaration of the International Forum for Agroecology Nyeleni 2015⁸⁷. Horizontal and intergenerational exchanges are considered as playing a key role for learning about agroecology.

WHAT CAN WE LEARN?

The "bridging generations for agroecology" project regroups six partners from different countries trying to share their expertise, knowledge and experiences to develop an educational material and tools in agroecology. A leading principle is the horizontal and intergenerational transmission of knowledge. The project is a good example of international cooperation to further develop knowledge sharing in agroecology and facilitate the application of practices.

⁸⁷ <https://www.foodsovereignty.org/wp-content/uploads/2015/02/Download-declaration-Agroecology-Nyeleni-2015.pdf>



EDUCATION



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE

 ACKER E.V. – GEMÜSE ACKERDEMIE
<https://www.acker.co>

INITIATIVE N°3 – FIELD - VEGETABLE ACADEMY

FIELD - VEGETABLE ACADEMY

ACKER E.V. (until 2020 named Ackerdemia e. V.) is a non-profit social enterprise aiming to increase the appreciation of food in the society by educating children.

The educational programme GemüseAckerdemie (vegetable academy), was founded in 2014, with the objective to teach children on the origins and production of the food they consume. This is done through creating school gardens, following specific cultivation principles of organic farming. Practices applied are for example mulching, crop rotation, and plant associations. A key aspect is to link practice and theoretical teaching on climate change, sustainability, food appreciation, and interactions in nature.

There are around 140 employees in the association, with a central team in Berlin and different teams in each region (5-8 people per region). There are also “Ackercoaches” (field coaches) engaged temporarily for helping during the season and “Ackerbuddies” (field buddies) who volunteer in the schools (in total 480 people).

In a year there are about 300 hours of courses, usually integrated in the Sachkundeunterricht (teaching of basics in biology, ecology and geography at primary school level), but there are also teachers from different disciplines who use the garden. The teaching cycle is elaborated so that it fits the school programme. Usually it starts in May, the young plants and seeds are planted in the school garden, a member of the organisation is present. Currently there are over 920 pre-schools and schools taking part mainly in Germany. The others are in Austria and Switzerland where the association also accompanies schools (GemüseAckerdemie Schweiz and GemüseAckerdemie Austria). There is an online platform where learning material is provided, and a newsletter consists of tips and indications of things that can be done in the garden is sent every week.

A further project of the association is the programme called Ackerpause (field break). The objective is to promote urban gardening through accompanying enterprises to create gardens and start growing vegetables.

The aim of this initiative is to (re)connect children and adults to food. They follow agroecological principles even though the term in itself is not commonly used. The seeds used in the gardens are local and the sustainable practices taught. The initiative attaches importance to its impact, regularly evaluating their impact on children’s learning and the adults surrounding them (teachers and parents). This is done through focus group conversations and qualitative interviews. Every year an impact report is published on the whole initiative.

KEY FEATURES

- **Type of education and training:** garden courses
- **Main topics:** gardening
- **Training duration:** 1 growing season
- **Type of legal entity:** non profit social association
- **Accessible to:** children or students

The initiative works with different scientific partners (University of Education PH Ludwigsburg, University of Magdeburg, Potstam Institute for Climate Impact Research-PIK) and supervises different student's projects (bachelor/master thesis). The initiative is funded by public funds, foundations, donations and private companies, and partly by the schools. In 3-4 years the school gardens should be managed without exterior help. Acker e.V. has the vision that by 2030 every child in Germany will go through the programme and will have had the chance to harvest vegetables. Gardens should be an evident component of every school. In Germany, for the moment, Thüringen is the only federal state where the subject school garden is officially part of school curricula.



Picture 2: Learning through practice, children are taught in the school garden. Source: Nadine Stenzel.

WHAT CAN WE LEARN?

The GemüseAckerdemie is an initiative that aims to educate children by giving them an opportunity to learn in practice through school gardens and become aware of their consumption habits by creating links with nature and a sense of the complexity of food systems. The agroecology transition will only be possible if citizens are informed and learn about it as early as possible. The initiative has gained a lot of recognition since its creation and has received many awards like the "Zu gut für die Tonne Award" (too good for the garbage bin) in 2019 and as an excellent project by the United Nations Decade on Biodiversity.



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MOVEMENT



EDUCATION

INITIATIVE N°4 – PATCHCROP

PATCHCROP


PATCHCROP
<https://comm.zalf.de/sites/patchcrop/SitePages/Homepage.aspx>

PatchCROP is an experimental platform for a multifunctional and sustainable cropping system. The project started in 2019 and the first experimental implementation took place in 2020. There are over 35 active stakeholders in the project including scientists, students, technicians, but also an agricultural enterprise. This on-farm demonstration project was initiated and is coordinated by ZALF, the Leibniz Centre for Agricultural Landscape Research. The Julius-Kühn-Institut (German research institution) provided expertise developing strategies to reduce the application of synthetic -chemical pesticides. The living lab is financed by the Brandenburgian Ministry of Science, Research and Culture (MWFK) and the Federal Ministry of Food and Agriculture (BMEL).

The main goal of patchCrop is to increase agricultural diversification by temporal and spatial approaches at the landscape level. Research is done on the influence of subdivided field units (patches) and site-specific management on ecosystem services, climate and yield stability. A specificity of the experiment is the simultaneous analysis of various parameters from different subject areas: plant physiology, plant protection, soil fertility, biodiversity, remote sensing, business economics, and modelling at patch, field and landscape level.

The on-farm experiment is done on a 70 ha of land owned by the agricultural enterprise Komturei Lietzen GMBH⁸⁹ in Brandenburg. The farm carries out practices of precision agriculture, conservation soil tillage and retention of crops residues to increase soil organic carbon content. develops practices to reduce the application of pesticides, leaves crops residues on the field to increase the humus content. The patches of 0.5 ha, with every plot having a different crops. Food for pollinators is guaranteed through permanent soil cover and permanent bloom (rapeseed, lupine, sunflower, soybean). Cover and protection for breeding habitats for birds is also provided, favouring the presence of natural enemies. Herbicide reduction is done through mechanical weed control. In order to compare yield and plant growth, they rely on reference fields where common crop rotations are implemented and located in the neighbouring area (the total of 750 ha).

The term agroecology is not used in the projects communication. The development of site-specific management, diversification practices, multidisciplinary research and knowledge dissemination correspond to the agroecological transformation process.

Involved stakeholders meet and discuss regularly on what needs to be measured and the next steps to be taken. The experiment, e.g. the specific crop rotation, the size of the patches (depending on existing machinery), was co-designed with the farm. The co-design and co-innovation approach is a key element of this living lab, objections and remarks from all stakeholders are always considered and integrated throughout the project.

KEY FEATURES

- **Main topics:** diversification in the agricultural landscape
- **Founded in:** 2020
- **Type of organisation supporting the living lab:** research institution
- **Type of actor involved:** agricultural enterprise, scientists and students, agricultural industry
- **Scale of the living lab:** local

⁸⁹ <https://www.komturei-lietzen.de/landwirtschaft.html>

The project is in the first phase of collecting scientific data, which are made available in later stages of the project to more stakeholders, to show that site-specific management in small fields has positive effects on different ecosystem services and represents a viable design of agricultural systems of the future. At the moment, the researchers recognise that such a system is not yet economically viable, and that it is not recommendable to use big machines for fields. A future objective is to expand the implementation to other farms as research has proven that diversification provides multidimensional advantages and opportunities for farmers and environment. The project team are now trying to look for contacts and cooperation possibilities with universities, other research centers, and industries. This is a necessary step to develop the project, innovate, creating new technology and monitoring devices, and acquire missing expertise.



Picture 3: “Das patchCROP Landschaftslabor” – the patchCROP landscape laboratory. Source: Hendrik Schneider, ZALF, July 2020.

The project was also designed with the intention that these smaller plots within one field will in the future be managed by multi-use and multi-purpose robots.

WHAT CAN WE LEARN?

PatchCROP is a living lab that aims to show that temporal and spatial diversification has a positive effect, helping to reduce disease and pest pressure. Through its multidisciplinary research and data acquisition, the project will try to give answers on ecosystem services, yield stability, climate adaptation and mitigation. The project links a multitude of stakeholders from researchers, to technicians, and an agricultural enterprise. Co-design and co-innovation is an integral part of this initiative.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY

MANAGEMENT: Through the promotion of diversification in crop rotations the initiative favours biodiversity and will provide a necessary information on the effectiveness of such a management on ecosystem services.



COOPERATION: Co-design with all the participants of this project is a key feature of this initiative.

LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR ECONOMICS:

At the moment, this type of management, while obviously beneficial for biodiversity, seems not yet economically viable.

Further limitation: There is no consensus on the use of digital technologies in agroecology, but digitalisation in agriculture could play a “complementary role in the agroecological transition only when certain prerequisites” are met (Gkisakis and Damianakis, 2020). While the initiative in itself will provide many information and data on diversification, economic viability, among other the idea on which it is based, has to be questioned from an agroecological point of view.



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PRACTICE



SCIENCE



MOVEMENT



EDUCATION



NETZWERK FOKUS TIERWOHL
<https://fokus-tierwohl.de/de>

INITIATIVE N°5 – NETWORK FOR ANIMAL WELFARE

NETWORK FOR ANIMAL WELFARE

The **network for animal welfare** aims to improve the transfer of knowledge on livestock husbandry practices that promote animal welfare, are environmentally friendly and sustainable in Germany. The project started in December 2019 and is funded by the Federal Ministry of Food and Agriculture (BMEL) as part of the federal program for livestock farming until April of 2023. The network is coordinated by the association of agricultural chambers (Verband der Landwirtschaftskammern) and the Federal Agency for Agriculture and Food (BLE) is responsible for the project.

The network consists of farmers, scientists, advisors and veterinarians. 144 "impulsbetriebe" (impulse operations, 37 poultry, 50 pig, 43 cattle farms) all over Germany, using or developing innovations for animal welfare were chosen by the German Agricultural Society (DLG) and the FiBL (Research Institute of Organic Agriculture). Since there is no financial incentive given to the farmers, the motivation to participate to this project comes from the farmers themselves. Overall 18 partners, including chambers of agriculture, agricultural state offices/institutions are involved in the project.

Specific themes of the network include: handling of sick and injured animals, calf losses, obstetrics and monitoring, mother-related calf rearing, alternative slaughter options/pasture shooting, animal transport, sustainable and animal-friendly husbandry systems, feather pecking and cannibalism, alternative housing forms, animal health, dual-purpose breeds. The different topics are set by the expert advisory board for each animal species (poultry, pig and cattle) consisting of advisors, farmers, scientists and veterinarians. Information is not only gathered on the farms but also from various projects such as the European Innovation Partnership 'Agricultural Productivity and Sustainability' (EIP-AGRI⁹⁰) and the MuD Tierschutz⁹¹ (Model and demonstration projects on animal protection). The information is bundled and shared through regular seminars, workshops and the internet platform. For each state 1-2 so called "Wissenstransfer Tierwohlmultiplikatoren (TWM, animal welfare multipliers) are responsible for the transfer of knowledge within the state.

The term agroecology is not used by the initiative, however the main goal is to make poultry, pig and cattle farms sustainable putting knowledge transfer on animal welfare and ecology at the center of the initiative.

WHAT CAN WE LEARN?

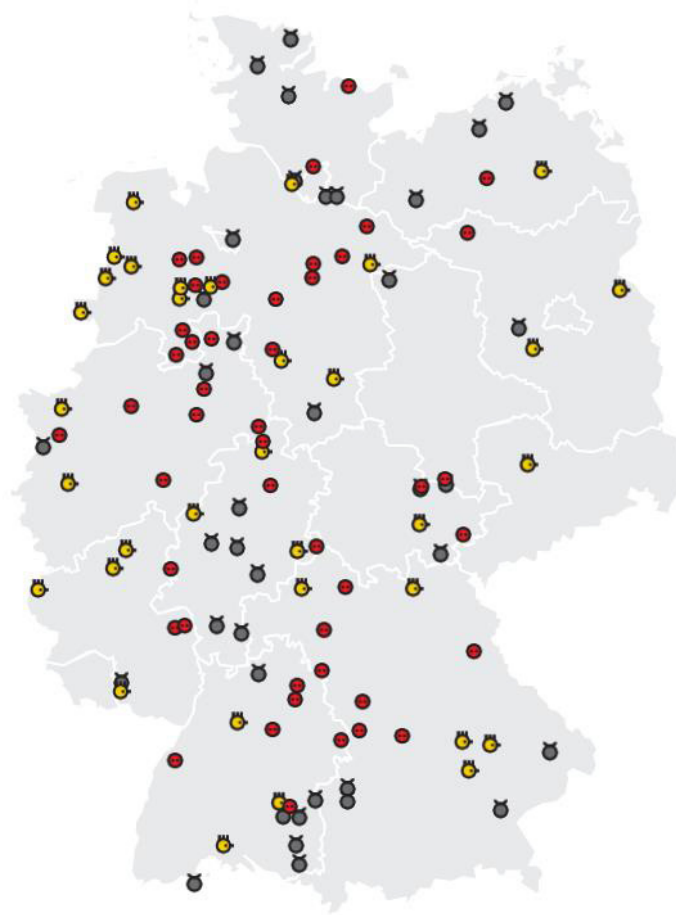
The network for animal welfare is a nation-wide network that provides expertise on (innovative) practices used in animal productions that respect animal welfare and are sustainable. The involvement of organic and non-organic farms, advisors, scientists, veterinarians and the open communication between all the stakeholders involved in animal production are necessary for the development of future livestock farming in Germany.

KEY FEATURES

- **Main topics:** animal welfare
- **Founded in:** 2020
- **Type of organisation supporting the living lab:** research institution
- **Type of actor involved:** farmers, advisors, veterinarians
- **Scale of the living lab:** national

⁹⁰ <https://ec.europa.eu/eip/agriculture/en> -

⁹¹ <https://www.mud-tierschutz.de>



Picture 4: Location of the "Impulsbetriebe", labels represent poultry, pig and cattle farms. Source: <https://fokus-tierwohl.de/de/impulsbetriebe>.

POSITIVE IMPACTS



HEALTH: Animal welfare is closely linked to animal (and human) health and this is reflected in the practices that are shared through the network.



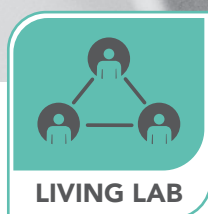
EDUCATION: The main goal of this initiative is to transfer knowledge which reflected by the 152 events that were organised in the five first months. Information is available on the networks websites and stakeholders can freely register to seminars. The initiative also aims to include the acquired knowledge in vocational trainings for young farmers. Communication outside of the network to the general public is also important for the network.



COOPERATION: The involvement, exchange and cooperation between all stakeholders in the animal production sector is an important part of this network.

LIMITATIONS & CHALLENGES

The initiative itself does not set standards on animal welfare and sustainability, it is therefore difficult to determine if the promoted practices are sufficient to improve animal welfare and agroecological animal production. For animal production related practices animal welfare is just one of the key aspects that need to be considered. Animal housing, breed choices, animal management, animal nutrition, veterinary management and integration of cropping, and animal systems are also relevant. Principles for animal production systems include "adopting management practices aiming to improve animal health, decreasing the inputs needed for production, decreasing pollution by optimising the metabolic functioning of farming systems, enhancing diversity within animal production, systems to strengthen their resilience, preserving biological diversity in agroecosystems by adapting management practices" (Migliorini and Wezel, 2017).



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PRACTICE



SCIENCE



MOVEMENT



EDUCATION

INITIATIVE N°6 – VSNET - NETWORK FOR STOCK PROTECTION

NETZWERK
VORRATSSCHUTZVORRATSSCHUTZ NETZWERK
<https://www.netzwerk-vorratsschutz.de/vsnet/de/home>

VSNET - NETWORK FOR STOCK PROTECTION

The **Vorratsschutz Netzwerk (VSnet)** is a project aiming to make the stock protecting measures (e.g. measures to store harvested products) from the national guideline of integrated pest management known to stakeholders, through their implementation in 8 "Demonstrationsbetriebe" (demonstration enterprises) along the value chain (farms, a cooperative, a grain dealer and an organic mill). The VSnet is a BÖLN (The Federal Programme for organic farming and other forms of sustainable agriculture) project, funded by the BLE (Federal Office of Agriculture and Food).

The project started in January 2019 and is led by the Julius-Künen Institut (JKI). The Bundesverband Agrarhandel e.V. (BVA, interest representation of the agricultural trade) is a cooperation partner and other contractors are working on the evaluation of the economical aspects and technical implementation. Among the demonstration enterprises some are conventional and some certified organic.

After a first survey about knowledge and opinions of practitioners on good cereal stocking practices, practical experiments were set up to measures alternatives that can be used to reduce pesticides. For example, the introduction of natural enemies (like parasitic wasps against cereal moths) in the storage and use of preventive methods to keep the storage clean before filling. This practice is still rare in the stock protection sector because it requires an intensive advisory accompaniment. Through expert workshops and collecting experiences, improved stocking guideline should be available at the end of the project. A key aspect is to identify the current problems and look at the technical and financial possibilities to provide adaptable and applicable methodologies. An example that is being tested is a silo with a specific painting which stops gas exchange (a standard practice used already in Australia), therefore protecting what is being stored.

The basic principle followed by the project is to use preventive methods, without pesticides needed, by controlling the grains before they are stored and having a clean storage unit where insects cannot enter. If it gets to an infestation, it is not only important to get rid of it but to understand its origin. This is a repeated process to optimise the practice and avoid any losses (contaminated goods can still be used in biogas plants). Peer-to-peer learning plays an important role in this project involving farmers, advisors and scientists.

The project is funded over three years. Beyond the project, the hope is that the network will be maintained, and in the best case the guidelines will continue to be improved by close cooperation between practitioners, advisors and scientists. The practice storage sector has always been a niche, already in the education of farmer's little amount of time is spent on the subject. Phytosanitary services give little advice on the topic as it is not that lucrative.

KEY FEATURES

- **Main topic:** input reduction in storage
- **Founded in:** 2019
- **Type of organisation supporting the living lab:** BLE (central German implementation authority for agriculture and food)
- **Type of actor involved:** farmers, advisors and scientists
- **Scale of the living lab:** national



Picture 5: Location of the demonstration enterprises.

Source: <https://www.netzwerk-vorratsschutz.de/vsnet/de/home/file/fileId/293/name/Karte%20der%20Demobetriebe.JPG>.

WHAT CAN WE LEARN?

The Vorratsschutz Netzwerk is a project that focuses on cereal and other commodities stock protecting measures, specifically on the objective to reduce the use of synthetic pesticides. The network includes also demonstrations enterprises along the food chain and scientists. Through its methodology the project should provide an important knowledge base on alternatives to conventional stock protecting methods contributing to render storage more sustainable.

POSITIVE IMPACTS



HEALTH: This initiative focuses on an often neglected part of the production system. Establishing measures for reducing the use of pesticides in storage is essential for human health and environment protection. The use of preventive methods, the adaptation and testing of methods is a key feature of this initiative.



EDUCATION: The project provides information to concerned stakeholders, promotes peer-to-peer learning.

LIMITATIONS & CHALLENGES



COOPERATION: In order to change storage practices, financial support is needed as it is currently not lucrative for advisors. Changing policies, proposing effective measures is key to boost participation.



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EDUCATION

INITIATIVE N°7 – GRASSLAND BIOTOPE NETWORK

BIOTOPVERBUND GRASLAND
Ein Netzwerk für mehr Artenvielfalt

BIOTOPVERBUND GRASLAND
<https://www.gruenlandzentrum.org/projekte/biotopverbund-grasland>

GRASSLAND BIOTOPE NETWORK

The **biotope network** aims to stabilise, maintain and develop species diversity, to counteract the loss of species-rich grassland in Lower Saxony, north-western Germany. More than half of the plant species listed in the red list can be found in grassland and around a third of all plant and animal species found in Germany live in grassland. Although the majority of agricultural land is under intensive dairy farming, Lower Saxony areas with extensive grassland exist and need to be managed sustainably.

The project ran from 2017 to 2021. The three-year project was implemented by the Grassland Center of Lower Saxony/Bremen, the University of Oldenburg and the NABU (Nature and Biodiversity Conservation Union) Oldenburger Land. It was funded by the German Federal Environment Foundation (DBU) and implemented by the Lower Saxony Chamber of Agriculture in cooperation with the Grassland Center. The work was carried out in 3 counties, with 1-2 pilot projects involving around 150 stakeholders including regional government, parish districts, road construction management enterprises, water and soil associations, rural associations, hunters, land owners as well as 20-30 farmers.

Variety of methodologies used:

- (i) Introducing regional species-rich mixtures for upgrading the core areas
- (ii) "Mahdgutübertragung" e.g. transferring species-rich seeds stands that are mowed when the seeds are ripe (end of June-beginning of July) to areas which are species-poor
- (iii) Adjust care and management of grassland, using the important seed stock already present in the soil or mowing later

The grassland biotope network can be seen as an innovative system as the cooperation permitted the creation, dissemination and implementation of scientific and methodological knowledge. Measures to increase awareness and acceptance, bundle knowledge are key to further develop and adapt agricultural management.

The project steps included identify core areas for grassland management, find out how to connect them, implement measures and prepare for the future development of conservation and management of species-rich grasslands. The next step is to maintain these biotope networks which will be done by the local actors of the Grünlandzentrum (centre for grassland). The Universität Oldenburg will continue to scientifically monitor the areas. This project was only the beginning of an ongoing cooperation. In the federal states of Schleswig-Holstein and North-Rhine Westphalia, there are comparable on going projects.

KEY FEATURES

- **Main topic:** connecting grassland biotopes
- **Founded in:** 2017
- **Type of organisation supporting the living lab:** grassland center (research center)
- **Type of actor involved:** farmers, scientists and advisors, association, enterprises
- **Scale of the living lab:** regional

The project is innovative in its cooperative approach. Different actors from agriculture, nature conservation, science and authorities were involved and worked together on several pilot areas. Even though the project in itself has ended, the network has been established and will continue to work on linking biotopes and maintain the created corridors. Although they do not specifically name the project in relation with agroecology, it uses agroecological approaches to improve management of grasslands used for dairy production and biodiversity conservation, and uses a multi-actor approach of co-creation and sharing of knowledge.



Picture 6: Biotope network planning, meeting of stakeholders.
Source: Grünlandzentrum, https://www.gruenlandzentrum.org/wp-content/uploads/2021/07/2021-07-15-Endbericht_final.pdf.

WHAT CAN WE LEARN?

The initiative established biotope networks in pilot areas aims to involve many stakeholders. Raising awareness and acceptance of the different measures is a challenge for many agroecological initiatives nevertheless the network managed to do this. This project is a good example that effective measures can be taken to counteract the high biodiversity loss on the used agricultural land.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY

MANAGEMENT: It has been shown that maintaining and (re) creating connection between grassland biotopes is crucial for the protection of biodiversity. This initiative has shown how to establish such biotope networks.



EDUCATION: Education and exchange of knowledge was a key aspect in this initiative. Raising awareness and explaining why and how to create biotope networks was done throughout the project. It was the key to convince farmers and communes to implement effective measures.

LIMITATIONS & CHALLENGES



COOPERATION: A main challenge throughout the project was to include all stakeholders and motivate them to actively participate. The acceptance process is long but essential. Maintaining the involvement and going beyond pilot areas is necessary. The Grünland center will continue to do this.



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EDUCATION

Landwirtschaftskammer
Nordrhein-Westfalen

LEITBETRIEBE BIODIVERSITÄT
NORDRHEIN-WESTPHALIEN
<https://www.landwirtschaftskammer.de/landwirtschaft/naturschutz/leitbiodiversitaet/index.htm>

INITIATIVE N°8 – BIODIVERSITY MODEL FARMS

BIODIVERSITY MODEL FARMS IN NORTH-RHINE WESTPHALIA

The **biodiversity model farms** is a project started in 2016, with 14 model farms implementing biodiversity promoting measures, located in different regions of North Rhine-Westphalia (NRW), western Germany. Each farm was chosen for being representative for the regions, landscapes and main production in the areas. 12 farms practice conventional agriculture while the other 2 are certified organic. The project is coordinated by the chamber of agriculture of NRW.

The main objective is to implement feasible and applicable measures for the farmer, and to measures that will be effective from a nature conservation point of view. The project is based on the 2014 framework agreement to promote biodiversity in the agricultural landscape, carried out by the agricultural associations, the Ministry of Environment, Nature, Agriculture and Consumer Protection of NRW, and the agriculture chamber of NRW.

Through different trials on the farms, farmers collect practical experience which helps further to develop and improve the different measures with the help of advisors. Possible measures are:

- Greening measures (related to the CAP first category – until 2021): ecological focus areas, catch crops, annual flowering mixture for bees “honey fallow” (Honigbrache);
- Agri-environmental measures: flower strips and herbaceous field margins;
- Measures within nature conservation contracts carried out in close cooperation with the biological stations and the lower nature conservation authorities in the region, various funding packages depending on the region: flower strips, fallow land, harvest abandonment, any combination of these measures;
- Voluntary measures (no funding) for grassland management and maintenance: part of the mowing remains over the winter or delayed mowing to provide food and habitat for pollinators.

Increasing biodiversity is at the heart of the initiative, the measures implemented are agri-environmental measures and as such can be considered as agroecological even though the term agroecology is not really used by the initiative. The cooperation of both organic and non-organic farms with advisors is essential for the successful implementation of the measures.

WHAT CAN WE LEARN?

The biodiversity model farms in NRW is an initiative that promotes the implementation of biodiversity favouring measures. The measures are adapted and modified through farm trials. The cooperation between the farmers and advisors is a key aspect of this initiative.

KEY FEATURES

- **Main topic:** biodiversity favouring measures
- **Founded in:** 2016
- **Type of organisation supporting the living lab:** chamber of agriculture
- **Type of actor involved:** farmers and advisors
- **Scale of the living lab:** regional



Picture 7: Location of the 14 farms. Source: Team Biodiversität Landwirtschaftskammer NRW (top) - Different regional seed mixtures. Source: Team Biodiversität Landwirtschaftskammer NRW (right).

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

Through the different measures, the initiative promotes practices that favour biodiversity. The close cooperation between the advisors and farmers is necessary for increasing the acceptance of these measures.

LIMITATIONS & CHALLENGES



COOPERATION: Only 14 farms take part in the project. The team at the chamber of agriculture advises farms all over the region using the experience gathered by the model companies. Much bigger participation will be needed to extend to larger areas and possibly all over Germany.



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INITIATIVE N°9 – AKTION AGRAR


<https://www.aktion-agrar.de>

AKTION AGRAR

Aktion Agrar is an association created in 2014, aiming to change the current conventional agricultural system by establishing a more agroecological one, meaning a fairer, more sustainable and more social peasant farming system. To reach this goal, the initiative implements different actions (petitions, awareness-raising events, demonstrations) to promote the adaptation of the necessary framework conditions.

The association has around 300 members from civil society and almost 18 000 people receive their newsletters. The core team consists of 6 people (3 employees and 3 interns), organising the actions. Decisions are taken by the core team and most active voluntary members.

Currently the association works on the topic of access to land, and demands a fairer land allocation process, more assistance for new farmers and better distribution of subsidies (CAP). Other themes that Aktion Agrar work on in the last years are seeds as common property, milk prices, meat consumption linked to deforestation in the Amazon, and soy imports from outside Europe, for example.

The initiative works on different levels, the first one is to raise awareness, for this, action booklets and information material on different themes are created. A key aspect is then to promote participatory actions and to include citizens that have little or no knowledge on agricultural topics. The association also proposes shorter courses in agricultural training schools and workshops at universities to help young students to build their critical thinking competences.

Agroecology is recognised by the association and while the term in itself is not commonly used, the initiative is promoting the transition through its different actions. Half of the initiatives and actions funding comes from member fees and sponsors; the rest is funded through educational projects.

Aktion Agrar is part of the “Wir haben es satt” alliance⁹², grouping over 50 associations made up of different stakeholders along the food chain and demanding another agricultural policy. The alliance is known for organising big demonstrations and actions in Germany. For every campaign, the initiative looks for partners. In particular, they are collaborating with the AbL (Arbeitsgemeinschaft für Bäuerliche Landwirtschaft) and the Bündnis Junge Landwirtschaft (German young farmer’s alliance) for the current land allocation theme.

KEY FEATURES

- **Main goals:** transform the current conventional agricultural system
- **Founded in:** 2014
- **Type of organisation:** association
- **Farming sector:** every sector
- **Scale of the organisation:** national

⁹² <https://wir-haben-es-satt.de>



Picture 8: Demonstration before the meeting of the agriculture ministers in Koblenz, "against the deaths of farms and insects and misguided agricultural policies".
Source: <https://www.aktion-agrar.de/aktionen/agrargipfel-koblenz>.

WHAT CAN WE LEARN?

The association works for and with farmers to build a different agricultural system. Providing information and educating for future farmers is key to accelerate the agroecological transition. The initiative works on many different themes and does essential work of raising awareness among citizens and increasing citizen pressure on policy makers to change the current political framework.

POSITIVE IMPACTS



SUSTAINABLE AND FAIR

ECONOMICS: A key driver of this initiative is to promote a sustainable and fair agricultural system. The theme on access to land is a good illustration for this.



EDUCATION: Through courses, information booklets the initiative is raising awareness.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE:

Aktion Agrar is a relatively small association with limited number of staff to carry out awareness-raising and other actions. To increase its impact they lack of financial support.



MOVEMENT



PRACTICE



EDUCATION



LIVING LAB



SCIENCE



DEUTSCHER FACHVERBAND
FÜR AGROFORSTWIRTSCHAFT
<https://agroforst-info.de>

INITIATIVE N°10 – DeFAF

GERMAN ASSOCIATION FOR AGROFORESTRY (DeFAF)

DeFAF is a non-profit organisation created in 2019 aiming to promote agroforestry in Germany. The organisation has currently 198 members, including interns, scientists, students, politicians, advisors, farmers, arborists, and tree nursery companies.

The organisation emerged from the proposition (roadmap) of a scientific project on how to advance agroforestry in Germany, conducted by the "Innovationsgruppe AUFWERTEN" (innovation group 'upgrade'). Throughout the project it became clear that a legal structure was needed. AUFWERTEN established the most extensive and up-to-date knowledge on agroforestry in Germany. Many universities were part and active member to the project: Cottbus (Brandenburgische Technische Universität Cottbus-Senftenberg), Freiburg, Göttingen, Weihenstephan (TUM), Gießen and Trier universities.

DeFAF focuses on raising awareness and providing information, this is mainly done through their website which includes an info portal for agroforestry. A main objective is to connect people and provide support to farmers. A map of existing agroforestry systems in Germany was created. Anyone can register and agrees to either give their contact information or not (if yes the DeFAF publishes in then on the portal). The map contains details on the surface of agroforestry systems in Germany by giving a first overview. Although for some federal states there is no information provided yet - does not mean that agroforestry does not exist there. Among the shown agroforestry systems in the map, there are the so called "Streuobstwiesen" (fruit tree meadows) which is a traditional extensively used orchard system in many parts of Germany.

DeFAF is organised in 9 departments working on different themes, in which the members all work voluntarily. So far there is only one administrative employee working for the association.

The law and administration department is working to raise awareness among politicians. In January 2021 the Bundestag (parliament of Germany) voted to promote agroforestry⁹³. However, there is no legally binding definition on agroforestry yet which makes it difficult to determine whether it is an agroforestry system or not. Therefore, DeFAF is urging the Bundestag to decide on one.

As there is no standalone study programme on agroforestry in Germany, DeFAF is trying to convince agricultural schools and universities to create and develop programmes. There is also a youth group called JungenDeFAF for young people interested in agroforestry.

KEY FEATURES

- **Type of organisation:** formal NGO
- **Main goals:** promoting sustainable development in organic production, helping to implement just ecological policies, taking care of national natural resources
- **Founded in:** 2017
- **Farming sectors:** organic agriculture
- **Scale of the organisation:** national

⁹³ <https://www.bundestag.de/dokumente/textarchiv/2021/kw02-de-agroforstwirtschaft-814222>

DeFAF is active in different scientific projects, including "Agroforst als Agrar Umwelt und Klimamaßnahme in Brandenburg"⁹⁴ (AUKM, Agroforestry as an agricultural and climatic measure in Brandenburg). Another project is to create communication and educational programs in Brandenburg, eastern Germany (podcast videos) for farmers and students.

The organisation cooperates with many other organisations and universities through common projects. These include: NABU (Nature and Biodiversity Conservation Union), Deutscher Naturschutzring (German nature protection ring), AbL, links to regional and German farmer's union (Bauernverband). At European level, DeFAF is mainly involved in cooperation with EURAF, the European Agroforestry Federation.

The organisation is funded via donations, member fees and through scientific projects.

WHAT CAN WE LEARN?

The DeFAF works to promote and increase the number of agroforestry systems in Germany. The strength of the organisation is the diversity of its adhering members with different types of stakeholders involved. Agroforestry is gaining popularity through the actions carried out by DeFAF and the work done by the AUFWERTEN group. As an illustration, the Bundestag decided to implement specific funding scheme for agroforestry. In just two years of existence DeFAF has more than doubled the number of adherents and provides information to bridge the gap between scientists, politicians, practitioners, nature conservationists.



Picture 9: Examples of different agroforestry systems. Source: <https://agroforst-info.de>.

POSITIVE IMPACTS



COOPERATION: The DeFAF has greatly grown in its two years of existence. Researchers, farmers, advisors, students, technicians from all over Germany participate. Through its cooperation with the NABU, the German nature protection ring, AbL and even the German farmers union, the DeFAF is showing that agroforestry is a practice that can unite agriculture and nature conservation.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Agroforestry is not a new agricultural system in Germany. Maintaining traditional production systems like fruit tree meadow orchards is an important objective of this initiative.



EDUCATION: The increase in recognition of agroforestry in Germany creates also an increasing demand for more knowledge in the field. The association provides information and is key to the dissemination of new knowledge. A further objective of the association is to create a study programme completely dedicated to this field in German universities.

LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR ECONOMICS: National and European policies seem to limit the development of agroforestry systems. The initiative is working towards clarifying what agroforestry is but this will remain a challenge in the next years, in particular to gain the recognition by policy makers.

⁹⁴ <https://agroforst-info.de/aukm>



MOVEMENT



EDUCATION



PRACTICE



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SCIENCE

INITIATIVE N°11 – FOOD POLICY COUNCIL FRANKFURT

↳ ERNÄHRUNGS

○ RAT

≡ FRANKFURT

FOOD POLICY COUNCIL FRANKFURT

ERNÄHRUNGSRAT FRANKFURT
<https://ernaehrungsrat-frankfurt.de>

The **food policy council (FPC)** Frankfurt was created in 2017 by different associations and individuals, it is formally managed by the organisation BIONALES⁹⁵ (citizens for regional agriculture and food organisation), which has many initiatives working for transforming the food system by building bridges between consumers and farmers. The FPC Frankfurt was created by representatives of different movements (Transition Town Frankfurt, Slow Food, Echt Hessisch, SOLAWI Frankfurt, environment and energy department of the city) to achieve food sovereignty, promoting regional and seasonal production and consumption, and also supporting the city in the implementation of the Urban Food Policy Act⁹⁶ signed in 2015. There are 7 working groups and one steering comity. The association has currently around 150 active members.

KEY FEATURES

- **Main goal:** democratization of food systems
- **Founded in:** 2017
- **Type of organisation:** NGO
- **Farming sectors:** food production and consumption
- **Scale of the organisation:** regional, national and international.

The **major themes of work as well as the action carried out by the FPC Frankfurt** are:

1. Nutritional education and urban school gardens: runs a school garden, where 3rd class children from surrounding schools learn to garden. Since 2021 more schools signed up and there are demands from other districts of the city to run the education programme.
2. Production and marketing: establish and promote short value chains, organic and sustainable production from the region to the city.
3. Communication via website and newsletters showing advancements of actions and programmes.
4. "Main Mittagessen" (my lunch): improving the quality of nutrition in public institutions, a current project in close cooperation with the city so that schools can decide what type of catering they want to have for schools and kindergarten.
5. Zero waste: reduce plastics by working on the conception of reusable food containers in the gastronomy sector (e.g. restaurants use the same container and reuse it, and coffee shops accept (re)filling cups and bottles).
6. Permaculture island: model production of vegetables in city gardens using permaculture.
7. This working group is working to establish a "house of food" with different goals: develop a place where people can meet (caterers can meet with producers), warehouse for regional products, could also include a kitchen where caterers and cooks for public facilities could train to use local fresh products. This project is for the moment only at the conception stage and funding is needed to go further.

The food policy council is partly funded by the city every year for specific projects, while the rest is financed through donations and other projects.

⁹⁵ <https://buerger-fuer-regionale-landwirtschaft.de>

⁹⁶ <https://www.milanurbanfoodpolicyact.org/>

The food policy council has strong links to farmers in their surrounding, making it easy to find interested farmers for different projects or actions. The initiative cooperates with other FPCs in Germany. The food policy councils in Munich, Berlin, Cologne and Frankfurt were the first ones to be developed in Germany. Today there are about 75 FPCs in Germany which regularly connected through networking meetings and information sharing. In the federal state of Hesse, the food policy council is the oldest and biggest in Germany. They also closely work with the food policy councils in the state Marburg and Gießen. With the association called Nachhaft in Kassel, the food policy council is putting forward positions to influence the nutrition strategy of the state, and regularly meets with representatives of the agriculture ministry of Hesse. They also have further cooperations with Acker e.V. (until recently Ackerdemia e.V., see initiative description), Refill Deutschland, Öko-Modell Regionen (model eco-region), and Solidarische Landwirtschaft.



Picture 10: Zero waste in Frankfurt, one of the food policy councils working group (left).

Source: <https://ernaehrungsrat-frankfurt.de/arbeitskreise/zerowaste/>, Permaculture island: citizen produce food in the city (right). Source : <https://ernaehrungsrat-frankfurt.de/arbeitskreise/permakulturinseln>.

WHAT CAN WE LEARN?

The FPC Frankfurt works on many different fronts to increase awareness, connect people to the (local and regional) food system and work directly with politicians to change the nutrition strategy of the city. The food policy council has a high number of members and is cooperating with many different other associations. Education and communication are among its priorities and is seen as essential to successfully change food systems.

POSITIVE IMPACTS



ENERGY AND WASTE MANAGEMENT: The food policy council is engaged in the reduction of food waste and promotes regional supply chains.



GOVERNANCE: Through the active participation of around 150 volunteers, the food policy councils are key to raise awareness, involve citizens in food systems decisions.



EDUCATION: The food policy council Frankfurt has real weight and is recognised by decision-makers. Awareness raising is done throughout newsletters, publication of position papers, and active involvement in different city projects linked to education.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE:

The majority of the work is mainly done voluntarily. This type of initiative is seeking for sustainable and more consequent funding.



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE



EDUCATION



Öko-Modellregionen

 ÖKOMODELLREGIONEN BAYERN
<https://www.oekomodellregionen.bayern>

INITIATIVE N°12 – MODEL ECO-REGIONS BAVARIA

MODEL ECO-REGIONS BAVARIA

The **model eco-regions in Bavaria** are aiming to increase the share organic production. In 2012-2013 a study was made to evaluate the state of organic agriculture in Bavaria. Based on this evaluation the agriculture ministry created the initiative in 2013 as one category of the "BioRegio Bayern 2020" programme of the Bavarian state government. A goal of this programme is to strengthen the organic production along the entire value chain and design framework conditions accordingly. For this, the aim to reach 12% of organic farms in Bavaria by 2020 was set and ever since, it has been decided to reach 30% by 2030.

Model eco-regions should aim to gather a community of stakeholders to promote the development of organic agriculture in the region. The funding comes from the Bavarian rural development programme and regions have to apply for it. Since 2014, 27 regions were nominated. Bavaria was the first state to start nominating model eco-regions, followed by Baden-Württemberg, Hesse, and Lower Saxony. North-Rhine-Westphalia was just starting. The main objective is to promote organic farming, every state has a different funding scheme and ways to do this. Every region has one or two project managers coordinating the different projects. They meet every year for three days to exchange on successes and failures in their respective regions.

In all regions the organic production has increased, moreover in some regions it has doubled. The project recognises the importance to involve municipalities as key actor of this transition. A main objective is to promote short supply chains, link producers and processors, involve canteens and fully use the marketing potential. In Bavaria, there are "agroecology competence centers", which focus on organic farming, but also on soil erosion protection and biodiversity for example. They provide advice for nature conservation-oriented agriculture.

In the following section details on the following interviews of three regions are given:

>> WAGINGER SEE – RUPERTIWINKEL

The region around the Waginger lake was the first nominated model eco-region, with currently 10 municipalities involved. The water of the Waginger lake was very polluted, the main objective of the project was to increase the water quality by changing the agricultural systems in the water catchment.

KEY FEATURES

- **Agroecological practices concerned:** organic farming practices
- **Founded in:** 2013
- **Farming sectors concerned:** all
- **Leading organisation:** state of Bavaria
- **Types of stakeholders involved:** farmers, municipalities, food processors, shops, restaurants
- **Scale of the organisation:** regional

In 2013, 7 % of the farms in the region were certified organic, currently there are around 14 %. Over 80 % of the region is grassland, as it is near the Alps, with a high organic meat and milk production. Around 150 organic farms are involved in different projects in the region:

- local production of brewing barley, involving 17 farmers in collaboration with a brewery (Stein), to guarantee fair prices for the domestic production.
- organic spelt and oats production, cooperation project with Bauernhaus (muesli producer)
- extensive old cultivated wheat, with the Bavarian conservation academy, working with Austrian farmers, cooperation with the organic baker network, producing bread.
- increase percentage of local food in canteens.
- a recently started initiative is a CSA system “purely regional food box” that is distributed in the region.
- orchard planting campaign, aiming to plant 1500 fruit trees (850 have already been planted).
- further development of the local meat marketing channels.

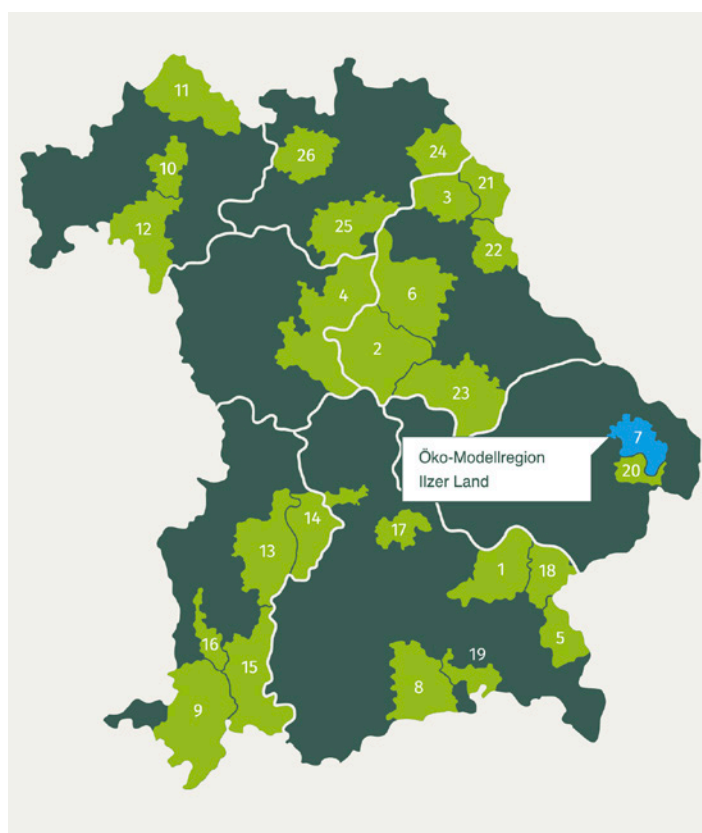
Direct marketing is strongly promoted, with the establishment of accessible producers lists and shop lists. A future project is to build up a network of vegetable producers, so that in three to four years local canteens of institutions will use fresh local vegetables. The region cooperates with the Heumilch (hay milk) region in Upper Austria (initiative presented in Moraine et al., 2016).

>> ILZER-LAND

The region was nominated in 2015 and includes 12 municipalities that are part of the alliance for integrated rural development (ILE-Verband). 9 % of the farms are certified organic. The region aims to increase biodiversity, with a project called “blühendes Ilzer-Land” (flowering Ilzer-Land) by planting perennial flowers in different municipalities. A further project of the region is the orchard campaign, aiming to produce juice from local orchards which is then distributed to the people who collected the fruits and donated to social institutions (kindergarten, retirement homes). Around 30 organic farms are involved. Another programme is the “Ilzer-Land Weidefleisch” (meat from pastures in the Ilzer-Land) aiming to distribute regional on pastures produced meat to restaurant and local shops.

>> OBERMAIN-JURA

The region was nominated in 2019 and includes 16 communes. It currently has 5% of organic farms. Similar to the regions presented before, different projects are taking place. The region produces organic meat but processors and shops selling this meat are lacking. To preserve the small-scale agriculture of the region, field days and information events are done regularly. A recent project is the establishment of a CSA, answering to the high demand of regional organic vegetables.



Picture 11: Map of the Bavarian eco-model regions. Presented here 5, 7 and 27. Source: <https://www.oekomodellregionen.bayern/ueberblick>.

WHAT CAN WE LEARN?

The model eco-regions in Bavaria are examples on how states can promote organic farming, soil and water protection, animal welfare, preservation of the typical biodiversity and landscape features, local recreation and tourism as well as the preservation and creation of jobs derive from these initiatives. The different projects involve whole communities, farmers, and official institutions. By 2030, the state of Bavaria wants to increase the proportion of organically farmed land to reach 30%. BioRegio Bayern 2030 sets new priorities on market development and increasing the demand and sales of organic products from Bavaria.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

Increasing the share of organic farming in the regions is essential to protect and maintain biodiversity. This initiative promotes efficient water management, soil fertility, and biodiversity conservation.



HEALTH: The diversification of production and production of healthy food is key features of this initiative.



SUSTAINABLE AND FAIR ECONOMICS:

In order to convince farmers to change their practices the creation of local commercialisation channels is necessary and always integrated in the projects.



TRADITIONAL FOOD AND HERITAGE CONSERVATION:

Traditional knowledge and gastronomic culture is promoted through this initiative.

LIMITATIONS & CHALLENGES

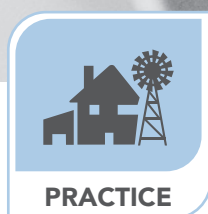


COOPERATION: A major challenge is to get communes to participate. Getting all involved stakeholders (mayors, citizens, farmers) to actively participate and agree on projects is a difficult task.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Funding is needed to ensure the functioning of model eco-region. To reach the ambitious goal of 30% of organic farms by 2030 at the region level, more financial support will be needed.





PRACTICE



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MOVEMENT



EDUCATION

INITIATIVE N°13 – DEMONSTRATION NETWORK PEA/BEAN

DemoNet
Erbse
Bohne



DEMONSTRATIONSNETZWERK
ERBSE/BOHNE

<https://www.demoneterbo.agrarpraxis-forschung.de>

DEMONSTRATION NETWORK PEA/BEAN

The demonstration network pea/beans (Demonstrationsnetzwerk Erbse/Bohne) aims to improve and expand the cultivation of peas and broad beans in Germany. For this, stakeholders along the food chain are involved, from the plant breeder to the grower, the trader and processors of legumes (different similar networks exist on soy bean and lupin) and retailers.

49 demonstration farms have been chosen, distributed all over Germany. Two thirds are under conventional agricultural while the rest is organic. A lot of know-how comes from the organic farms as they are already using legumes in their crop rotations. Organic farms and conventional farms have different approaches. The organic farms answer the questions about how to cultivate legumes sustainably and how to have long-term high legume proportion in the crop rotation. However for the conventional farmers, the focus needs to be on the basic knowledge of cultivating legumes, integrating them in a crop rotation, the importance of adapting their production with the phytosanitary product guidelines, and dealing with yield fluctuations.

The project aims to study diverse crop rotations, to understand the interactions and connectedness of the different parts of the system, to link landscape elements to the cultivation, and to reduce synthetic fertiliser (nitrogen fixation and release) and phytosanitary products (especially fungicides, promoting mycozriza formation). A main focus of the project is to promote knowledge transfer through peer-to-peer learning. Events are organised with lectures and round tables to facilitate the meetings and exchange of different stakeholders.

There are 14 project partners: mostly agricultural advisor bodies and the AbL. Further developments include: organising legumes market, linking farmers for direct inter-company trades; different work with the UFOP (Union zur Förderung von Öl- und proteinpflanzen e.V., union for the promotion of oil and protein plants), lobbying for political measures on legumes to increase the cultivation and remuneration of farmers, creating the association Rheinische Ackerbohne e.V. that links to backers and other food stakeholders to perpetuate the practice. The initiative is funded by the Federal Ministry of Food and Agriculture (BMEL), for the participation and creation of demonstrations systems and farm expense allowances.

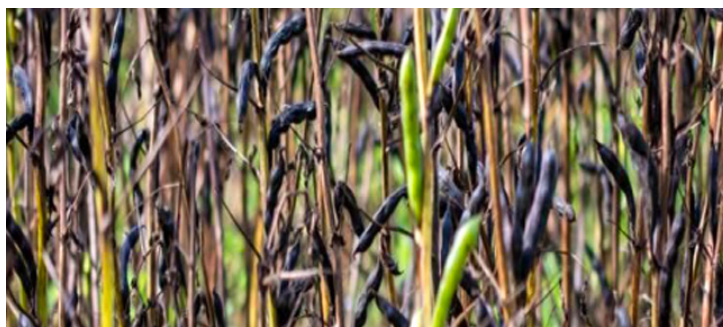
In 2020 around 220 000 ha of grain legumes were grown in Germany. The cultivated surface has risen in the last 7 years. Broad beans are more used in the food system nowadays, for example in the baking industry. Through the network, the political subventions, and the scientific projects, the cultivation of peas and beans has risen hence, more importantly, the producer also received a rising price for broad bean.

KEY FEATURES

- **Agroecological practices concerned:** diversified crop rotations
- **Founded in:** 2016
- **Farming sectors concerned:** cultivation of legumes for feed sector, and food sector
- **Types of stakeholders involved:** farmers, agricultural advisor bodies, farmer's union, processors
- **Scale of the initiative:** national

⁹⁸ Landesbetrieb Landwirtschaft Hessen, Landesforschungsanstalt für Landwirtschaft und Fischerei Mecklenburg Vorpommern, Ministerium für Klimaschutz, Umwelt Energie und Mobilität Rheinland Pfalz, Bayerische Landesanstalt für Landwirtschaft (LfL), Naturland, Bioland Beratung, Landwirtschaftliches Technologiezentrum Augustenburg, Landwirtschaftskammer Nordrhein-Westfalen, Landesamt für Umwelt, Landwirtschaft und Geologie Freistaat Sachsen

⁹⁹ www.leguminosenmarkt.de - ¹⁰⁰ www.ufop.de/agrar-info/erzeuger-info/abnehmerkarte



Picture 12: Examples of pea and beans cultivation in crop rotations. Source: <https://www.demoneterbo.agrarpraxisforschung.de/index.php?id=1>.

WHAT CAN WE LEARN?

The demonstration network Erbse/Bohne involved many stakeholders and showed the importance of increasing the share of beans and peas. The project aim was to analyse the impact of including legumes in crop rotations (in terms of yield, financial gain, reduction of pesticides, etc.) and disseminate the obtained knowledge.

POSITIVE IMPACTS



HEALTH: This initiative promotes the diversification of productions. Including beans and peas in crop rotations has been shown to increase soil fertility and it is then used for animal or human consumption which representing a healthy food source.



COOPERATION: The project promoted the collaboration between actors of the food chain, creating a resilient market system.



EDUCATION: The initiative promotes and develop farmer-to-farmer exchange, as well as knowledge exchange. Dissemination of new knowledge and scientific results was assured.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Creating fair markets for the products remains a challenge. However, such projects are essential to establish or increase national and EU agricultural subventions and influence market demand. The project shows already some economic benefits for farmers.



SCIENCE



PRACTICE



LIVING LAB



MOVEMENT



EDUCATION

INITIATIVE N°14 – BIODIVERSITY EXPLORATORIES

BIODIVERSITY EXPLORATORIES



BIODIVERSITÄTS EXPLORATORIEN
<https://www.biodiversity-exploratories.de/en>

The **biodiversity exploratories** are an open research platform in Germany funded by the German Research Foundation (DFG). Fundamental ecological research is done in three different regions in Germany. These three large long-term study areas were established between 2006-2008. Projects are coordinated by multiple institutions, universities and research centers in Germany, involving around 250 research participants. The objectives of the exploratories is to investigate how biodiversity responds land use intensification, how components of biodiversity interact and how these influence ecosystem processes and ecosystem services.

The three regions (Schorfheide-Chorin (North-East), Hainich-Dün (northwestern Thuringia in the middle of Germany) and Schwäbische Alp (South-West)) differ in their landscape structure and climatic conditions. There are 300 experimental plots overall: 50 grassland plots (around 50x50 m) and 50 forest plots (around 100x100) in each region. Each region has a team working directly with farmers who manage the grasslands. The scientists observe practices, rate of fertilisation, number of livestock on each plot but do not impose rules or specific management. Every year an abstract book in German, where all the abstract of published articles are translated, is published and distributed to key stakeholders.

Currently there are more than 40 active projects, including long-term core projects and contributing projects for shorter periods. The project biodiversity synthesis¹⁰¹ uses all the collected data in the three regions and does a large scale analysis looking at the effects of land-use intensification on interactions between species, ecosystem functions and incorporates social system into the work. This project is in its third funding period and uses the findings from the previous phases. The BEF-Up I & II (Upscaling Biodiversity-Ecosystem Functioning) projects go beyond plots and incorporate the wider landscape surrounding the plots. Biodiversity and ecosystem services are influenced by within-plot management, and the biodiversity and landscape properties around the plot. The BEF-Up I project focusing on grassland, research will be extended to forest and cropland in BEF-Up II¹⁰². The obtained data will be linked to the findings of the SoCuDES project. In the later, local stakeholders (farmers, foresters, nature conservationists, hunters) are involved to see which ecosystem services they rely on. The overall goal of the BEF-UP II is to produce a landscape model to see how biodiversity changes, and how land-use intensification and cover affect biodiversity, ecosystem services, and the people. This is needed to design a multifunctional and more equitable landscape for all.

This initiative provides data on biodiversity and ecosystem services that are very valuable for agroecology. Through its multidisciplinary projects, fundamental biodiversity research within real-world landscapes is done.

KEY FEATURES

- **Main topic:** biodiversity favouring measures
- **Founded in:** 2016
- **Type of organisation supporting the living lab:** chamber of agriculture
- **Type of actor involved:** farmers and advisors

¹⁰¹ <https://www.biodiversity-exploratories.de/en/projects/core-project-ecological-synthesis/>

¹⁰² <https://www.biodiversity-exploratories.de/en/projects/upscaling-exploratories-data-to-understand-the-drivers-of-landscape-multifunctionality/>



Picture 13: Location of the three biodiversity exploratories. Source: <https://www.biodiversity-exploratories.de/de/regionen/uebersicht/>.

WHAT CAN WE LEARN?

The biodiversity exploratories have the most comprehensive existing data set on how biodiversity responds land use intensification. All data and results are shared via the Biodiversity Exploratories Information System (BExIS¹⁰³). Through the groundbreaking scientific research the ecosystem functioning in a real-world setting is analysed.

POSITIVE IMPACTS



COOPERATION: The data collected by the initiative is made available to researchers and to a large extent the general public.

LIMITATIONS & CHALLENGES



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: While the initiative provides a lot of knowledge on ecosystem functioning and the importance of a diverse landscape to maintain biodiversity, the aim is not to produce recommendations favouring biodiversity. Transferring the obtained knowledge into practices, proposing innovative practices are not part of the initiative.

¹⁰³ <https://fusion.cs.uni-jena.de/bpp/>



SCIENCE



PRACTICE



LIVING LAB



MOVEMENT



EDUCATION



INITIATIVE N°15 – F.R.A.N.Z.

<https://www.franz-projekt.de>

F.R.A.N.Z.

The F.R.A.N.Z (acronym for resources, agriculture and nature conservation with a future) project is long-term project (10 years), that started in the beginning of 2017 and aims to find and develop biodiversity promoting solutions. Ten farms distributed throughout Germany are involved, each is typical of the region, and have an area between 70 and 1700 ha. Overall around 40 people are involved in the project, including 1-2 advisors per farms, 5 research institutes (19 scientists), 13 farmers and 4 project managers.

16 measures were developed, 4 for grassland and the rest for arable land. Measures include: blooming measures (annual and perennial plants), extensive grain cultivation with or without undersowing as winter or summer cereal, wild herbs sowing, extensification measures, topsoil removal, beetle/insect bank in the middle of a field, fallow land, nesting places, bird landing areas, vegetation strips for birds inside maize fields, runner bean maize mixture (proposed by the farmers). Every measure has to be implemented 3 times on a farm and on two other farms to be scientifically analysed. The measure catalogue is established in cooperation between the stakeholders.

The ecological effects of the measures are analysed, while different target organisms are monitored e.g. vertebrates, rabbits, farmland birds, wild bees, ground beetles, and arable weeds. Different research institutions carry out the monitoring of species or involve in socio-economic and cost investigations such as University of Göttingen, three Thünen Institutes and the Michael Otto Institut of the NABU (MOIN). The project coordination is done by the Umweltstiftung Michael Otto (Environmental Foundation Michael Otto) and the German Farmers' Association (Deutscher Bauernverband). F.R.A.N.Z has set itself the target to develop and test measures to preserve and increase biodiversity in agricultural landscape. The measures for nature conservation should be transferred to other farms on a mid-term to long-term basis. Therefore, it is important that the measures can be easily integrated into normal farming practices and that farmers do not suffer economic disadvantages.

Regional events on farms are organised annually with farmers, nature conservation associations, agricultural associations, scientists and administration stakeholders. A special attention is given to increase the acceptance of biodiversity promoting measures for farmers. Moreover, exchange between experts and scientists are organised as well as dialogue with politicians and other stakeholder for awareness raising and change mindsets from all sides.

Success of the project is dependent on the framework as it is a project where farmers can try out things without risking too much yield or economic loss as each measure is reimbursed if occurring, and there is a good accompaniment by experts.

KEY FEATURES

- **Main goal:** implementing practical and economically viable biodiversity-promoting measures on farms
- **Founded in:** 2017
- **Main topics:** biodiversity-increase in agricultural landscape
- **Lead organisation:** Umweltstiftung Michael Otto and Deutscher Bauernverband
- **Type of actors involved:** farmers, scientists, advisors
- **Funded by:** BMU and BMEL via BfN/Landwirtschaftliche Rentenbank



Picture 14: Location of the demonstration farms.
Source: Umweltstiftung Michael Otto.

WHAT CAN WE LEARN?

The F.R.A.N.Z project is developing biodiversity favouring measures through a close cooperation with farmers, advisors and scientists. The impact and feasibility (cost and acceptance) of these measures are studied and will be used to provide policy recommendations. The project considers that bundles of measures are necessary. The measures need to be well-accepted and have ecological beneficial impacts. A further important aspect is the longevity of the project as this is key to develop effective measures.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

The initiative promotes the implementation of biodiversity favouring measures and monitors them. A main characteristic of the initiative is the development and site specific adaptation of measures ensuring long-term impact.



COOPERATION: Farmers, scientists and advisors cooperate together and co-design the measures.



EDUCATION: Workshops, expert exchanges, field days represent a major part of this project. The farmers were hesitant to implement measures in the beginning however, this has changed over time.

LIMITATIONS & CHALLENGES



GOVERNANCE: The farmers get compensation through the project. The current European and national political framework do not always permit innovation or even adaptation to local settings.

5. CONCLUSION AND FUTURE PERSPECTIVE

In Germany, agroecology is not a term commonly used, as the concept is still mainly understood as a science which was found already more than a decade ago (Wezel et al., 2009). Nevertheless, there are recent agrarian and social movements which recognise and apply the agroecological approach and practices, even though the term is still rarely named. The unclear definition and various interpretation of the concept of agroecology still remains a barrier for its development in Germany. In particular, economic and political barriers were mentioned by both key informants and initiatives representatives. These findings concur with many other studies (Aare et al., 2021; Ferrando et al., 2021; Gliessman, 2019; Miles et al., 2017). The administrative burden was perceived as a discouraging factor for the development and implementation of agroecological practices. The conflict between nature conservation organisation and farmer's unions was mentioned by most key informants. The network and education initiatives presented here all offer potential towards resolving this conflict and have been successful in raising acceptance. Key informants also addressed the fear that agroecology, as it is not clearly defined and understood, could weaken the high standards of organic farming and further play into the confusion of consumers. The most considerable opportunity for agroecology, perceived by some key informants, is to link food system stakeholders and to foster cooperative and bottom-up movements.

The initiatives described in this report are examples of what is already being done or currently being developed and extended. Many of the initiatives do not specifically use the term agroecology. The initiatives show that there are many different ways to transform the agricultural and food system. They rarely have a holistic approach and have limited impacts, however they can definitely serve as good starting points to scale out agroecology. The emergence of living labs (although this notion is almost unknown and not yet used) and networks promoting collaborations between conventional farmers, organic farmers and scientists shows a lot of promises for the future of agroecology in Germany. A key challenge for many of the existing projects is that they are limited in time while getting proper funding is a constant battle. Similar to the development in other European countries, citizens are more aware of the disastrous effects of conventional food systems and are asking for change. The dramatic consequences of climate change and the COVID-19 pandemic are key drivers of this changing awareness in Germany.

ABBREVIATION

AbL: Arbeitsgemeinschaft für bäuerliche Landwirtschaft
 BfN: Bundesamt für Naturschutz, Federal Agency for Nature Conservation
 BLE: Bundesanstalt für Landwirtschaft und Ernährung, Federal Agency for Agriculture and Food
 BMEL: Bundesministerium für Ernährung und Landwirtschaft, Federal Ministry of Food and Agriculture
 BMU: Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, Federal Ministry of the Environment, Nature Conservation and Nuclear Safety
 CAP: Common Agricultural Policy
 DFG: Deutsche Forschungsgesellschaft, German Research foundation
 DLG: Deutsche Landwirtschafts-Gesellschaft, German Agricultural Society
 FiBL: Forschungsinstitut für biologischen Landbau, Research Institute of Organic Agriculture
 F.R.A.N.Z: Für Ressourcen, Agrarwirtschaft & Naturschutz mit Zukunft
 IFAB: Institut Für Agrarökologie und Biodiversität
 JKI: Julius Kühn Institute, Federal Research Center for Cultivated Plants
 NABU: Naturschutzbund Deutschland e.V., Nature And Biodiversity Conservation Union
 MuD: Modell- und Demonstrationsvorhaben (Biologische Vielfalt, Pflanzliche Erzeugung und Tierschutz), Model and demonstration projects (Biodiversity, Plant production, Animal protection)
 UFZ: Helmholtz-Zentrum für Umweltforschung, Center for Environmental Research
 ZALF: Leibniz-Zentrum für Agrarlandschaftsforschung, Leibniz Centre for Agricultural Landscape Research

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MAPPING AGROECOLOGY IN GREECE

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GREECE

EXECUTIVE SUMMARY

The current report provides an overview on the development and the current status of agroecology as a science, practice and movement in Greece. It also includes the description and analysis of a non-exhaustive number of 10 representative initiatives affiliated to the agroecological concept, as identified through personal interviews with key informants and literature resources reviewed, classified under the activity categories of Education and Training, Living Lab, Movements, Practice, and Science.

Although many elements of agroecology exist since the early 80's as developed by ecological farming pioneers and the several initiatives of organic farmers that followed, the agroecological concept has only recently started to be gradually understood and recognised. Indeed, the terms "organic" or "ecological" agriculture are currently more frequently used by stakeholders when they describe agroecological approaches for Greek agriculture. Nevertheless, several of the existing farming practices, organisational structures and principles followed by several initiatives, fit well into the agroecological approach. Further, some civil society and rural movements have started verbally adapting the agroecological framework to describe their work and objectives.

Considering the weaknesses of the agricultural sector in Greece and the potentiality of adapting agroecological approaches by the key actors (farmers, agronomists, decision makers) the development of agricultural education and training on agroecological principles and practices becomes important. This should be combined with focused research and targeted farming sector policies, in order to make possible a paradigm shift of the Greek agriculture towards a truly sustainable farming system at the national level.

GREECE

EXECUTIVE SUMMARY (GREEK)

Η παρούσα έκθεση παρέχει μια γενική επισκόπηση της εξέλιξης και τρέχουσας κατάστασης της αγροοικολογίας ως επιστήμης, πρακτικής και κίνησης στην Ελλάδα. Περιλαμβάνει την περιγραφή και ανάλυση 10 αντιπροσωπευτικών πρωτοβουλιών που συνδέονται με την αγροοικολογική έννοια, όπως προσδιορίστηκε μέσω προσωπικών συνεντεύξεων με βασικούς πληροφοριοδότες και βιβλιογραφική ανασκόπηση, ταξινομημένων σε συγκεκριμένους πυλώνες της Εκπαίδευσης και Κατάρτισης, Ζωντανών εργαστηρίων, Κινήμάτων, Πρακτικής και Επιστήμης.

Αν και πολλά στοιχεία της Αγροοικολογίας υπάρχουν από τις αρχές της δεκαετίας του '80, όπως αναπτύχθηκε από τους πρωτοπόρους της οικολογικής γεωργίας και τις διάφορες πρωτοβουλίες των βιοκαλλιεργητών που ακολούθησαν, η αγροοικολογική έννοια μόλις πρόσφατα άρχισε να γίνεται βαθμιαία κατανοητή και αναγνωρίσιμη. Πράγματι, οι όροι «βιολογική» ή «οικολογική» γεωργία χρησιμοποιούνται επί του παρόντος συχνότερα από τα ενδιαφερόμενα μέρη, όταν περιγράφουν αγροοικολογικές προσεγγίσεις στα πλαίσια της Ελληνικής γεωργίας. Ωστόσο, αρκετές από τις υπάρχουσες γεωργικές πρακτικές, οργανωτικές δομές και αρχές που ακολουθούνται από πολλές πρωτοβουλίες, ταιριάζουν καλά στην αγροοικολογική προσέγγιση, ενώ ορισμένες πρωτοβουλίες της κοινωνίας των πολιτών και των αγροτικών κινήματων έχουν αρχίσει να προσαρμόζουν λεκτικά το αγροοικολογικό πλαίσιο για να περιγράψουν το έργο τους.

Λαμβάνοντας υπόψη τις αδυναμίες του αγροτικού τομέα στην Ελλάδα και το δυναμικό προσαρμογής των αγροοικολογικών προσεγγίσεων από τους βασικούς παράγοντες (αγρότες, γεωπόνοι, υπεύθυνοι λήψης αποφάσεων), καθίσταται σημαντική η ανάπτυξη της γεωργικής εκπαίδευσης και κατάρτισης σχετικά με τις αγροοικολογικές αρχές και πρακτικές, σε συνδυασμό με εστιασμένη έρευνα και στοχευμένες πολιτικές στον τομέα της γεωργίας, προκειμένου να καταστεί δυνατή η αλλαγή παραδείγματος της ελληνικής γεωργίας προς ένα πραγματικά βιώσιμο αγρο-διατροφικό σύστημα σε εθνικό επίπεδο.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Greece are summarised in Table 1.

Table 1: List of key informants in Greece.

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED
1	University and research	Permanent crops and forestry	 
2	Freelancer technical consultancy	Organic farming	
3	University and research	Organic farming / Agroecology	
4	University and research	Agricultural economics	 
5	Local farmer cooperative and movement	Organic horticulture	 
6	International and national food system organisation	Organic farming	
7	Freelancer technical consultancy	Organic farming	 
8	Local farmer cooperative and movement	Organic farming	 
9	Local farmer cooperative and living lab	Regenerative farming	 
10	University and research	Agroecology	
11	Freelancer technical consultancy	Organic farming	
12	Science and Research	Agricultural sustainability	

2. CONTEXT

The Utilised Agricultural Area in Greece occupies 3.22 million ha, representing approximately a quarter of land use¹⁰⁴, employing approximately 528,000 farmers (12% of total labour force), with numbers declining. It is mainly based on small, family-owned dispersed units, as the country is one of the EU Member States with the largest number of agricultural holdings (723,000) but with a low average farm size, of approximately 4.5 ha¹⁰⁵. Characteristically, Greek agriculture produces only 3.9% of the national GDP which is heavily subsidised by the Common Agricultural Policy (CAP)³, with controversial results (World Bank, 2021).

The history of agroecology in Greece is strictly related with the development of the concepts of “ecological”/“organic” farming, having roots in the environmental movement at the beginning of the 1980s. Several entities worked on “ecological farming” starting from the 1980s, as well as on certifications bodies which were initiated in the 1990s (Van Der Smissen, 2001). The first ecological or organic farmers were mostly amateurs who experimented with different organic cultivation methods, following principles of biodynamic agriculture and natural farming. Commercial organic production began in 1982, with demand from abroad on products, like raisins, olives, and olive oil, but with no official related data available until 1992 (Migliorini et al., 2018). Currently there is a strong upward trend for organic farming, passing the 10% landmark (10.3%) in 2019, following official statistics¹⁰⁶, with a general trend throughout Europe, placing Greece in 8th place among EU countries. More specifically, the organic crop area in the country increased from 3,426km² in 2016 (6.5% of total crops) to 5,288 km² (10.3%) in 2019.

The term “agroecology” has only been used in recent years by certain stakeholders (farmers, scientists and civil society), however it is slowly gaining momentum, driven among other reasons by the recent economic crisis (Migliorini et al., 2018). It should also be pointed out that the terms “organic” or “ecological” agriculture are frequently utilised by a number of entities when describing agroecological approaches for Greek agriculture (Migliorini et al., 2018), while the definition given to agroecology is not always clear (GRC-KI-2, Table 1). Organisations working on the conservation of local and traditional agricultural varieties refer to “ecological agriculture” in their activities (Gkisakis, 2011). Other related initiatives, like rural movements, worked and promoted concepts and approaches that largely resonate with agroecology, such as natural farming, regenerative farming, or permaculture (Migliorini et al., 2018), while, the regional group of IFOAM (AgribioMediterraneo¹⁰⁷) has had several initiatives and events in Greece, linking organic agriculture and agroecology (Migliorini, 2011).

At the policy level, the agroecological concept is completely absent, and other references are used to describe existing agri-environmental schemes, such as organic farming (GRC-KI-6, Table 1).

In the academic and research sector, there are developments occurring in Bachelor and Master's programs on the topics of “organic farming” and “sustainable agriculture”, which are being prioritised following the global trend by the main Greek agricultural universities, faculties, and technological education institutes. However, no official curriculum exists on agroecology. Finally, among farmers and formal farmer entities, the term “Agroecology” is not as common as “organic”, or less frequently, “ecological” farming, which are used to describe sustainability-oriented approaches (GRC-KI-2, Table 1).

¹⁰⁴ ELSTAT (Greek National Statistical Institute), 2018. Annual statistical research on Agriculture – 2018. <https://www.statistics.gr/documents/20181/7215cd6b-e28b-e577-10af-31dced4dfb40> (Retrieved July 2021)

¹⁰⁵ Eurostat, 2020. EU database of agriculture. <https://ec.europa.eu/eurostat/web/agriculture/data/database> (Retrieved July 2021)

¹⁰⁶ Eurostat, 2021. Organic farming area in Europe. <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210127-1> (Retrieved July 2021)

¹⁰⁷ <https://www.ifoam.bio/about-us/our-network/regional-bodies/ifoam-agribio-mediterraneo>

A clear shift towards the adaptation of the agroecological terminology and framework appears within the foundation “Agroecological Network of Greece” (abbreviated as “Agroecology Greece”¹⁰⁸), a non-formal entity initiated in 2016. Its aim is to promote agroecology as a science, practice, and movement by connecting primarily agricultural scientists and trainers, to exchange information, knowledge, and research to familiarise with the principles and framework of Agroecology (Migliorini et al., 2018).

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



Following the global trend in agricultural academia, the development of bachelor and Ms.C curricula on the topics of “organic farming” and “sustainable agriculture” has been previously prioritised by the main Greek agricultural universities, faculties, and technological education institutes. Nevertheless, agroecology was never conceptualised as a sole studies curriculum (Migliorini et al., 2018).

A notable exception to the above was the “Applied agroecology”¹⁰⁹ inter-institutional study programme by the University of Ioannina (Northern-West Greece), running from 1998 to 2007. The study programme was formulated as a 4-year Bachelor degree curriculum, equivalent to the other study programmes of the university and recognised by the Greek state. It had the objective to educate students at the university level conceiving agroecology as applied ecology, aiming to protect agricultural ecosystems for production of high quality agricultural and animal products (GRC-KI-1, Table 1).

Currently, agroecology is also included, as an individual course, in the curricula of several universities, such as the Hellenic Mediterranean University (Crete), University of Peloponnese (Southern Greece) and Ionian University (Western Greece) (GRC-KI-1, Table 1), as well as in post-graduate programmes, like in the Mediterranean Agronomic Institute of Chania (CIHEAM – IAMC) (Table 2). In a broader research context, a stated focus on agroecology is made by Hellenic Agricultural organisation (ELGO - Dimitra), formerly known as National Agricultural Research Foundation (NAGREF; Migliorini et al. 2018), as well as the Sustainable Agriculture department of the Mediterranean Agronomic Institute of Chania (CIHEAM – IAMC; GRC-KI-1, Table 1).

Table 2: List of courses at Bachelor and Master level, related to agroecology in Greece.

UNIVERSITY	LOCATION	DEGREE	COURSE OR CURRICULUM TITLE
Hellenic Mediterranean University <i>Ελληνικό Μεσογειακό Πανεπιστήμιο</i>	Heraklion, Crete	Bachelor degree's curriculum	Agroecology course (5 ects, 1 academic semester)
University of Ioannina <i>Πανεπιστήμιο Ιωαννίνων</i>	Arta	Bachelor degree's curriculum	Agroecology course (4 ECTS, 1 academic semester)
University of Peloponnese <i>Πανεπιστήμιο Πελοποννήσου</i>	Kalamata	Bachelor degree's curriculum	Agroecology course (4 ects, 1 academic semester)
Mediterranean Agronomic institute of Chania (CIHEAM-MAICH) <i>Μεσογειακό Αγρονομικό Ινστιτούτο Χανίων (MAIX)</i>	Chania, Crete	Master's degree in Sustainable Agriculture	Sustainable Agriculture MSc degree (2 years)

¹⁰⁹ <http://old.uoi.gr/services/epeaek/agroeco>

Besides the educational initiatives at the academic level, agroecology-related training by farm schools is encountered. Notably, a voluntary, free of charge, farm school on “ecological agriculture” was organised in previous years by organic farmers in the region of Attiki (East of Greece), with courses provided by farmers themselves, university professors, and NGOs (GRC-KI-2, Table 1).

3.2. LIVING LAB



Currently the concept of living labs is not familiar to stakeholders, related or not to agroecology, with the exception of certain academic members and groups involved in EU-level projects and processes (GRC-KI-2 & GRC-KI-4, Table 1). Even so, there are certain examples of agroecological initiatives identified, which largely fulfil the description of a living lab as promoting synergies, co-creation of knowledge and co-design, as well as transdisciplinary activities and real-life implementation of results. These include mainly the work of entities like the Social Cooperative “Melitakes”, located in Crete and the NGO “Southern Lights” (Peloponnese; see related chapter on living labs activity category).

3.3. MOVEMENT



As described in the contextual part, early traces of agroecology can be identified in several initiatives of ecological/organic farming since the 1980's and others regarding agricultural biodiversity conservation, including the NGOs Aegilops and Peliti, or alternative networks of food production and supply. None however have direct verbal references to agroecology, neither becoming officially affiliated to corresponding international movements, e.g to Via Campesina. Some other past collective actions considered to be related to the broader context of the agroecological approach including initiatives opposing the use of genetically modified organisms in agriculture, organised by Greenpeace, the Greek Green Party and organic farmers since 1999 and during the 2000's, as well as a permanent representation of groups and organisations working on agricultural biodiversity and organic farming in a consultative group on plant genetic resources of the Greek Ministry of Agriculture, active from 2010 to 2015 (Migliorini et al., 2018). A clear shift towards the adaptation of agroecological terminology and frameworks appeared with the foundation of the “Agroecological Network of Greece” (Agroecology Greece), in 2016 (GRC-KI-1, Table 1). The network's aim has been to promote agroecology as a science, practice, and movement in Greece by connecting primarily agricultural scientists and trainers. Its main goal is to exchange information, knowledge, and research that will familiarise stakeholders with the principles and framework of agroecology and promote the transition of food production systems towards a truly sustainable form. For these purposes “Agroecology Greece” delivers frequent technical reports on agroecological topics and organises events promoting the agroecological concept, while its members participate through private SMEs, NGOs and research and academic institutes in research and training projects related to agroecology. Additionally it co-hosted the 2nd Agroecology Europe Forum, held in Heraklion, Crete, in September 2019, estimated to have significantly boosted the promotion of agroecology in Greece (GRC-KI-1, Table 1).

3.4. PRACTICE



Greek farmers and relevant stakeholders describe agroecological practices as “ecological farming” practices, when asked (GRC-KI-1 & GRC-KI-2, Table 1). These include for example soil management, plant protection, fertilisation and the use of agrobiodiversity, non-synthetic pesticides, green and animal manure, traditional and local varieties and minimal soil disturbance.

There is no official data found on the extent of application regarding the above practices, however they are applied by the majority of “ecological” farming producers (a very small fragment of active farmers at national level) as well as by commercial organic farmers, as required by organic legislation (GRC-KI-1 & GRC-KI-7, Table 1). However, this compliance with official organic regulations does not strictly imply that farming practices are conducted within the agroecological framework, as many commercial organic farmers perform only a substitution of synthetic inputs with organic ones (i.e. commercial organic fertilisers instead of mineral ones).

It should also be noted that there are several committed initiatives, working on the conservation of agricultural biodiversity (use of traditional/locally adapted varieties practices of agroforestry, permaculture, etc.) which are pioneers on experimenting and applying agroecological practices. In this case, they do not declare to be “agroecological”, but instead use terms such as “ecological”, “agroforestry”, “permaculture”, or “natural farming”, and by adapting agroecological approaches in terms of socio-economic aspects (CSA networks, horizontal transfer of knowledge and innovation between farmers; GRC-KI-2, GRC-KI-2 & GRC-KI-4, Table 1).

3.5. SCIENCE



Agroecological research is considered rather basic in Greece (GRC-KI-1, GRC-KI-2 & GRC-KI-4, Table 1). Research institutes, as well as universities, started focusing on research projects and educational programmes related mostly to organic farming and environment-friendly practices over the last two decades, following the global trends in agricultural academia (Migliorini et al. 2018; GRC-KI-4, Table 1). As in the case of other activity categories analysed in the current report, the concept of agroecology is broadly not well-known or well-defined in the Greek scientific community, with the exception of certain pioneer researchers and academics which have returned from research groups abroad, especially the USA (GRC-KI-1 & GRC-KI-10, Table 1). Research projects on agroecology are mainly coordinated by entities from other countries with participation by Greek institutes. Additionally, no department of an academic or research institute is completely devoted to agroecology or even organic farming, with the exception of the “Mediterranean Agronomic Institute of Chania” (MAICh), Crete, part of an intergovernmental entity (International Centre for Advanced Mediterranean Agronomic Studies, CIHEAM) (GRC-KI-1, Table 1). A shift towards becoming more recognisable was achieved with the initiative of the Greek Agroecological Network and the co-organisation and hosting of the 2nd Agroecology Europe Forum (2019), in Crete (GRC-KI-1 & GRC-KI-2, Table 1). A main obstacle recognised is the multidimensional and still under development concept of agroecology in Greece (GRC-KI-3, Table 1).

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 3: An overview about initiatives, cases and examples described and analysed.




















INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	CIHEAM-MAICH Sustainable Agriculture dpt <i>MAIX / Τμήμα Αειφόρου Γεωργίας</i>	International	Inter-governmental organisation	Research and education (MSc) in sustainable agriculture					
2	Perrotis College <i>Κολλέγιο Πεερρωτή</i>	National	Private college	Professional training					
3	Organisation Earth <i>Οργάνωση Γη</i>	National	Civil society	Promotion of Sustainable Development concept					
4	Culinary sanctuaries <i>Γαστρονομικά καταφύγια</i>	Regional	Private company	Training and consultancy on culture, nature and cuisine					
5	The Southern Lights <i>Το Νότιο Σέλας</i>	National	Non-profit organisation	Promotion of regenerative farming					
6	Melitakes <i>Μελιτακες</i>	Regional	Social coop of farmers and scientists	Farming, research and innovation on agroecology					
7	Agroecology Greece	National	Network of scientists and farmers	Promotion of Agroecology as science, practice and movement, in Greek					
8	Aegilops <i>Αιγίλοπας</i>	National	NGO	Conservation of heritage varieties, agricultural knowledge, reintroduction of these varieties and promotion of ecological farming.					
9	Organic Farmers' Association of Northern Greece <i>Ένωση Αγροτών Βιοκαλλιεργητών Βόρειας Ελλάδας</i>	Regional / national	Farmers association	Promotion of organic farming in Greece, implementation of conferences, seminars, workshops					
10	Hellenic Agricultural Organisation (ELGO) DIMITRA <i>Ελληνικός Γεωργικός Οργανισμός (ΕΛΓΟ) ΔΗΜΗΤΡΑ</i>	National	Governmental Foundation	Research on sustainability of olive oil sector/ sustainable solution in management practices					

Table 4: Additional initiatives, cases and examples in the country - not included in this report.

INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
				EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
Open Farm <i>Ανοιχτά Αγροκτήματα</i>	National	Private company	Network of small scale farms in Greece providing guided tours & experiential workshops. Implementation of guided tours and experiential workshops promoting food literacy					
Greenpeace Greece-Sustainable Agriculture campaign <i>Εκστρατεία για την Αειφόρο Γεωργία</i>	National International	Non-profit organisation	Campaign for sustainable farming/ agroecology					
Re:Think	Regional	Social enterprise	Campaign for recycling and composting					
Bioma Plants <i>Φυτώριο ΒΙΩΜΑ</i>	Regional/ National	Private company	Nursery of organic farming plants and local varieties					
Peliti <i>Πελίτι</i>	National	NGO	Alternative community/network active on local varieties seed collection and distribution, annual seed festivals, publication of books & guides, environmental education for school children and for communities, action for a legal framework on seed marketing					



EDUCATION



MOVEMENT



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<https://www.iamc.ciheam.org/>
 Facebook: @SustainableMAICh
 MAIX / Τμήμα Αειφόρου Γεωργίας

INITIATIVE N°1 – CIHEAM-IAMC

MEDITERRANEAN AGRONOMIC INSTITUTE OF CHANIA (CIHEAM-IAMC)

SUSTAINABLE AGRICULTURE DEPARTMENT

CIHEAM IAMC is a constituent institute of CIHEAM (International Centre for Advanced Mediterranean Agronomic Studies), an Intergovernmental Organisation which was founded at the joint initiative of the OECD (Organisation for Economic Co-operation and Development) and the Council of Europe on 1962 under an agreement signed by the governments of seven southern European countries: France, Greece, Italy, Portugal, Spain, Turkey and ex-Yugoslavia.

Its mission consists of “providing supplementary education (economic as well as technical) and developing a spirit of international cooperation among agricultural personnel in Mediterranean countries”. More specifically it pursues three main complementary missions through post-graduate specialised education, networked research and facilitation of regional debates. The postgraduate (MSc level) programme of “Sustainable agriculture”, carried out by the corresponding department, enables the students to understand the theoretical background of sustainable agriculture and familiarise with integrated crop management and organic farming applications, capabilities and limitations. Although agroecology is not officially declared in the official title of the studies programme, the curricula largely integrates the teaching of basic agroecological principles, ecosystem management and approaches, and concepts that largely resonate with agroecology (organic farming, agroforestry, regenerative farming, permaculture, functional agrobiodiversity management, etc.).

A number of approximately 10 post-graduate students, coming from countries across the Mediterranean, are enrolled every academic year, under a scholarship status, which proceed to a 2nd year of studies after selection based on their examination results.

The majority of the teaching staff are visiting professors from several other universities, therefore by definition, the department collaborates closely with other entities related to the topic of sustainable agriculture and agroecology.

Additionally, the Sustainable Agriculture department carries out vocational education and training projects, mostly funded by international programmes like Erasmus+, etc., largely focusing on agroecological or organic farming training.

KEY FEATURES

- **Type of education and training:** postgraduate (MSc) studies
- **Training duration:** 2 years
- **Main topics:** sarming and food production
- **Type of legal entity:** intergovernmental organisation
- **Accessible to:** academic and support staff, students and farmers



Picture 1: Sustainable Agriculture MSc programme students on field exercise.
Source: Vasileios Gkisakis.

WHAT CAN WE LEARN?

The post-graduate programme offers a holistic view on different approaches and strategies targeting sustainability in agriculture, with a rather clear focus on the agroecological approach that provides comprehensive scientific knowledge to the students. Therefore, it gives the opportunity to understand the differences and similarities of sustainability related approaches in agriculture.

POSITIVE IMPACTS



COOPERATION: international network of students from all over the Mediterranean region (including Arab countries) which interacts with academic staff from many different universities and institutes, mainly from the EU but also from other countries.



EDUCATION: Provision of a comprehensive curriculum focusing on sustainability in agriculture, with Agroecology as a main element, accompanied by the development of technical skills.

LIMITATIONS & CHALLENGES



EDUCATION: Further focus on the agroecological approach could be perceived, integrating frequent verbal use of the definition.



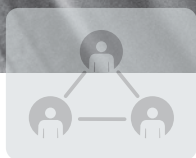
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INITIATIVE N°2 – PERROTIS COLLEGE

Perrotis College

Agriculture · Environment · Life Sciences

<https://www.perrotiscollege.edu.gr>

"Κολλέγιο Περρωτή"

THE PERROTIS COLLEGE OF AGRICULTURE

The Perrotis College of Agriculture, Environment & Life Sciences is a private legal entity that provides formal education to students and training activities to farmers, located in Thessaloniki (North-East of Greece). The College is a division of the American Farm School of Thessaloniki, an independent, non-profit (philanthropic) institution of secondary education related to agriculture. The college was initially founded as a Laboratory of Free Studies in 1996 in order to offer higher education programmes for careers in the food and agricultural industries. In 2007, through a partnership with the Cardiff Metropolitan University the College, they began offering BSc degrees. There are currently approximately 50 individuals working in the college, including teaching staff, a secretariat, farming technicians and others.

Perrotis College provides education to students from a variety of countries that want to pursue a career or post-secondary study in international business, agriculture, environmental protection and science. The college curriculum enables students to apply the theories they learn in the classroom to hands-on learning activities conducted on the campus farm, including fields of orchards, arable crops and greenhouses. In addition, students gain actual work experience through two summer internships conducted on a variety of professional and industrial sites in Greece, the Balkans, Europe or USA. As the studies offered by the college were not officially recognised on its equivalence to the Greek public universities by the Greek State, the college's post-secondary programme is validated since 2007 by the Cardiff Metropolitan University (UK) regarding accredited BSc degrees in Sustainable Agriculture and Management, of 3-year duration, as well as other disciplines such as Food Science & Technology, International Business, Environmental Science and Digital Marketing Management (Bachelor of Arts, B.A.).

Established in 2017, the Perrotis College School of Graduate Studies, offers MSc degrees in Sustainable Agriculture & Management, that last 2 years, as well as New Food Product & Business Development, and Marketing for the Agro-Food Sector. Agroecology is included in the description of the degrees in "Sustainable Agriculture & Management", mentioning agroecosystem management approaches and other agroecology related approaches. Perrotis College offers financial aid packages that include scholarships to most of its students, as well as a work-study programme.

KEY FEATURES

- **Type of training:** BSc and MSc studies
- **Main topic:** farming and food production
- **Training duration:** variable, depending on the path and the subject
- **Type of initiative:** private organisation
- **Accessible to:** academic and support staff and students



Picture 2: Perrotis college student in class. Source: <https://www.facebook.com/perrotiscollege/photos/2867871939902233>.

WHAT CAN WE LEARN?

Although the college is not genuinely affiliated with the agroecological approach, it provides study curriculums that promote the principles and framework of agroecology through international collaborations with universities abroad, and offers knowledge of production of food and non-food products from land resources, and agroecosystem sustainability.

POSITIVE IMPACTS



EDUCATION: Provision of applied knowledge regarding principles of land and crop management in a systems (holistic) approach, considering environmental interactions and multiple effects and production of food and non-food products from land resources, and agroecosystem sustainability.



COOPERATION: Extended collaboration with several stakeholders at academic, industry and farmers level, providing pragmating input to students.

LIMITATIONS & CHALLENGES



EDUCATION: The studies framework is oriented towards generalised approaches of sustainability in agriculture, (including disciplines like smart-farming, etc.) which escape the framework and objectives of agroecology. A clear focus on agroecology could be pursued in the future.



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INITIATIVE N°3 – ORGANISATION EARTH



<https://www.organizationearth.org>
Οργάνωση Γη

ORGANISATION EARTH

Organisation Earth is a Greek non-profit NGO founded in 2010 by 40 members of various professional backgrounds (academics, media, business). Its mission is to establish the concept of Sustainable Development, as defined by the United Nations' 17 Global Goals, through the provision of experiential, non-formal education for sustainable development. The organisation is funded through donations, course participation fees and EU-funded project participation.

Its aims are the development of the concept of environmental and social intelligence, by providing experimental, non-formal education for sustainable development, introducing key sustainability issues, primarily through learning activities with an average 1-day duration. These training days promote knowledge, skills, attitudes and social values, using methods that motivate and empower the students to change their behaviour and take action towards a new economic model that takes into account social and environmental impact. The organisation holds in its premises a garden-farm where much of the training is applied, and collaborates with organic farmers in the broader Athens area.

Since 2012, the organisation has offered more than 70,000 children and 50,000 adults, activities related to environmental action, social empowerment and responsible entrepreneurship programmes, through their regional activities. In addition, the Earth Organisation collaborated with 18 universities, 7 institutions, 40 companies, 18 government agencies and over 100 civil society organisations.

Although the keyword agroecology is not specifically utilised, the initiative promotes agroecological principles through training targeting SDGs by farming. Additionally, Organisation Earth has been officially nominated to be the Special Secretariat of IFOAM-AgriBioMediterraneo. The initiative is also a member of the Global Compact (UN Global Compact), a global corporate responsibility initiative whose primary goal is to build and promote the social legitimacy of businesses and markets. It is also a member of SDGWatchEurope, a cross-sectoral NGO alliance at the European Union level, in areas such as the environment, education, human rights and more. Its purpose is to be a lever of pressure and control for governments in the implementation of the 2030 Agenda for Sustainable Development.

KEY FEATURES

- **Type of education and training:** action experiential learning
- **Main topic:** sustainable development goals in the food system and transition towards agroecology
- **Trainings duration:** 1 day
- **Type of legal entity:** NGO
- **Accessible to:** more than 40 members, including 1 head and 9 staffs (volunteer or permanent)



Picture 3: Activities of urban and school gardening in the premises of Organisation Earth. Source: <https://www.organizationearth.org/agrotesstinpoli> and <https://www.organizationearth.org/perivallontikiekpaidefsi>.

WHAT CAN WE LEARN?

The organisation applies an action learning approach and is located in the periphery of the Greek capital city (Athens), therefore it is easily accessible to urban dwellers, making it easy to transfer a farm experience, and agroecological values to them. It also provides hosting and is well-networked with international organisations regarding organic farming/agroecology and sustainable development issues making it well updated on relevant issues.

POSITIVE IMPACTS



EDUCATION: Provision of applied knowledge to more than 100,000 school children and adults since 2010. Among other activities, visitors may attend free courses in sustainable development, which raise awareness about and promote urban attitudes and practices that ameliorate environmental degradation.



COOPERATION: Extended collaboration with stakeholders at the organic farming movement and farmer level.

LIMITATIONS & CHALLENGES



EDUCATION: Limitations exists in terms of mantaining infrastructure.



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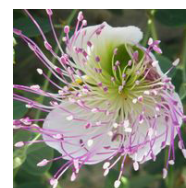
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INITIATIVE N°4 – CRETE'S CULINARY SANCTUARIES

CRETE'S CULINARY SANCTUARIES



<https://www.cookingincrete.com/>
 Facebook: @CretesCulinarySanctuaries
 Γαστρονομικά καταφύγια

Crete's Culinary Sanctuaries (CCS) is a US-based private enterprise, formed to organise seminars and consultancy on culture, nature and cuisine on the island of Crete, Greece. In 1997, Crete's Culinary Sanctuaries Educational Network was founded by the Greek-American journalist, seminar director and professional chef Nikki Rose, to support residents working on action programmes to protect and share their heritage. Teaching staff involved in the initiative are part-time contracted, including archaeologists, ecologists, agroecologists, organic farmers, heirloom seed savers, chefs, artists, and others.

CCS organises accredited educational programmes on Crete's culture, nature, organic agriculture and cuisine with over 3,000 students, teachers and journalists from many different educational institutions and professional organisations. Most study tours are organised during the spring and summer months (weekly programme). It also offers a 5-day programme on mixed topics of organic agriculture, botany, cuisine, history and culture, presented by the collaborating teaching staff. The initiative also organises tailored private seminars and workshops for researchers, students, and journalists covering Agroecology and Traditional-Sustainable Gastronomy, Intangible Heritage (Mediterranean Diet), and Sustainable Tourism.

A generalised agroecological approach could be attributed to the initiative (and they frequently used the word/concept in their activity), as it integrates action learning not only on (agroecological) farming but also culinary approaches, diet, sustainable tourism, local knowledge, food and agricultural heritage and (sustainable) tourism, therefore offering a holistic view.

The initiative collaborates with several academic entities, especially US-based universities, and also featured in journals like National Geographic, NY Times, Routledge Handbooks, as well as international organisations and related programmes like the United Nations, IFOAM-Organics, and NGOs like Food Tank.

KEY FEATURES

- **Type of education and training:** experiential learning
- **Main topic:** sustainable food systems
- **Trainings duration:** 5-7 days
- **Type of legal entity:** private company
- **Accessible to:** chefs and agronomists



Picture 4: Field visits of participants to training seminars organised by Crete's Culinary sanctuaries.
Source: <https://www.facebook.com/photo/?fbid=10153582589783344&set=pb.100063588500648.-2207520000>.

WHAT CAN WE LEARN?

Culinary sanctuaries provide an interesting transdisciplinary learning experience mixing introduction to agroecological farming, local knowledge, traditional/local culinary and Mediterranean diet within a sustainable tourism framework. Therefore, it could be considered close to an agroecological approach, providing a holistic introduction to an alternative food system that needs to be constructed on sustainability principles. This knowledge could be easily understood through an experiential learning process, allowing participants to “place a hand” on food and agricultural heritage.

POSITIVE IMPACTS



EDUCATION: Provision of a multi-dimensional experimental learning easily adapted by participants.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Promotion of locally resourced food and agriculture (local diet and culinary, crop varieties, etc.).

LIMITATIONS & CHALLENGES



ECONOMY: Economic viability of the initiative depends on the constant attraction of financial resources and touristic mobility from overseas (mainly US), easily affected by restrictions (i.e. the COVID pandemic).



COOPERATION: Lack of experts in regenerative practices to exchange knowledge.



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EDUCATION

INITIATIVE N°5 – THE SOUTHERN LIGHTS



THE
SOUTHERN
LIGHTS

<http://thesouthernlights.org>
Το Νότιο Σέλας

THE SOUTHERN LIGHTS

The Southern Lights is a non-profit organisation which was founded in 2016, who promotes regenerative practices in the fields of farming, consuming and organisational structures. It is regarded as an educational, land stewardship, non-profit organisation that aims to actively regenerate ecosystems in which people, inspired by nature, create and maintain healthy and abundant livelihoods. Its work is to empower people of all ages and backgrounds with knowledge, skills, and inspiration essential to cultivating regenerative habitats, inhabitants and habits, while enhancing their professional capabilities to initiate their own projects and/or businesses.

The organisation focuses on promoting and teaching, through cocreation and the use of innovative approaches, several agroecology-related practices such as permaculture, agroforestry, regenerative farming, healthy nutrition and renewable energy solutions. Although it is not self-defined as a living lab, the initiative strongly holds several such elements, including user-focusing, based on the co-creation of principles for developing innovation and research through collaboration with various stakeholders (farmers, scientists, campaigners).

It involves at least 10 members (multinational groups) as well as networks of farms, academics, advisors and others at the regional and national level. Its funding is based on institutions, sponsors (companies) and EU Programmes (i.e. Erasmus+). The governance of the initiative is horizontal and participatory, under non-hierarchical conditions.

The organisation presents several innovative attributes especially in the training component, incorporating techniques like “AGILE”¹¹¹ learning. Southern Lights also organised a “Food Forest Tour”, a series of events in farms and organisations all over Greece that share the same mission, in order to share knowledge on how to grow food following agroforestry approaches, by actually planting a food forest in the hosting organisation. It also co-initiated the REGEN Network¹¹² in Greece aiming to identify and cover common needs of eco-projects and initiatives on regenerative topics and enable collaboration by exchanging and combining assets of the involved projects and initiatives to co-cover needs. Additionally, it is linked with several other networks abroad working on agroforestry and permaculture.

KEY FEATURES

- **Main topics:** agroecological practice and production
- **Founded in:** 2016
- **Type of organisation supporting the living lab:** NGO
- **Type of actors involved:** farmers, scientists and advisors
- **Scale of the living lab:** regional/international

¹¹¹ https://en.wikipedia.org/wiki/Agile_learning

¹¹² <https://www.regen.network/>



Picture 5: Field visits and training seminars organised by Southern Lights.
Source: <https://www.facebook.com/thesouthernlightsproject/photos>.

WHAT CAN WE LEARN?

The initiative is largely interested in applying and time communicating its mission, referring mostly to concepts like agroforestry, permaculture and co-creation approaches. It holds a highly participatory perspective and attitude on the linkage and collaboration with other stakeholders (e.g. farmers, trainers, advisors, scientist), which potentially enforces the outcome of their projects. Besides the above, it also holds strong elements of innovation especially in communicating and providing training, through novel techniques and practices.

POSITIVE IMPACTS



SOCIETY AND EQUITY: The initiative promotes a non-violent and equity approach.



COOPERATION: Strong bonds with several stakeholders at regional, national, and international level.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Lack of financial and technical support from national authorities.



COOPERATION: Lack of a sufficient number of experts in regenerative or agroecological practices to exchange knowledge.



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INITIATIVE N°6 – MELITAKES



www.melitakes.gr
 Facebook: @melitakes
 Μελιτάκες

MELITAKES

Melitakes is a legal entity and social enterprise focusing on sustainability and agroecological farming, established in 2016, originally on the mission to cultivate and conserve seeds of local, traditional varieties, using agroecological methods (also verbally referring to the concept of agroecology). 8 full time people work for the enterprise. Besides producing agroecological products (olive oil, vegetables, dairy and cereals) they hold an annual “Seed Festival”, for the exchange of local varieties produced by the initiative and the network of farmers involved, as well as workshops, the organisation of school gardens and the promotion of the conservation of agrobiodiversity and agroecology. Recently, they also opened a restaurant with food produced by them and local eco-farmers, promoting traditional recipes based on the Mediterranean diet, selling also processed products, therefore covering aspects of consumption, marketing and retail, as well as local development.

KEY FEATURES

- **Main topics:** agroecological practice and production
- **Founded in:** 2016
- **Type of organisation supporting the living lab:** social enterprise
- **Type of actor involved:** farmers, civil society campaigners, scientists and advisors
- **Scale of the living lab:** regional/international

The above processes created new necessities and synergies both in farming, as well as networking with several initiatives on the same topic (e.g. Kokopeli, Kaligraines and Colibri foundation from France, Aegilops and Peliti from Greece), the academic sector Hellenic Mediterranean University, located in the area of the initiative as well as private entities, promoting largely the multi-actor’s involvement and co-creation processes. Namely, Melitakes collaborate with NGOS on seed saving, participate in research projects regarding experimentation on agrobiodiversity and agroecological methods applied in situ, and host training seminars of other initiatives. Additionally, they incorporate in their work innovation development (i.e. the open-source development of agricultural tools - harvest machines like cereal grain harvesters) in collaboration with NGOs like Tzoumakers¹¹³ working on the topic. All the above elements indicate evidence of characterising the initiative as a living lab.

Melitakes are financially supported by their own activities (production, marketing and retail of agroecological products) but recently they also participated as partners in international research projects, amplifying the possibility of receiving extra financial support by EU programmes (Horizon Europe etc.).

¹¹³ <https://www.tzoumakers.gr/english/>



Picture 6: Do-It-Yourself (DIY) harvesting tool and school gardening by Melitakes initiative.
Source: <https://www.facebook.com/melitakes/photos>.

WHAT CAN WE LEARN?

Melitakes operates based on an cooperational, participatory basis, willing to adapt innovations in their functioning. They are very keen on synergies which serve the purposes of the initiative, not only at the farming level but also at the academic and civil-society level, as well as others. They have developed (technical) innovations based on their needs and were willing to share it based on an open-source mode of knowledge exchange.

POSITIVE IMPACTS



COOPERATION: Strong bonds with several stakeholders at the regional/national and international level for the promotion of the mission of the initiative.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Conservation of local/traditional varieties through the organisation of a community seed bank and the annual seed exchange events.



ECONOMY: Commercialisation of agroecological products at the local level, using a fair and collective approach.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Production of local products and restaurant/catering based on traditional recipes/ Mediterranean diet.

LIMITATIONS & CHALLENGES



ECONOMY: Lack of financial support from national authorities.



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INITIATIVE N°7 – AGROECOLOGY GREECE



Αγροοικολογικό Δίκτυο Ελλάδος
Agroecology Greece

www.agroecology.gr
Facebook: @AgroecologyGreece
Αγροοικολογικό Δίκτυο Ελλάδος

AGROECOLOGY GREECE

The Agroecological Network of Greece (Agroecology Greece) was founded in 2017 and consists so far of 16 members, including agronomists and/or farmers, as well as trainers. It is a non-formal network and platform aiming to promote agroecology to related stakeholders (academics, agronomists, farmers as well as the general public, as a science, practice and movement, in Greece. Its objectives are defined as to network between agricultural scientists/trainers, in order to exchange information, knowledge and research that will familiarise the principles and framework of agroecology and promote the transition of food production systems towards a truly sustainable form, integrating food sovereignty and security principles. Thus it performs a genuine use of the work and concept of agroecology.

The activities of the network so far have included:

- i) Technical reports on agroecological issues posted on the networks platform as well an edition in Greek introducing agroecology;
- ii) The organisation of events, seminars and workshops on Agroecology and related topics, including also the co-organisation of the 2nd Agroecology Europe Forum (September 2019, Heraklion, Crete);
- iii) The promotion of agroecology to decision makers;
- iv) The communication of news and developments regarding agroecology in Greek through social media.

All its activities are self-funded, based on the voluntary work of its members, while in the past have received very small financial assistance by Agroecology Europe (a European NGO aiming to promote agroecology at the European level; See website: <https://www.agroecology-europe.org>) for certain activities (organisation of events and edition on agroecology). Agroecology Greece is connected with other agroecological initiatives at national level (i.e. NGO Aegilops, Melitakes, Organic Farmers' Association of Northern Greece) and abroad (Agroecology Europe). Additionally, its members participate or they are active within initiatives, as the ones mentioned above.

The initiative is currently re-organising in order to become a formal legal entity, seek funding resources and expand its activities (organisation of training seminars, host a Greek forum on Agroecology, etc.).

KEY FEATURES

- **Main goal:** promotion of agroecology in Greece
- **Founded in:** 2017
- **Type of organisation supporting the living lab:** non-formal network
- **Farming sectors:** not specific
- **Scale of the organisation:** national



Picture 7: Members of Agroecology Greece in the 2nd Agroecology Europe Forum.
Source: <https://www.facebook.com/photo?fbid=10157400109069519&set=pob.1302921993>.

WHAT CAN WE LEARN?

Agroecology Greece, although it has minimal funding and is a non-formal entity, operates on a flexible basis requiring small but concentrated and precise working effort by its members, taking advantage of their role and participation to other similar entities and initiatives.

POSITIVE IMPACTS



COOPERATION: A constant number of people involved in activities to promote the agroecological concept at national level.



SOCIETY AND EQUITY: The majority of the initiative's members are women, promoting the gender equity character of the network, while a participatory approach is followed in decision-making. All genders are equally involved in decision making.



EDUCATION: Organisation of workshops and activities of promotion of agroecology.

LIMITATIONS & CHALLENGES



ECONOMY: The non-formal character of the initiative generates lack of financial and technical support from national authorities, not allowing further expansion of the initiative's activities.



EDUCATION: Training offered is limited to basic level due to lack of financial resources and infrastructure.



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INITIATIVE N°8 – AEGILOPS

ΑΙΓΙΛΟΠΑΣ
AEGILOPS

<https://www.aegilops.gr/en/>
Facebook: @aigilops
Αιγίλοπας

AEGILOPS – NETWORK FOR BIODIVERSITY AND ECOLOGY IN AGRICULTURE

Aegilops - Network for Biodiversity and Ecology in Agriculture

Aegilops - Network for Biodiversity and Ecology in Agriculture, is an NGO founded in 2004. Its members (approximately 30) are eco-farmers and agronomists from all over Greece, many of them active since the 1980s in ecological farming. Its main activities are i) the conservation of heritage varieties and traditional agricultural knowledge (through a seed bank of over 200 varieties, mainly cereals, and ii) the reintroduction of these varieties into everyday agricultural practices (on farm conservation), the promotion of ecological farming and the use of agricultural biodiversity. Its headquarters are in the area of Volos, Central Greece. It also composed of "Focal Points" in various regions of the country working on the evaluation of research of local varieties of vegetables, legumes and grains, as well as training on agrobiodiversity and ecological farming issues. Additionally, since 2012, the organisation has held the "Greek Seed School", an annual event offering free courses all over Greece which aim to empower communities on seed saving, organic farming and successful seed management. Furthermore, it organises annually a "Day of traditional varieties", with seed exchange and seminars activities. Certain editions are published periodically, including a short magazine ("Kivotos", translated as Arch) as well as technical manuals on seed saving, local varieties and organic regulation.

KEY FEATURES

- **Main goals:** conservation of heritage varieties and promotion of ecological farming
- **Founded in:** 2004
- **Type of organisation:** NGO
- **Farming sectors:** arable and tree crops
- **Scale of the organisation:** national

Aegilops participates in EU-funded research projects, on topics of agricultural genetic diversity conservation and participates in several international initiatives and campaigns regarding the conservation of agricultural diversity (e.g. Let's liberate diversity¹¹⁵), farmer rights and against the use of genetically modified varieties in agriculture. Recently, it also started the initiative "Aegilops Local Food"¹¹⁶ promoting food products made by local varieties by a team of organic farmers collaborating and/or members of Aegilops.

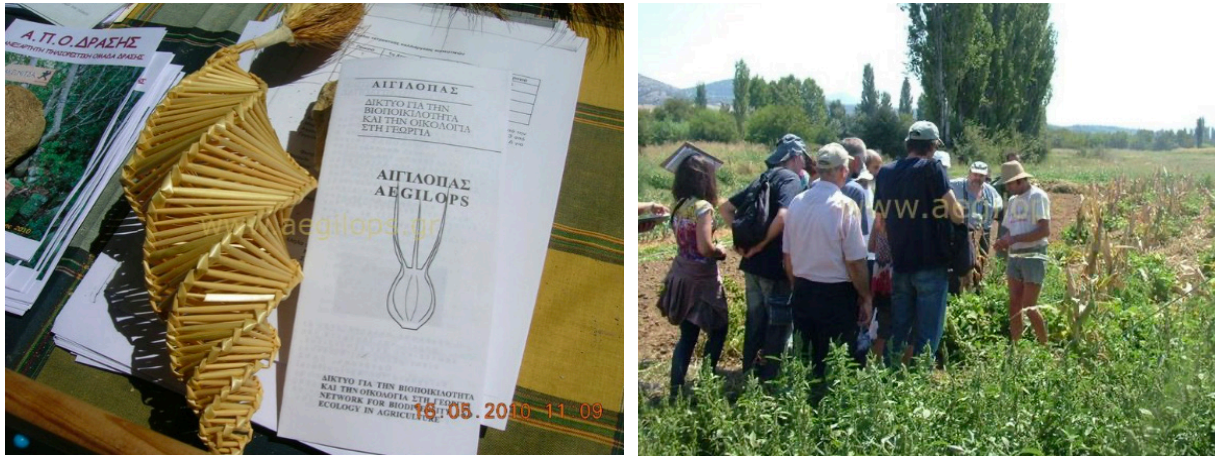
The organisation's funding sources include donations by members, as well as income from participation in international EU-funded projects.

Although the term "ecological farming" is mainly used by the initiative, the agroecological approach is well-recognised and recently appeared in the initiative's manifestations¹¹⁷.

¹¹⁵ <https://liberatediversity.org/>

¹¹⁶ <https://www.aegilopslocalfood.gr/>

¹¹⁷ <https://bit.ly/3jzfPgX>



Picture 8: Communication material and field visit by Aegilops organisation. Source: <https://www.facebook.com/.melitakes/photos>.

WHAT CAN WE LEARN?

Aegilops is operating as an agrobiodiversity conservation network and has developed several parallel activities, namely a combination of training on ecological farming, participation in international movements as well retail of local produce, and clearly promoting the agroecological in agriculture.

POSITIVE IMPACTS



COOPERATION: A network of farmers and agronomists dispersed at the national level and coordinated under a horizontal structure. Taking part in campaigns and community actions undertaken by farmers and consumers in Greece and worldwide.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Preservation - cultivation of local varieties / heritage crops and the development of varieties and seeds adapted to local conditions and organic farming / on farm breeding.



EDUCATION: Organisation of “Seed schools” enhancing farming ability and capacity to utilise and manage agrobiodiversity by training and experience exchange.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Commercialisation of “Local food” made by organic farmers with use of local varieties.

LIMITATIONS & CHALLENGES



ECONOMY: No permanent funding resources available.



EDUCATION: Training offered is to on regular basis and limited to rather basic level due to lack of financial resources.



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INITIATIVE N°9 – ORGANIC FARMERS' ASSOCIATION



<https://www.biologikesagores.gr>
Ένωση Αγροτών Βιοκαλλιεργητών
Βόρειας Ελλάδας

ORGANIC FARMERS' ASSOCIATION OF NORTHERN GREECE

The **Organic Farmers' Association of Northern Greece** was established in 2002. The association is mainly composed of 120 organic farmers located mainly in the area of Macedonia and Thrace and operates on several open organic farmer markets in urban and periurban areas of the city of Thessaloniki, which are self-organised, regulated and operated by the farmers participating to the association.

The main objectives of the initiative, besides the operation of organic markets, is the promotion of organic farming, the networking of organic farmers, the implementation of organic farming practices, the organisation of conferences, seminars and workshops, and the lobbying for the rights of organic farmers and their common interests at the decision making centres at the national level. The association also includes social solidarity aspects by supporting vulnerable local communities with fresh and seasonal food. The association receives no funding by public or private entities, besides the contribution of its members.

The initiative makes no verbal use of the term agroecology. Nevertheless, it follows several agroecological principles as it promotes the implementation of agroecological practices and methods, i.e. conservation and use of agrobiodiversity, minimal soil disturbance, minimum pest control inputs, and production and use of compost made by plant residues. It generates short food chains by having established open air organic markets at several spots in the city of Thessaloniki, a main urban centre of northern Greece. These markets are self-organised by the farmers regarding their management and operation, which include self-inspections (i.e. weekly monitoring and control of pesticide residues in products sold) within the framework of organic market regulations (all farmers participating are certified organic). Farmers are also supportive of one another in many ways, starting from technical solutions in organic farming to solidarity in terms of financial and legal aspects. The Association has also been active in organising conferences on organic farming (in 2015 and 2016), promoting the horizontal transfer of knowledge among farmer seminars (in the 2nd conference, sessions on agroecology were also included), as well as engaging in international collaborations on projects concerning traditional seeds and food sovereignty (i.e. Capsella project¹¹⁸).

KEY FEATURES

- **Agroecological practices concerned:** conservation and use of traditional varieties, sustainable soil management (reduced tillage), organic pest control, and organic fertilisation (compost)
- **Founded in:** 2002
- **Organisation:** Organic Farmers Association of Northern Greece
- **Agricultural sectors:** multiple (arable, vegetables, livestock, beekeeping)
- **Initiative size:** regional
- **Number of stakeholders involved:** 120 farmers

¹¹⁸ <http://www.capsella.eu/>



Picture 9: Participation of the Organic Farmers' Association of Northern Greece in Agricultural fair.
Source: <https://www.facebook.com/biofarmers/photos>.

WHAT CAN WE LEARN?

The association is a successful example of a farmer association that operates in a communal and self-sustained manner, actually promoting agroecology, through the organic farming framework, not only regarding farming practices but also in terms of commercialisation and community support. Solidarity among farmers and collective dedication to the goals and rights of the farmers is a major advantage of the initiative supporting its long-term successful operation.

POSITIVE IMPACTS



COOPERATION: Active association between producers in the northern region of Greece. The organisation supports open air organic farmers' markets in urban areas.



GOVERNANCE: Participation in agreements and development of regulation regarding the establishment and functioning of organic farming markets.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Creation of local supply channels, connecting producers and consumers, without the intervention of middlemen.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

Conservation and use of local/traditional varieties by the farmers of the association.



ENERGY AND WASTE MANAGEMENT: Reduction and revaluation of food waste by compost making, while offering food surpluses to people in need.



EDUCATION: Organisation and participation of conferences on organic farming, food sovereignty, peer to peer transfer of knowledge, etc.

LIMITATIONS & CHALLENGES



EDUCATION: Lack of institutional support (Ministry of Agriculture/ University) in training regarding farming practices.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Difficulties in the operation of organic farmers' markets.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

European and national legislation remains no supportive to the expansion of traditional varieties and breeds.



SCIENCE



LIVING LAB



PRACTICE



MOVEMENT



EDUCATION

INITIATIVE N°10 – ELGO – DIMITRA



<https://www.elgo.gr/>
<http://www.nagref-cha.gr/index.php/en.html>
 Ελληνικός Γεωργικός Οργανισμός (ΕΛΓΟ)
 ΔΗΜΗΤΡΑ

ELGO – DIMITRA INSTITUTE OF OLIVE TREE, SUBTROPICAL PLANTS & VITICULTURE

The Institute of olive tree subtropical plants and viticulture belongs to the Department of Agricultural Research of the Hellenic Agricultural Organisation (ELGO) "DIMITRA". The institute commenced its activities in 1962. The headquarters are in Chania and includes several departments:

- Department of viticulture, vegetable crops, floriculture and plant protection (Heraklion, Crete);
- Department of olive and horticultural crops (Kalamata, Peloponnese);
- Viticulture Department (Athens);
- Department of olive tree (Corfu), and
- Olive oil laboratory (Lesvos).

KEY FEATURES

- **Main goal:** research
- **Main topics:** olive, mediterranean crops, viticulture
- **Type of actors involved:** scientists farmers
- **Funded by:** Greek Ministry of Rural Development and Food

The institute is a legal entity governed by private law and is funded by the Greek Ministry of Rural Development and Food. It includes 20 researchers, mainly agronomists. The institute has taken continuous improvements and extension in structure and staffing, considered to be amongst the most recognised agronomic research institutes in the country (reward of Athens Academy, 2001). It participates in several international research projects and is networked with corresponding research foundations and academic institutes abroad, especially from the Mediterranean area. Besides research, it provides advisory services (technical support to farmers, cooperatives, municipalities) and organises various educational activities (seminars, symposia, conferences, etc.).

The topics of the research conducted are various, focusing on Mediterranean and subtropical tree crops, viticulture and vegetables, and the word agroecology is not explicitly used in the titles of the institute's laboratories and team. Nevertheless, the institute was one of the first to conduct and promote research on agroecology and sustainable food systems as it included a unit focusing on ecological production, food and sustainable rural development, consisting of a team of agronomists, agroecologists, ecologists, economists, and sociologists, with experience in national and international projects related to the above topics.

Specific attention is given to olive production as a major crop for the country. One of the first applied research projects in Greece considering agroecological principles was conducted by the institute, on the development of a prototype and the dissemination of ecological olive production systems in Crete. The project aimed at the design, development, evaluation, and dissemination of ecological olive production considering the regional agricultural, ecological, and socio-economic context. It involved the formation of agroecological networks including the foundation of an agri-environmental group, for conversion to ecological production and for transition to an ecological knowledge system, and a pilot group of olive

⁶² <http://www.issapp-pushkarov.org/agrohimiya-agroekologiya-i-sistemi-na-zemedelie>

growers, for interactive prototyping. The main result was the set-up of a local organic farmers' cooperative, launched in 1998 aiming at cooperatively marketing certified organic products. Later on, in the same region, a private-funded project on the "environmental impacts of olive production systems" followed an agroecological approach in order to study different management systems (organic, integrated, and conventional).

Future work on Agroecology is expected through the development of a research unit on Mediterranean tree crops and Sustainable Agriculture, in its department in Kalamata, Peloponnese.

WHAT CAN WE LEARN?

The initiative of individual units of the institute combined with the network, facilities and infrastructure, as a public institution, allow since very early the rather successful implementation of agroecological research in Greece. Therefore, the importance of setting up a research unit in publicly funded entities, in order to gain momentum in Agroecology is raising.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

Awareness-raising on agroecological practices regarding management of natural resources (soil, agrobiodiversity).



EDUCATION: Integration of direct training to farmers through the agroecological research applied.

LIMITATIONS & CHALLENGES



COOPERATION: Promotion and development of synergies and collaboration between actors is largely focused on general research topics (tree crops and vegetables).



GOVERNANCE: Several bureaucratic processes to follow. Non-horizontal structures on decision making.



5. CONCLUSION AND FUTURE PERSPECTIVE

The mapping process of agroecology revealed the low, yet increasing recognition of the agroecological concept by the majority of Greek stakeholders, even though several of the existing practices, organisational structures and principles followed by them, fit well in the agroecological approach. Additionally, certain initiatives have already adapted the agroecological framework claiming to already implement it and verbally expressing its use.

Indeed, the fraction of academic and research entities involving agroecological approaches in their activities can be increased significantly, especially when considering the momentum that agroecology is gaining in recent years. Additionally, several main agroecological practices regarding the use of agrobiodiversity, (minimum) soil management, plant protection and fertilisation is rather well-established among a major part of organic farmers, however it is not perceived by the key actors (farmers) as practices linked to the broader agroecological approach. Living labs appeared to be an unknown and less understood concept, although certain initiatives fulfil the definition as such, while they integrate promising elements of innovation and co-creation processes. Civil society and rural movements appear to be the main activity category where the agroecological concept is well understood and efforts are made for its further promotion. Following the comments made by key informants, it becomes very important to increase the support of education and training of the farming sector on the agroecological principles and practices, combined with focused research and educational curricula, by research and academic institutes, in order to make possible a paradigm shift of the Greek agriculture towards truly sustainable farming system at national level. Targeted financial support by the government, both to farmers and research, is another major issue raised, although some promising elements exist in the EU-supported programmes related to agriculture (CAP, Farm to fork, etc.).

To conclude, the perspective of agroecology in Greece appears to be promising, as several stakeholders are already attached to its development and gradually momentum is gained. Nevertheless the critical factors that will affect its future development originate from providing a clear definition of the concept and maximising the influence on entities like the Greek state and EU, regarding decision making on supporting agroecology. Thus, concentrated bottom-up effort could be intensified towards influencing these institutions.

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MAPPING AGROECOLOGY IN ITALY

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ITALY

EXECUTIVE SUMMARY

The current report provides an overview of the state and development of agroecology and describes some existing agroecological initiatives in Italy, according to five activity categories: Education and Training, Living Lab, Movements, Practice, and Science. The report builds on and integrates the analysis of previous projects and publications at the national and European levels. Through interviews with 15 key informants, information is obtained on agroecological initiatives across Italy. The chosen interviewees are actors who have been involved in agroecology for many years and carry out research, practices and movements in this field. A list of 20 selected agroecological initiatives are described and analysed in this report. These initiatives represent some real examples of applied agroecological principles and approaches.

Overall, in Italy agroecology is gaining more and more attention at all levels. However, a holistic approach to agroecology is still not widely understood and still not widely understood or recognised by the political institutions. This work is a starting point for a national mapping. It highlights context-based good practices and initiatives at a local level which are embedded in the territories. Moreover, it represents useful examples for the development for the future agroecological transition. This mapping process was based on a participatory approach of young activists and researchers and resulted in an inclusive and comprehensive outcome for the future. Furthermore, this activity encouraged networking among different actors and initiatives involved in agroecology, with a potential great impact on decision making at all levels.

ITALY

EXECUTIVE SUMMARY (IN ITALIAN)

Questo documento fornisce una panoramica dello stato e dello sviluppo dell'agroecologia e descrive alcune iniziative agroecologiche esistenti in Italia, secondo cinque pilastri: Istruzione e Formazione, Living Lab, Movimenti, Pratica e Scienza. Il rapporto si basa e integra l'analisi di progetti e pubblicazioni precedenti a livello nazionale ed europeo. Attraverso le interviste a 15 informatori chiave, sono state raccolte le informazioni sulle iniziative agroecologiche in tutta Italia. Gli intervistati prescelti sono attori che da molti anni si impegnano e portano avanti ricerche, pratiche e movimenti nel campo dell'agroecologia. Un elenco di 20 iniziative agroecologiche selezionate viene descritto e analizzato in questo documento.

Queste iniziative rappresentano degli esempi concreti di applicazione dei principi e approcci agroecologici. Nel complesso, in Italia l'agroecologia sta guadagnando sempre più attenzione a tutti i livelli. Tuttavia, l'approccio olistico dell'agroecologia non è ancora ampiamente compreso e non è riconosciuto dalle istituzioni politiche. Questo lavoro è un punto di partenza per una mappatura nazionale. Evidenzia buone pratiche e iniziative basate sul contesto a livello locale integrate nei territori. Inoltre, rappresenta utili esempi per lo sviluppo della futura transizione agroecologica. Questo processo di mappatura si basa sull'approccio partecipativo di giovani attivisti e ricercatori e ha portato a un risultato inclusivo e completo. Inoltre, questa attività ha incoraggiato la creazione di una rete tra diversi attori e iniziative coinvolte nell'agroecologia, con un potenziale grande impatto sul processo decisionale a tutti i livelli.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Italy are summarised in Table 1.

Table 1: List of key informants in Italy.

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED	
1	Local community-based project	Access to land movements		
2	University and research	Arable land, agroecology, organic agriculture		
3	Freelance consultancy and training organisation	Organic horticulture training and practices, agroecology		
4	University and research	Agroecology education 'actor-oriented approach'		
5	Local education and training organisation, International NGO	Agri-food education, communication and rural development.		
6	National organisation - Seed Network	Agrobiodiversity protection, access to and sharing of plant genetic resources and participatory genetic improvement with farmers.		
7	Local community-based project, International NGO	Arable land – traditional grains		
8	Community Supported Agriculture farm, local farmers movements	Community-supported agriculture, local farmers' movements.		
9	Free-lancer consultancy	Livestock and permanent grassland		
10	Farmer markets, Local farmer movements	Food sovereignty movements		
11	University	Arable crops, functional agrobiodiversity, weed ecology and management		
12	Local farmer movements and community - organisations	Farmers' movements for seed exchange and self-production.		
13	International and national food system and political organisation	Food sovereignty, consultant on agricultural policies and agroecology		
14	National organic farming association, Farmer cooperative	Organic farming association		
15	Freelance consultant – national and international NGO	Arable land, permanent crop and forestry - organic and regenerative agriculture		

2. CONTEXT

Considering the general agricultural features of Italy¹¹⁹, the country is characterised by a considerable extension in latitude, with significant variety in climatic characteristics which result in very diverse cultivation systems that generate highly specialised agri-food products. From the orographic point of view, the country features a predominantly hilly landscape (41.6% of the total surface area, where 38.8% of the population resides), followed by the mountainous surface area (35.2%, in which 12.2% of the population resides) and plains (23.2%, in which 48.9% of the population resides).

Agriculture is one of Italy's key economic sectors, although in 2021 it was worth 2% of the national GDP (World Bank, 2022) and employed 4% of population. In 2019, the value of agricultural production was 61.6 billion euros (CREA, 2021¹¹⁹). Among the productive systems, the most prevalent are permanent crops, to which more than 48% of the units are dedicated, followed by arable crops, a sector of specialisation that involves about a quarter of the farms in the register. Among specialised livestock farms, herbivore ones (cattle, sheep and goats) are more widespread, while granivore farms appear less significant (CREA, 2021).

With regards to organic production, according to data from SINAB (National Information System on Organic Agriculture)¹²⁰, Italy is above the European average, with 15.8 % of the national utilised agricultural area under organic cultivation (the European average was 8% in 2018). From 2008 to 2019, the Italian agricultural area cultivated organically has almost doubled, from 1 million hectares to 1.99 million.

In Italy, the genesis of agroecological values and approaches finds its main foundations in the academic world in the late 1800s and early 1900s and it coincides in its first developments with the birth and emergence of organic farming (Barberi et al. 2016, Migliorini et al. 2018). Currently, agroecology in Italy is in a momentum of great ferment across all its activity categories, gaining more and more attention from various actors (farmers, NGOs, academics, politician, consumers). This is positive but challenging at the same time, as this ferment often results in great dispersion and confusion, often because the concept of agroecology is still not well-known or interpreted in the same way by all actors (Table 1, KI-all).

At the political level, there is an imbalance between new European strategies (Farm to Fork and the European Biodiversity Strategy for 2030) and the current lack of responsiveness on the part of Italian policies at the regional level, in which the term agroecology is certainly not yet included (Table 1, KI_all). Exceptions to the above are i) the law "Provisions for the protection and enhancement of peasant agriculture" ('Disposizioni per la tutela e la valorizzazione dell'agricoltura Contadina') approved in May 2021 by the Italian Chamber of Deputies and currently under discussion in the Senate¹²¹, and ii) the draft law on agroecology ('Provisions on agroecology, protection of biodiversity and Sicilian agricultural products and technological innovation in agriculture')¹²² by the region of Sicily, in July 2021. The latest may be regarded as the first law in Europe to transpose the Farm to Fork objectives and the European Biodiversity Strategy for 2030. Specifically, the law provides for a series of measures: incentives and rewards for farms that use native species, varieties and breeds; recognition as an 'agroecological farm'; promotion of agroecology courses for farmers; and checks and controls on imports and agricultural production.

¹¹⁹ CREA, 2021 - Information mainly retrieved by two "Agriculture in Figures" publication of CREA (Council for Agricultural Research and Analysis of Agricultural Economics), from 2019 and 2020 found here (in English): <https://www.crea.gov.it/en/web/politiche-e-bioeconomia/-/agricoltura-italiana-conta>

¹²⁰ <http://www.sinab.it/>

¹²¹ <https://www.agricolturacontadina.org/-/https://www.camera.it/leg18/126?tab=&leg=18&idDocumento=1968>, full text of the discussed law: https://www.agricolturacontadina.org/wp-content/uploads/2021/05/Testo_AgricolturaContadinaAula-discuss-camera-13-05-21.pdf

¹²² <https://w3.ars.sicilia.it/edem/dcl.jsp?idCed=7695>

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



Within the public state universities, agroecology is still not recognised as a standardised discipline, so that agronomy programmes in Italian universities can have an overall base in Agricultural Ecology, but only a few explicitly refer to agroecology (Migliorini et al. 2018). To date, agroecology still has not been integrated into overall bachelor or master's degree programmes as the main teaching subject. However, within Italian universities notable pioneers of the agroecological approach were identified, who are following the same path other individual academics and lecturers have by opening their classes to agroecology and introducing the term in the name of their courses (Table 1, ITA-KI-2, ITA-KI-4, ITA-KI-11). After the key informant interviews and literature search four main academic courses currently dealing with agroecology could be identified at the master's level (Table 4), whilst no courses have been identified at the bachelor level.

Table 4: List of courses at the master's level on Agroecology in Italy at the time of the analysis (2021).
Legend: ECTS = European Credit Transfer and Accumulation System.

UNIVERSITY	DEGREE	COURSE TITLE AND CREDITS
University of Florence	Master's Degree in Agricultural Science and Technology	Agroecology (6 ECTS)
Mediterranean University of Reggio Calabria	Specialisation course in Agricultural Sciences and Technologies	Agroecology course (6 ECTS) since 2011
University of Padua	Master's degree course in Nature Sciences	Agroecology and Ecosystem Services
Polytechnic University of Milan in 2017	Teaching of Ecology and Agronomic Sciences	Module of Agronomy and Agroecology

Regarding full degree programmes, only recently, in 2020, the University of Gastronomic Sciences in Pollenzo launched the *MAFS - Master in Agroecology and Food Sovereignty*¹²³ (see the initiative n°3 below), where an experiential and research-action learning approach is implemented, and where "there is no distinction between research and education because research is a way to learn and to explore the complexity of the realities in the field of agroecology" (ITA-KI-4, Table 1).

As for PhDs, the international *PhD programme in Agrobiodiversity* at the Scuola Superiore Sant'Anna is largely based on the application of agroecological research approaches (Migliorini et al. 2018). The Programme is a four-year course, in English, with the general aim to improve the utilisation and management of genetic variation in agricultural and natural systems, and to improve the conservation of genetic resources for the well-being of present and future generations¹²⁴. In another format, the University of Bologna has organised in July 2021, the second edition of the *Summer School of Agroecology* as part of the activities of the International Project *Participatory Agroecology School System - PASS*¹²⁵.

¹²³ <https://www.unisg.it/corsi-iscrizioni/master-agroecology-food-sovereignty/>

¹²⁴ <https://www.santannapisa.it/en/formazione/phd-agrobiodiversity>, brochure on the course: https://www.santannapisa.it/sites/default/files/phd_in_agrobiodiversity_0.pdf

¹²⁵ The PASS project is promoted by the University of Bologna itself to support the international cooperation activities of its Departments and involving several Universities from North and South America and Europe. <https://site.unibo.it/pass/it/agenda/ii-summer-school-of-agroecology>

Outside the academic experience, few initiatives are dealing with education and professional technical formation specifically in agroecology, mainly small organisations and associations addressing farmers or 'neo-rural' people interested in undertaking a path to create (or transit to) a sustainable agricultural reality (ITA-KI-3, Table 1). However, there are no official courses for farmers or agronomist, accordingly there is a lack of specific professional figures dealing with agroecological formation, especially within the major organic and non-organic farmers' associations (KI_6, Table 1). Realities dealing with education in agroecology for citizens or in schools are often very local and hard to identify, therefore less attention has been paid to those.

A first example of a long-established agroecological school is the *Scuola esperenziale itinerante di agricoltura biologica* (The Itinerant Experiential School of Organic Farming), in the north-eastern Veneto region. Since 2006, this school offers practical courses that reprise the nineteenth-century approach of the "Cattedre ambulanti" (itinerant lectures)¹²⁶, based on the centrality of practice, where theories are introduced only as a complement to illustration and discussion on practices (Migliorini et al. 2018, Bocchi, 2019).

The NGO *Deafal*¹²⁷ (European Delegation for Family Farming of Asia, Africa and Latin America, see part 3, initiative n°2), carries out theoretical-practical courses and technical assistance to farms throughout Italy while also dealing with global citizenship and environmental education. Deafal is a pioneer in Italy in the dissemination of Organic and Regenerative Agriculture since 2010 and they explicitly refer to the term agroecology in their activities and projects.

Moreover, a well-functioning and open to all training centre (*APAB*¹²⁸) has been identified in the region of Tuscany (center of Italy) (ITA-KI-4, Table 1). This training centre offers different courses in the field of Biodynamic agriculture, including specific agroecological practices like cover crops, manure management and other, as well as an up-to-date online dissemination system consisting of a blog and organisation of online webinars.

Based in Viterbo, in the region of Lazio (center of Italy), the *Schola Campesina*¹²⁹, created in 2017 as an international school of agroecology for the development and sharing of collective knowledge for food sovereignty and for the empowerment of farmers' organisations at local and global levels, has set its learning activity on people's knowledge and horizontal learning processes (popular education).

In Southern Italy, in the region of Campania, the association *Agrigiochiamo*¹³⁰ is a private association which deals with education and communication related with agri-food systems, rural development and critical consumption, with the aim of raising awareness and education on environmental issues, agri-food and agroecology (see part 3, initiative n°4). Moreover, in Sicily the *Scuola di attivazione politica - Agroecologia strumento per costruire economie transformative* (political activation school - Agroecology, a tool for building transformative economies)¹³¹ has recently developed a free of charge and open to all training course with the main aim to increase knowledge and awareness regarding agroecology in its main facets as well as in the new European Community strategies (Green Deal and Farm to Fork). The course took place from February to June 2021 and involved a total of around 250 people.

¹²⁶ "Cattedre ambulanti" was a typically Italian institution mainly addressed to small farmers and for decades (1880 - 1930) it represented an interesting dynamic tool to inform, train, involve farmers, integrating economic, social, scientific issues (Bocchi, 2019).

¹²⁷ <http://www.deafal.org/home-page-en/>

¹²⁸ <https://www.apab.it/apab/>, the Biodynamic course website: <http://www.agricolturabiodinamica.it/>

¹²⁹ <https://www.scholacampesina.org/> - ¹³⁰ <http://www.agrigiochiamo.it/>

¹³¹ <https://www.politichelocalicibo.it/2021/02/03/scuola-di-attivazione-politica-lagroecologia-strumento-per-costruire-economie-trasformative/>

3.2. LIVING LAB



A Living Laboratory can be identified as a practice-driven organisation that facilitates and fosters open, collaborative innovation, as well as a real-life environment or arena where both open innovation and user innovation processes can be studied and subjected to experiments, and where new solutions are developed.* This co-creation process will play important role in identifying practical mechanisms for strength the agroecological research and innovation ecosystems in Europe.

At the moment in Italy, the concept of living lab (LL) is something relatively new, which emerges within few environments, especially academic ones, and mostly within international projects. As most of the initiatives do not define themselves as living labs, it has not been easy to identify agroecosystem living labs in Italy. Nevertheless, there are still some examples that present many of the characteristics of a living lab. These characteristics have been analysed and implemented in a series of recent European projects, such as AGROMIX¹³² (ongoing) involving a number of Italian partners, which are active in the promotion of an agroecological approach, such as the Sant'Anna University of Pisa and the farm *La Tenuta di Paganico*. Another European project, Agrilink¹³³, has supported the work of facilitating and monitoring the activities of the *Distretto di Economia Solidale* (DES - Solidarity Economy District) in the region of Friuli Venezia-Giulia (North-East of Italy) and is configured as a living lab (see part 3 – initiative n°7). However, none of these define themselves specifically as agroecological, a feature that remains difficult to assess given that a living lab in itself embraces several agroecological principles.

The University of gastronomic Sciences of Pollenzo in collaboration with the association “Limone Lunare” initiated the first Italian Living Lab within the Agroecology for Europe (AE4EU) European Project. The Varaita Valley (Cuneo province, Piedmont region) has been chosen to implement the Living Lab since it is a territory characterised by a rich Alpine biocultural diversity and by a phenomena of repopulation and new ruralisms: new actors are moving permanently in the valley to carry out activities in the food and agriculture sectors.

The *LL in Varaita Valley* acts as an experiment that can be implemented and reproduced in other Italian and European territories.

At the national level, *Rete Semi Rurali* (Rural Seed Network) has, since its creation, sought to create a link between all the entities that participate in the agricultural-food chain, and for this reason, it can be considered under many aspects an agroecological living lab (see the initiative n°6 below).

Another living lab has been identified in *Terre di Resilienza*, in Campania (South-west of Italy), an initiative established as a social innovation laboratory centred on the recovery and enhancement of the territory's rural heritage and the proximity of relations between the actors in the agri-food chain (see the initiative 8 below).

¹³² <https://agromixproject.eu/>

¹³³ <https://www.agrilink2020.eu/>

*European Network of Living Labs, <https://enoll.org/about-us/>

In Milan (Italy), the *Milano Porta Verde Living Lab project*¹³⁴ (Milan green door living lab project) which was launched in 2020, is an ambitious project that aims to transform an abandoned 40-hectare agricultural area in the Vettabbia Park in the southern area of Milan into a demonstrative, productive and recreational Agroforestry Park linked to a Community Supported Agriculture (CSA) scheme.

From 2018, in the region of Piedmont (North-west of Italy), the project *Regenerative Villa Fortuna*¹³⁵ is an experimental research project with a living lab set up. The project aims, through the involvement of various stakeholders (local farmers, the University and the Municipality as well as many young people on the field) and a careful monitoring work of a recently implemented 20-hectare agroforestry system, to build a comprehensive set of qualitative and quantitative data that will support a replicable model of regenerative agriculture, following the approach and principles of successional agroforestry.

In the region of South Tyrol (North-east of Italy), the Laimburg Experimental Centre, possesses several characteristics that define a Living Lab (see the initiative n°18 below). However, this research centre does not define itself as an Agroecological Living Lab: its main aim is to gather the requests of a large group of stakeholders and therefore the agroecological approach is not the only one covered in their research.

In addition, in 2020, a report written in Italian entitled "Approccio agroecologico e Biodistretti" (Agroecological approach and Biodistricts)¹³⁶, published by the Italian Rete Rurale Nazionale (Italian National Rural Network), argues that within the biodistrict structure the historical links and values that have characterised the genesis of agroecology and organic farming are recreated and strengthened. The territorial structure of the Biodistrict in fact involves farmers, citizens, local public administrations and other stakeholders in order to develop sustainable agricultural practices in a participatory and mutually beneficial process, with a common goal of promoting and re-evaluating a territory and realising its economic, social and cultural potential. In this sense, agroecosystems living labs can certainly be found within biodistricts, but this aspect would require a more specific analysis.

3.3. MOVEMENT



Within the Italian movements, the social and political dimensions of agroecology are closely related. Indeed, there are many common themes binding the above components, such as food sovereignty, economic self-sufficiency, farmer autonomy, environmental and biodiversity conservation. In Italy there are diverse and very active grassroots associations working on these themes, although, often separately and rarely manage to coordinate or find an open and transversal dialogue (ITA-KI-2, ITA-KI-11, ITA-KI-12, ITA-KI-13 & ITA-KI-15 Table 1).

One of the main fields of agroecological political action in Italy is the pursuit of food sovereignty, also driven by seed access, exchange and sharing (Migliorini et al. 2018). Various regional seed saver associations, particularly active in central Italy, established the *Rete Semi Rurali* (Rural Seeds Network) in 2007, which soon became a reference organisation in the country for the

¹³⁴ <https://liaison2020.eu/ambassadors/milano-porta-verde/>

¹³⁵ <https://www.almonature.com/it/regenerating-villa-fortuna/>

¹³⁶ <https://www.crea.gov.it/documents/68457/0/Biodistretti+e+agroecologia.pdf/8e90787d-dc04-5aff-b2fb-f235e1f3e142?t=1621008326912>

conservation and development of agrobiodiversity (see the initiative n°6 below). A further interesting example, in the region of Campania (southern Italy), is the *Sementia* initiative¹³⁷, an event dedicated to spreading knowledge of ancient grains.

Other important issues related to food sovereignty are those of access to land, participatory guarantee system and farmers' markets, carried out in Italy by the *Genuino Clandestino* network¹³⁸ in its different territorial nodes such as *Campi Aperti* in Bologna, *Comunità di Resistenza Contadina Jerome Laronze* in Florence and *TerraTerra* in Rome, just to name a few. *Mondeggi Bene Comune* (Mondeggi common good) in Bagno a Ripoli (Florence, Tuscany region) is a significant and unique case. It is a diffuse community of people that for years have occupied farmhouses and public lands to oppose to their sell-off. This case identifies with the concept of "land as common goods", raising the issue of food self-determination through agroecology and the free sharing of knowledge.

Other initiatives and associations have recently embraced agroecological principles. One very relevant example is the broad coalition called *Cambiamo Agricoltura* (Let's change agriculture)¹³⁹, who are part of the European campaign "The Living Land", which lobbies and influences the Italian government on post-2020 CAP reform, as well as carrying out awareness-raising activities. This coalition includes the following associations: AIDA - Associazione Italiana Di Agroecologia (Italian Association of Agroecology), Legambiente, WWF Italia, FAI - Fondo Ambiente Italiano (Italian Environmental Fund), LIPU - Lega Italiana Protezione Uccelli (Italian League for Bird Protection), ISDE – Associazione Italiana Medici per l'Ambiente (Italian Association of Doctors for the Environment), ProNatura, organic and biodynamic agriculture associations such as AIAB (Italian Association for Organic Agriculture), Associazione Agricoltura Biodinamica (Biodynamic Agriculture Association), Federbio (Italian Federation of Organic and Biodynamic Agriculture) and many others.

Another interesting movement is the *Committee Fa' La Cosa Giusta!* ("Do the right thing!") in the region of Sicily (southern Italy), formed by 9 organisations committed, in their different fields of expertise, to the construction of a solidarity and social economy network in Sicily, based on some of the principles of agroecology (critical consumption, sustainable lifestyles and circular economy). This network has existed since 2004 and has been active in promoting the draft regional law on agroecology, approved in July 2021 (mentioned above).

The *Slow Food Italia*¹⁴⁰ association is a very important network for exchanging knowledge and bringing together different stakeholders to explicitly advocate and spread awareness about agroecology. Within the association, various local communities promote a new gastronomy, based on the preservation and enhancement of bio-cultural diversity.

Relations with the most important global peasant movement, La Via Campesina, are held by two organisations: the Associazione Rurale Italiana (ARI) and the *Associazione Italiana Agricoltura Biologica* (AIAB), both members of the European Coordination of La Via Campesina (ECVC).

Other relevant movements in implementing and working on agroecological principles in Italy, are those dealing with societal issues such as that of the exploitation of migrant labourers (*NoCAP, Fuori Mercato and Diritti a Sud*), or with respect to the recovery and valorisation of

¹³⁷ <http://www.sementia.it/>

¹³⁸ Genuino Clandestino was founded in 2010 as a communication campaign to denounce a set of unfair rules that, by equating processed peasant foods with those of large food industries, has made them illegal. For this reason, since its inception, it claims the free transformation of peasant foods. <https://genuinoclandestino.it/chisiamo/>

¹³⁹ A full list of initiatives and organisation in the coalition here: <https://www.cambiamoagricoltura.it/chi-siamo/>

¹⁴⁰ Slow Food is a large international non-profit association that works in 150 countries to promote good, clean and fair food for all. Slow Food Italia link: <https://www.slowfood.it/chi-siamo/che-cose-slow-food/>

assets seized from the Mafias (*Libera, Nuova Cooperazione Organizzata, Cooperativa Sociale No Emarginazione - Noe, farm Agricoltura Prossima*). However, despite the high social and current relevance of their work, our analysis carried out for this research has shown that these initiatives do not necessarily consider themselves to be "agroecological initiatives" or belong to the agroecological movement.

In addition, agroecological practices and initiatives are also spreading in lowland and urban areas, a phenomenon that seems to have accelerated during the period of the Covid-19 pandemic¹⁴¹, such as the activation of CSAs (Community Supported Agriculture) around several urban centres, with very important innovative approaches (e.g. *CSA Cresco* in Valle Varaita, *CSA Orobica* in Bergamo, *CSA Arvaia* in Bologna, *CSA Semi di Comunità* in Rome, and others). CSA initiatives reinforce the direct relationship between producer and consumer or co-producer, as already occurs with farmers' markets. Farmers' markets are one of the most efficient examples of short food supply chains and although they are also present in the Centre-North, they are especially active in Southern Italy, where there are strong rural cultural traditions (Table 1, ITA-KI-5). E.g. *Campi Aperti* in Bologna, *Slow Food Land Markets* in Naples or *Rareche Mercato Rurale Naturale* in Vallo della Lucania (SA) and others.

In Italy, there are several organisations working on agroecology in international cooperation. In this area, too, there is limited collaboration due to a competitive funding and project search system and because often movements tend to focus on certain causes separately, without necessarily connecting with each other (Table 1, ITA-KI-11, ITA-KI-13 & ITA-KI-15). Agroecology can indeed be a good meeting point that could bring together different movement and coordinate their actions (ITA-KI-4, Table 1). However, March 2021 is marked as the launch of *Azione TerrÆ - Coalition for Agroecological Transition in West Africa*, a valuable occasion and a good example of an alliance between several Italian NGOs and associations that got together under the same umbrella and set themselves common goals. The objective of *Azione TerrÆ* is to support the agroecological transition in West Africa in international cooperation policies and programmes, starting with Italian cooperation¹⁴².

3.4. PRACTICE



Agroecological practices have been defined and illustrated in two reports in the recent years in order to orientate the interpretation and adoption of agroecological approaches (HILPE 2019, FAO 2018). However, these sets of practices are not yet well-known outside the academic environment and moreover, given the dynamic and holistic nature of agroecology there is still an ongoing debate and conversation about how to define and evaluate agroecological practices.

Therefore, there are many farms and other realities adopt agroecological approaches with different degrees of awareness, while on the other hand, due to the recent spread of this term, more and more initiatives want to define their practices as agroecological without fully understanding its meaning.

¹⁴¹ <https://altreconomia.it/le-nuove-csa-nate-nella-pandemia-per-unagricoltura-di-relazione/>

¹⁴² https://www.manitese.it/wp-content/uploads/2021/05/IT-Transizione-Agroecologica-in-Africa-Occidentale_Position-Paper.pdf

The agroecological practices mentioned by key informants, as the ones implemented in Italy, were the use of long crop rotations, water-saving irrigation, the creation of grass and flower strips, hedges, the use of mulch on the soil and soil tillage reduction in terms of frequency and depth. Migliorini et al. (2018) have identified other agroecological practices that were traditionally used in Italy and are now increasingly being rediscovered: farm multifunctionality, conservation of local varieties and species, soil fertility improvement, landscape conservation, terracing and agroforestry. An example of this comes from the region of Liguria, where the typical agricultural terraces, olive groves, meadows and pastures of the plateau have declined in the last 50 years but are lately being rediscovered, especially in areas with less tourism (Migliorini et al. 2018). Interestingly, throughout all territories, there is an increase, year by year of support for secondary activities related to agriculture, where for example “agritourism and the minor activities connected to it” stand out with +4.1% of farms in 2019 alone¹⁴³.

Some of these practices were originally financed by European contributions, such as minimum tillage, cover crop introduction and others. Later, they became more widespread, especially in light of the experiences and experimentation of farmers themselves and on the account of the growth in Italy of the surface area dedicated to organic farming. Moreover, in addition to the two most widely recognised certification systems that regulate agri-food systems, organic (EC Regulation No 834/2007) and biodynamic agriculture (controlled by the association Demeter) in recent years, in Italy, other informal and local certification systems, such as PGS (participatory guarantee systems), as well as numerous different approaches to agriculture are becoming increasingly popular (e.g. Agroforestry, natural farming, synergic farming, permaculture, regenerative farming, syntrophic farming) (Table 1, ITA-KI-2, ITA-KI-4, ITA-KI-5 & ITA-KI-15.). These other approaches, such as organic farming, agroforestry and permaculture, can fall under the broad umbrella of agroecology (HILPE, 2019).

Among these farms, certified and non-certified, many have for years adopted an agroecological approach from production to sale. An approach that goes beyond the simple implementation of practices at field level but encompassing a structural change in the farm system itself, aimed at reducing external inputs, maximising nutrient recycling and shortening the supply chain. However, the adoption of these practices remains confined to a few farmers and is highly heterogeneous across territories and areas of agricultural production (Table 1, ITA-KI-2, ITA-KI-3, ITA-KI-4, ITA-KI-5, ITA-KI-8, ITA-KI-9, ITA-KI-11 & ITA-KI-15).

For example, horticulture lags behind other sectors. This sector, which is often analysed in conjunction with orchards, is a key component of the national food system: fruit and vegetables account for 25.5% of Italian agricultural production, with a value of 15 billion¹⁴⁴ and this sector is very intensive, even when organic. As a consequence, it is more difficult to leave space for non-income crops, e.g. cover crops or agroforestry. The situation is similar for livestock farming, which is still perceived as a very locked-in and intensive sector, with little inclination towards agroecological innovation. Conversely, in viticulture, the grassing of vineyards with useful plant species is becoming increasingly widespread, on the account of the experiences of the farmers themselves.

The application of agroecological practices are different across the various regions of Italy. There seems to be a central band of the country where agroecology is more widespread: Tuscany, Marche and Emilia-Romagna regions (Table 1, ITA-KI-2, ITA-KI-4 & ITA-KI-11). Among the regions of southern Italy, Sicily stands out with the presence of numerous agroecological

¹⁴³ “Agriculture in Figures” publication of CREA (Council for Agricultural Research and Analysis of Agricultural Economics), from 2019 and 2020.

¹⁴⁴ <https://rivistafrutticoltura.edagricole.it/economia-politica/la-filiera-ortofrutticola-disperde-ancora-troppo-valore/>

initiatives and practices as well as a very active permaculture network¹⁴⁵ (Table 1, ITA-KI-1, ITA-KI-4 & ITA-KI-7). Northern Italy remains one of the areas characterised by more intensive agriculture. However a particular interest in agroecological practices is being developed within Biodistricts¹⁴⁶ or park conservation bodies (e.g., Parco del Ticino) (Table 1, ITA-KI-15). However, even within these more active territories, the application of agroecology is uneven, since it is not the regional administrations that have the greatest influence as the agro-morphological and environmental characteristics of the hillier and mountainous areas (Table 1, ITA-KI-11). In the hilly and mountainous regions, technological and conventional innovation is more difficult to disseminate; as a result, agroecology is seen as a possible driver for the economic revitalisation and valorisation of these more marginalised areas (Table 1, ITA-KI-8, ITA-KI-10, ITA-KI-11 & ITA-KI-12). A relevant example is the Gran Sasso National Park, where through the *VALOR project* (ERASMUS Programme)¹⁴⁷ agroecology is being used as an enabling and economic driver for the area.

The re-discovery and innovation of agroecological practices is possible mainly due to the work of many associations throughout the territory, which carry out a process of awareness-raising and training of producers (including, for example, *Slow Food*, *Rete Semi Rurali*, *Deafal* and others that will be mentioned in the initiative part). The success of these initiatives is due to the fact that they do not only involve individual farms and producers, but also other players of the supply chain such as processors (bakers, millers, brewers) and ultimately consumers.

There is also an important social component linked to the rediscovery and development of agroecological practices in these areas. In the regions where cooperation has traditionally been stronger, there is a greater awareness and propensity to embrace agroecology, which makes transversal cooperation one of its cornerstones (ITA-KI-11; Table 1).

This should not be taken to imply that agroecology is and/or should be confined only to inland and marginal areas. First of all, due to large part of the Italian territory is hilly and mountainous (see chapter 1.), even from a numerical point of view such projects can potentially have important impacts: traditional production methods can preserve elements of biocultural landscapes that would otherwise be abandoned, enhancing their aesthetic value and thus favouring those areas whose economy is highly dependent on tourism (Van der Ploeg, 2019; Schermer, 2017). Furthermore, one of the major problems in Italy is the abandonment that dramatically characterises many of these areas, which drags a series of negative consequences in lowland and urban areas. For example, in Cinque Terre, where the cessation of maintenance of dry-stone terraces following the crisis of traditional agriculture has been identified as the main cause of damage following heavy rains that caused heavy hydro-geological disasters (Agnoletti et al. 2019).

Finally, among the least widespread practices is agroforestry. However, there are very interesting pioneering research activities on how to implement an agroforestry approach in central Italy (Paoletti et al. 2016; Dal Bosco et al. 2014), for example, combining extensive outdoor poultry production systems in olive groves consociated with asparagus cultivation. In addition, a Food Forest project was born in 2020 in Sicily, in the newly created *Comunità del Cambiamento Valdibella* (community of change); "an agroforestry system capable of producing food but

¹⁴⁵ <https://www.italiachecambia.org/mappa/permacultura-sicilia/>

¹⁴⁶ According to AIAB (Italian Association of Organic Agriculture) definition "A biodistrict is a geographical area with a natural vocation for organic farming in which the various players in the area (farmers, private citizens, associations, tourism operators and public administrations) enter into an agreement for the sustainable management of resources, focusing on organic production that involves all the links in the chain up to consumption. In short, the biodistrict is a pact for the green development of the territory, signed by organic producers, local administrations and the civil society involved."

¹⁴⁷ The VALOR project, co-financed by the European Union through the Erasmus+ programme, is a three-year project that aims to develop a framework of professional skills in the field of resilient and sustainable agriculture and to provide especially young farmers with the necessary tools to undertake this type of activity through specific, freely accessible online training courses. <http://www.gransassolagapark.it/pagina.php?id=418>

at the same time able to engage consumers through a virtuous system of synergies¹⁴⁸. An example in northern Italy, the *Una Garlanda* farm in Rovasenda (VC) has planted shrubs in its rice fields¹⁴⁹, an example of the very valuable and ambitious experimental work undertaken by farmers themselves, which is often not adequately recognised.

Among the main and most frequently mentioned obstacles to the spread of agroecological practices by key informant (KIs, Table 1) are following: (i) cultural lock-ins, (ii) shortage of appropriate mechanisation; (iii) scarcity of locally adapted varieties and (iv) lack of appropriate policies. However, there is a general positive trend perceptible towards the adoption of agroecological practices on farms.

3.5. SCIENCE



As with the rest of Europe (Wezel et al. 2018), the scientific dimension of agroecology in Italy remains the dominant one. In particular, the 'science and research' activity category is the one most involved and interested, at least formally, in the aspects of defining, structuring and researching on the approach and practices required for an agroecological transition (Table 1, ITA-KI-2). Italian universities seem to be the place where agroecology is most recognised in its meaning and definition, but there are still few professors and researchers involved in agroecology, who often do not find a full support from their own institutions. Moreover, this interest often emerges within the environmental sciences rather than within the agricultural sciences (ITA-KI-3, Table 1).

The concept of agroecology itself is still not defined in a common way. Even though there are some academic reliable and relevant reports (HLPE 2019; FAO 2018) that provide an international description of agroecological elements and principles, there is an ongoing debate on how to define and interpret agroecology. Some academic research groups focus on the multi-prospective and multi-disciplinary approach of agroecology, others tend to focus solely to the agronomic domain of field and farm scale.

Nevertheless, the inclusion of many research institutions within an international and European work environment facilitates a more homogeneous understanding of the definition (Table 1, ITA-KI-11).

The University Sant'Anna School of Advanced studies (SSSA) has a research group name *Group of Agroecology* (see the initiative n°17 below) and the University of Florence, where research in the field has been carried out for years. In addition, in Italy, the universities of Florence, Perugia, Pisa and Tuscia and research councils have initiated long-term experiments (LTE) for organic farming and agroecological practices¹⁵⁰ (Migliorini et al. 2018). Other universities mentioned by Key Informants for conducting research on agroecology are the University of Padua (see the initiative n° 19 below), the Polytechnic University of Marche, the University of Palermo, the University of Campania "Luigi Vanvitelli" and the University of Catania.

In the Department of Economic Sciences of the University of Parma, agroecology has recently been considered (Guareschi et al. 2020.) starting from the experience of the constituting *Biodistrict of Parma*. The University of Gastronomic Sciences of Pollenzo-Bra (UNISG) has a

¹⁴⁸ <https://www.valdibella.com/la-prima-comunita-del-cambiamento-e-da-noi/>, <https://www.valdibella.com/food-forest-ovvero-la-foresta-che-si-mangia/>

¹⁴⁹ <https://www.unagarlanda.it/piantumazione-unagarlanda.html>

¹⁵⁰ For example, in Florence (Tuscany region, in central Italy), the MOLTE (Montepaldi Long Term Experiment), the longest-running comparison of integrated, organic and biodynamic agroecosystems, has been conducted since 1992. <https://www.dagri.unifi.it/index.php?module=CMpro&func=viewpage&pageid=475&newlang=eng>



























large research Agroecology group that coordinates and conducts several research projects and activities related to agroecology at every level: including the food systems level which supports bio-cultural diversity (e.g. AE4EU with Living Labs and knowledge Hub development); the farming system level (e.i. the assessment of the sustainability and GOODFOOD Erasmus project); and the seed level with characterisation, conservation and valorisation of germplasm of local varieties of cereals, horticultural crops, and legumes (e.i. RADIANT project and GERMONTE)¹⁵¹ (Migliorini et al. 2018). National research institutions such as CREA (Council for Agricultural Research and Analysis of Agricultural Economics) and MIPAAF (Ministry of Agriculture, Food and Forestry) have often collaborated mainly on organic farming innovations and in the framework of biodistricts (National Rural Network, CREA and MIPAAF, 2021).





















However, more agroecology research, based on an integrated and transdisciplinary approach to transform the whole agri-food system, is needed.

¹⁵¹ More information regarding the research activities at the University of Gastronomic Sciences of Pollenzo-Bra (UNISG) can be found at this link <https://www.unisg.it/en/academic-research/>

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 3: An overview about initiatives, cases and examples described and analysed.

INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Itinerant Experiential School of Organic Farming <i>Scuola Esperienziale Itinerante di Agricoltura Biologica</i>	Regional	Association: farmers and agronomist	Provide training in the management of a small to medium-sized, multifunctional and organically managed farm.					
2	Deafal	National and international	NGO	Improve the living conditions of farmers and strengthen their role in the society, promote food sovereignty and the protection of the territory and the environment, thus regenerating the whole society.					
3	MAFS - Master in Agroecology and Food Sovereignty	International	University master program	Educate the next generation of agroecologists with knowledge and skills, to become active facilitators of change in agrifood systems and food sovereignty.					
4	Agriochiamo association	Regional	Private association	Raising awareness and educating on environmental issues, agri-food education and sustainable development by using recreational tools and soft communication as a main didactic approach.					
5	House of Seed of Sardinia <i>La Casa dei Semi della Sardegna</i>	Regional	Informal association	Create an informal seed system as an alternative to the current agro-industrial seed system, to preserve local varieties.					
6	Rural Seed Network <i>Rete Semi Rurali</i>	National	NGO - Seed Network	Support the collective management of agrobiodiversity, involve local communities and society through many activities around seeds.					
7	DES - Solidarity Economy District <i>Friùl di Mieç</i>	Regional	NGO	Revitalising the Middle Friuli territory through the creation and enhancement of a cereal chain conducted with organic methods, promoting solidarity economies on a local scale.					
8	Terre di Resilienza	Regional	Cooperative	Introducing an agroecological approach to wheat production					
9	Cooperativa Sociale Panacea	Regional	Social cooperative	Creation of a fair food chain					
10	Earth Terra Terra	Regional	Association	Shifting towards a peasants-based food system, a model able to get consumers and producers closer					

INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
11	Diritti a Sud	Regional	Cultural association	Political activism focused on the protection of fundamental workers' rights and sustainable agricultural production					
12	Il Papavero Rosso	Regional	Farmers, researchers	To provide a healthy product, and environmental sustainability is a consequence of their agroecological farming practices					
13	Arvaia	Regional	CSA (Community Supported Agriculture)	Cultivate its own food, promoting equity, solidarity and participation.					
14	Bioland	Regional	Farmers organisations	Produce food of high quality by utilising sustainable practices that promote biodiversity, soil fertility, animal welfare, and a caring use of the natural resources to ensure a sustainable agriculture and a liveable future					
15	Le Galline Felici	Regional	Producers consortium	Make consumers active and aware, transforming them into co-producers and co-financiers, creating dynamics of solidarity, agricultural and social development projects, building a solidary economy based on relationships					
16	Giolomoni	Regional/ National	Agricultural cooperative	Producing organic pasta managing the entire farming supply chain					
17	Sant'Anna School of Advanced studies, Pisa - Group of Agroecology (GOA)	Regional International	Research group integrated in the agronomical field laboratory	Research related to the role of functional biodiversity and the introduction of agroecological practices on farms.					
18	Laimburg Research Center	Regional	Research Centre	Provide a sustainable and a concrete contribution to the development of local producers' businesses.					
19	Agroecology and Ecosystem Services - University of Padua	Regional International	University optional course (master level)	Offering a space for research and debate with social stakeholders on contemporary multidisciplinary issues related to agroecology.					
20	LIFE Desert Adapt Project	Regional International	Project founded by EU life	Demonstrate innovative climate adaptation strategies and technologies to improve land quality, soil conservation, and plant support in Mediterranean areas under desertification risk.					



EDUCATION



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE

INITIATIVE N°1 – ITINERANT EXPERIENTIAL SCHOOL OF ORGANIC FARMING

ITINERANT EXPERIENTIAL SCHOOL OF ORGANIC FARMING



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Scuola Esperienziale Itinerante di Agricoltura Biologica

The Itinerant Experiential School of Organic Farming

("Scuola Esperienziale Itinerante di Agricoltura Biologica") officially started in 2006, upon the initiative of some farmers, agronomists and entomologists who had been members of the "Esapoda" Cultural Association since 1999, focusing on the study and planning of biological control strategies for insects.

The School uses a method of teaching organic farming that is based on the centrality of practice: lessons are held on various farms, mostly located in the Veneto region (North-East of Italy). The teachers are farmers themselves, who hold the lessons of their own farms; the only teacher who is not a farmer is the school's coordinator – an agronomist and agroecologist. There are two training modules: horticulture and fruit growing.

The primary objective of the school is to provide training in the management of a small to medium-sized, multifunctional and organically managed farm. At the level of agricultural practices, agroecological management of natural resources is promoted, starting with soil management, organic fertilisation, and biological control of insects and parasites. Self-production of cereal and vegetable seeds is also part of the training. Agroecology thus becomes the practical basis for the training modules of the school. The value of sharing and networking among farmers is also promoted.

It is a one-year course of study - lessons are held on a different farm, one weekend per month - and is open to all interested persons (no particular educational qualification is required): enrolled students primarily come from an agricultural background, others are "neo-rural" aspiring farmers, and there are also technicians and freelancers working in the technical assistance sector.

At the end of the courses, the students are supported in the initial stages of their business project by one or more farmer-teachers who become their tutors.

The school is financed directly by the students' fees (on average 8-10 students per year). The students and alumni of the School form a network that support knowledge exchange and maintain a link even after the end of the annual course. Through individual and co-organised open events with the school, issues and experiences relating to organic farming and ecology are disseminated to the public.

KEY FEATURES

- **Type of education and training:** training for farmers - action/experimental learning,
- **Main topics:** agro-ecological practices, cooperation between farmers, short supply chain and marketing
- **Training duration:** 1 year
- **Type of legal entity:** association
- **Accessible to:** farmers, "neo-rural", freelance consultants

The School collaborates with associations and other stakeholders linked to organic farming such as AVEPROBI ("Associazione Veneta Produttori Biologici e Biodinamici" – Organic and Biodynamic producer association from the region Veneto in the north-east of Italy), FIRAB ("Fondazione Italiana per la Ricerca in Agricoltura Biologica e Biodinamica" - Italian Foundation for Research in Organic and Biodynamic Agriculture) and others. In terms of research with universities, the teachers' and alumni farms have individual collaborations with the Faculties of Environmental Sciences of the University of Venice and Natural Sciences of the University of Padua (see University of Padua initiative), hosting a limited number of internships, thesis or doctoral projects.



Picture 1: Workshop in the farm "Benetazzo" loc. Salboro - Padova (PD)", checking for Aphid infestation in zucchini crops with the agroecologist Luca Conte.
Source: Lucas Worsdell - "Raices de sobrania" - May 2021.

WHAT CAN WE LEARN?

The emphasis on practical training and the overall management of a farm makes this initiative quite unique in the Italian scene. In addition, the farmer-teachers are also important assets of the school, ready to give inputs and advice to students who want to undertake an entrepreneurial process.



EDUCATION



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE

INITIATIVE N°2 – DEAFAL



www.deafal.org
Facebook: @DeafalONG

DEAFAL

Deafal (European Delegation for Family Farming of Asia, Africa and Latin America) is an NGO engaged in international cooperation, education on global citizenship and training/technical assistance on regenerative and organic agriculture. It was founded in Milan in 2000 by a small group of Italian and Brazilian agronomists and professionals with the aim to improve the living conditions of farmers and strengthen their role in society, and promote food sovereignty and the protection of the territory and the environment, thus regenerating the whole society. Its vision thoroughly summarises its objectives: "Regenerate soils to regenerate societies". When Deafal began its activity in international cooperation, it approached the themes of regenerative agriculture in Latin America, Mexico and Brasil, with the intention of bringing such concepts back to Italy. Deafal is divided into 5 working areas: (i) Administration, (ii) International Cooperation, (iii) Organic and Regenerative Agriculture, (iv) Communication, and (v) Global Citizenship Education. Deafal's staff is made up of about twenty people, divided into various working groups. Half of the funding comes from public bodies, around 25 % from training and education fees, and the rest from banking foundations, private entities, donations and fund-raising activities.

KEY FEATURES

- **Type of education and training:** training courses for farmers and technical assistance to farms on regenerative and organic agriculture
- **Main topics:** regenerative and organic agriculture
- **Training duration:** variable, depending on the path and the subject to whom it is addressed
- **Type of legal entity:** NGO
- **Members:** assembly of members (27 people) and board of directors (3 people)
- **Accessible to:** farmers, "neo-rural", and freelance

Among its projects in Italy, as well as in international cooperation projects, the education and training on regenerative and organic agriculture is a central part of its activity.

Their work in education and training on regenerative and organic agriculture, with different costs and durations, are divided into two main activities:

- 1) theoretical/practical training courses for farmers, cooperatives, technicians and amateurs
- 2) direct technical assistance to farms.

In Italy, since 2010, there have been about 3500 producers and 200 companies trained on regenerative and organic agriculture by Deafal. This work is carried out by technicians and trainers (9 in Italy, mainly agronomists) with a diversified background in economics, ecology, agronomy and veterinary sciences. The courses combine field and laboratory activities with theoretical lessons, timelines, and adaptable content. Technical assistance covers all crops and livestock production and targets small to medium-sized, primarily multifunctional farms, although sometimes bigger farms with tens of hundreds of ha are also targeted.

¹⁵² The regenerative and organic agriculture is defined by Deafal as a theoretical-practical discipline that draws from different approaches of sustainable agriculture, and that is based on soil regeneration, with an increase of fertility and organic matter, and proper nutrition and crop defence, combining traditional know-how, good agricultural practices and scientific knowledge, starting from biology and ecology. The aim is to regenerate ecosystems and biodiversity, restore the relationships between living beings, and promote knowledge sharing with a bottom-up approach.

Technical assistance is configured to guide farms on a transformation path towards a regenerative approach, helping them to maximise the use of local resources and self-produced technical inputs, gradually increasing soil fertility and trying to lower production costs, due to their lower dependence on external synthetic inputs.

Their holistic and systemic approach aims to make farm as a functional and dynamic system. Agroecological principles, such as the use of cover crops and local resources, the promotion of functional biodiversity and soil health, and the reliance on knowledge sharing and bottom-up approach, are central to Deafal's activity and are included in the concept of regenerative and organic agriculture.

The term agroecology is also used independently in training, education and cooperation activities, and is at the heart of their national and international projects where Deafal is a leader or partner. In 2017, Deafal also started an activity on Environmental Education and Global Citizenship, with training projects aimed at civil society and schools. Additionally, it supports Community Supported Agriculture (CSA) as a member of URGENCI, the international network of CSAs.



Picture 2: Learning about the production process effective microorganisms to enhance the fertility of compost from a DEAFAL technician on the Azienda Agricola Rio Selva.
Source: Lucas Worsdell - "Raices de sobrania" - May 2021.

Over the years, it has built a dense network of partnerships with more than 70 worldwide organisations, including NGOs, associations engaged in agroecology, research institutes, companies and social cooperatives. It is a member of CoLomba¹⁵³ (Cooperazione Lombardia, the Lombardy NGO coordination), AOI¹⁵⁴ (the Italian NGO Association), and Agroecology Europe¹⁵⁵. Deafal also operates as a leader or partner in several national and international calls and projects.

There are many projects planned in the field of education and training, with the desire to explore new ways of training and co-designing. Deafal will continue to develop international cooperation programs (in Togo, Morocco, Burkina Faso, Mozambique) and projects on agroecology, both in Italy and abroad. An illustration of this is the project, MedCaravan (The Mediterranean Caravan: Learning and Sharing Agroecology)¹⁵⁶ on the collection, enhancement and sharing of local and innovative knowledge concerning agroecology in the mediterranean basin, in collaboration with the MedNet network (The Mediterranean Network of Local Solidarity Based Partnerships for Agroecology).

WHAT CAN WE LEARN?

Deafal offers a day-to-day training for farmers which is fundamental for a genuine transition towards an agroecological and regenerative agricultural system. Deafal applies a holistic, participatory and engaging approach to guide them to agroecological techniques for each specific socio-economic-environmental context. Deafal's ability to network with the different entities on the territory, with other NGOs and institutions, promotes rural development in a systemic and dynamic way, putting farmers at the centre of this transformation journey.

¹⁵³ CoLomba: <https://colomba.org/>

¹⁵⁴ AOI: <http://www.ong.it/>

¹⁵⁵ Agroecology Europe: <https://www.agroecology-europe.org/>

¹⁵⁶ MedCaravan project: <https://urgenci.net/medcaravan-agroecology-as-a-connection-between-agricultural-and-socio-cultural-ecosystems/>



EDUCATION



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INITIATIVE N°3 – MAFS

MAFS – MASTER IN AGROECOLOGY AND FOOD SOVEREIGNTY



Università di Scienze
Gastronomiche di Pollenzo
University of Gastronomic Sciences of Pollenzo

<https://www.unisg.it/en/programs-admissions/master-agroecology-food-sovereignty/>

In September 2020, the University of Gastronomic Sciences (UNISG)¹⁵⁷ has launched a new one-year Master Program called “**MAFS – Master in Agroecology and Food Sovereignty**”, with the central aim to educate the next generation of agroecologists with knowledge and skills, to become active facilitators of change in agrifood systems and food sovereignty. This is done through an action oriented, participatory and experiential learning approach aligned with an agroecological educational theory and practice (Francis et al. 2013). The programme has the following key dimensions:

- Action-learning and research
- Food Sovereignty
- Sustainable Agroecosystems
- Sustainable Food Systems

The story of the MAFS has started two years before, in 2018, within the “NEXTFOOD” H2020 project “Educating the next generation of professionals in the agrifood system”¹⁵⁸, when UNISG invited project partners, current and former students, practitioners and Slow Food representatives to co-design the MAFS program in a collaborative and participatory way starting from the question: “what are the knowledges and competences needed to become an agroecologist?”. Within Italy, this is the only masters program of its kind fully dedicated to agroecology.

The UNISG team includes the following individuals: one course director, one action learning and research facilitator, and several researchers and lecturers, both internal UNISG professors and visiting professors invited from other European universities. During the first 2 phases of the MAFS (Sep-Dic and Jan-Mar), the course offers a weekly practice at the UNISG garden or in an agroecological farm near Pollenzo. The whole master programme is case-based. The collaboration with the Slow Food movement helped the program identify Terra Madre¹⁵⁹ communities, where students live for three months. During this 3rd phase of the program (Apr-Jun), students learn by doing, to link theoretical with practical knowledge and to develop action-research identifying themes relevant for stakeholders. The aim of the master's programme is to develop the student's knowledge and competences which are needed to facilitate changes in the agri-food systems. After the MAFS year, students have many different choices for their future endeavors, from the practical application of farming to continuing their studies, or simply returning to their previous job with a new and broader perspective.

KEY FEATURES

- **Type of education and training:** master program
- **Main topics:** agroecology and food sovereignty
- **Training duration:** 1 year
- **Type of legal entity:** university
- **Accessible to:** students from all countries, a bachelor's degree and English proficiency is required

¹⁵⁷ The University of Gastronomic Sciences (UNISG) based in Pollenzo, Northern Italy, was founded in 2004 by the international non-profit association Slow Food and accredited by the Italian Ministry of Education and Research as a private non-profit institution. Since its foundation has had the goal to develop knowledge, skills, and attitudes, enabling students to deal with complex situations in agricultural and food systems development, particularly in the field of food and gastronomic science.

¹⁵⁸ To know more about Next Food: <https://www.nextfood-project.eu/about-2/>

¹⁵⁹ Terra Madre is an international network of farmers, fishers, food producers and cooks, supported mainly by Slow Food and with the common aim of protecting and supporting small-scale producers (<https://2022.terramadresalonedelgusto.com>). Slow Food communities definition on SF website: Slow Food communities are made up of a group of at least 10 people who share and promote the values of the international Slow Food movement (as summed up in the Declaration of Chengdu), a community is based first and foremost on the assumption that everyone has the right to good, clean and fair food and that Slow Food will not give up the fight until every last person on this planet has access to it.



Picture 3: MAFS' students and teachers at UNISG, 2021. Source: UNISG.

WHAT CAN WE LEARN?

Collaboration between academics, practitioners/farmers/food producers, educators and students is overarching the whole genesis, development and current activities of MAFS.

An action learning approach. The experience can be an incredibly powerful tool if space and time for reflection is given. Differently from a traditional university approach, the professor is no longer the person sitting behind the desk, supplying students with knowledge and contents, but takes on the role of facilitating the whole learning process taken up by the student. Students, in turn, must acquire an active role, in which they are the one exploring and experimenting the situation, and connecting the acquired theory with real life activities (past, present and future).

Diversity. The program is open to students from different countries (as it for course at UNISG) with very different backgrounds, some of them grew up in conventional farms, others had never worked in the field before, therefore students can already learn a lot from one another because of their connections, backgrounds, and different skills.



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INITIATIVE N°4 – AGRIGIOCHIAMO ASSOCIATION


<http://www.agrigiochiamo.it>

Facebook: @AgriGiochiAmo

AGRIGIOCHIAMO ASSOCIATION

Agrigiochiamo (that could be translated into "agro-playing") is an association which deals with education and communication related with agri-food systems, rural development and critical consumption, with the aim of using recreational tools and soft communication as a main didactic approach to raise awareness and education on agri-food and environmental issues, as well as sustainable development. The association was founded in 2010 and it is composed of 23 members with various professional backgrounds.

Agrigiochiamo association's main activities consist of training, advice and accompaniment of farms (mainly farms focused on educational and multifunctional agricultural activities), cooperatives and farmer's organisations, agri-food enterprises, public institutions, as well as educational workshops and training to schools (especially kindergarten and primary school) and universities. The educational activities implemented are linked to the nature of the context: for example, within a dairy farm, activities will be developed that are related to breeding and production of dairy products, while in a pizzeria the educational activities will be focused on topics like cereals, flours and raw materials used in that context. The focus of the educational activities depends on the context where are carried on (e.g. breeding and dairy product in a dairy farm or cereal breeding and raw materials' use in a pizzeria). The teaching is supported by panels and manual educational kits with the aim of promoting experiential and multisensory educational processes on topics such as conscious consumption, environmental and food education, local products by farms that conduct organic or biodynamic agriculture, permaculture etc.

The association applies an approach based on Howard Gardner's theories of multiple intelligences¹⁶⁰ (Smith 2002), as a tool to teach and raise awareness about the ecological principles and practices related to food production.

The association has developed a teaching methodology based on pedagogical theories which consider educational activities in the agricultural sector as a powerful tool. The methodology also requires the creation of a strong connection between the agricultural identity of the farm and the educational activities

KEY FEATURES

- **Type of education and training:** training courses and advice for farmers and educational training workshops to schools.
- **Main topics:** agri-food education; sustainable development; rural development; urban redevelopment; critical consumption; marketing
- **Training duration:** from one day to three years
- **Type of legal entity:** association
- **Members:** educators; ecologists; agronomists; food technologists; environmental architects; experiential and gastronomic tourism designers
- **Accessible to:** farms, agri-food enterprises, public institutions, schools and universities.

¹⁶⁰ Howard Gardner's theories challenged the traditional notion that there is one single type of intelligence that only focuses on cognitive abilities. To broaden this notion of intelligence, Gardner introduced eight different types of intelligences consisting of: Linguistic, Logical/Mathematical, Spiritual, Bodily-Kinesthetic, Musical, Interpersonal, Intrapersonal and Naturalist.

provided. About 70% of the educational activities carried on by Agrigiochiamo association takes place in the regional context of Campania (South-west of Italy), but it has been reached a wide coverage at the national level too.

The association is involved in urban redevelopment and co-planning projects, as for example, focused on developing school gardens and urban gardens in metropolitan areas, as well as in gastronomic tourism programs within universities' courses.

The recent collaboration within a FAO project opened new perspectives to the association, representing an opportunity to replicate the agroecological model of rural development and agritourism in extra-European countries.



Picture 4: Lesson on educational farm. Source: Agrigiochiamo member.

WHAT CAN WE LEARN?

Agrigiochiamo association has given the opportunity to farms and agri-food enterprises to gain awareness about an agroecological approach and to learn how to communicate it through an effective and innovative way, even when an agroecological approach was already existing but not recognised as such. Several practices such as the biodiversification of the environment, the absence of chemical treatments for fertilisation and pest control, crop rotation, animal welfare, and regeneration of soil through fermented manure, were already implemented within the farms. The Agrigiochiamo association turned it into a communication and educational tool for the didactic activities implemented by the farms.

As for the teaching methodology applied, the experiential learning and the recreational tools revealed the importance of developing an emotional attachment to food conceived as an agricultural product in order to raise awareness among children and create more engagement and interaction between students and teachers as well as between children and families.



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INITIATIVE N°5 – LA CASA DEI SEMI

La Casa dei Semi
<https://casadeisemi.noblogs.org/>

LA CASA DEI SEMI DELLA SARDEGNA

La Casa dei Semi della Sardegna (in English: “House of Seed of Sardinia”) is an informal (i.e. not legally registered) and self-organised group of about 10 people. The core group is composed by 2 farmers, some technicians and agronomists and people who are nutritionally self-sufficient. By choice, the group wants to remain informal and outside any institutional constraint, after having been involved in a past institutionalised experience of the regional “biodiversity committees”.

The initiative aims to create an informal seed system as an alternative to the current agro-industrial seed system as a starting point for those who want to become farmers.

Founded in 2016 from the Sardinian Genuino Clandestino¹⁶¹ (the participatory guarantee Italian movement), La Casa dei Semi della Sardegna has started in the form of informal meetings organised in a village in an agricultural valley devoted to pasture and arable land, with the main purpose of reviving the village by preserving local varieties.

Today, besides conservation and an annual seed swap, the initiative also offers free trainings for hobbyists, gardeners and farmers, in order to actively involve farmers and cooperatives in the use of local seed varieties. Through workshops about how to reproduce their own seeds and other training activities related to cultivation with agroecology practices, the initiative has managed to involve many actors in the supply chain. They use directly the term agroecology in their training modules, and they encourage the use of local seed and adopt agroecological techniques.

La Casa dei Semi della Sardegna relies on an active communication and social media to coordinate activities and schedule courses and meetings. The training events occur throughout the year and are open and free to all citizens (with voluntary donation) and last around 2-3 days. Usually there are around 12 to 25 people in attendance including students, farmers and interested citizens. Trainings are organised in partnership with various civil society groups such as Civiltà Contadina (Italian Seed Savers), Rete Semi Rurali (Italian Seed Network), CNR (National research institute) and national agricultural high schools.

KEY FEATURES

- **Type of education and training:** workshop on reproducing local varieties and annual seed swaps
- **Main topic:** all crops, seed saving and exchanging, agroecology
- **Trainings duration:** 2-3 days every 4-6 months
- **Type of legal entity:** informal organisation
- **Members:** farmers, technicians, citizens
- **Accessible to:** anyone interested in the topic (e.g. hobbyists, gardeners and farmers)

¹⁶¹ Genuino Clandestino was founded in 2010 as a communication campaign to denounce a set of unfair rules that, by equating processed peasant foods with those of large food industries, has made them illegal. For this reason, since its inception, it claims the free transformation of peasant foods. <https://genuinoclandestino.it/chisiamo/>

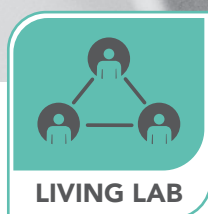
Besides seed material, the initiative also generated a database with morphological /ethnobotanical and cultivation characteristics, which are available to all users. This is because “The dream is to create a network of farmers and hobbyists reproducing seeds and deciding internally who does the cereals, who does the vegetables, so that the distribution is managed by the farmers rather than the commercial network”(Initiative Informant – Il n°16).



Picture 5: Assembly 11 August 2021 - Reflections, proposals and possibilities for activities and working groups of the Sardinian Seed Network. Source: Casa dei Semi Sardegna.

WHAT CAN WE LEARN?

The initiative stressed the importance of both the formal and the informal world of seed saving. The key to greater development and dissemination of agrobiodiversity is to understand where these two very different, but dependent realities, can meet and create a good synergy to work together.



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INITIATIVE N°6 – RETE SEMI RURALI

Rete
Semi
Rurali

www.rsr.bio

Facebook: @semirurali - Twitter: @retesemi

RETE SEMI RURALI

Rete Semi Rurali (RSR) is a seed network organised as a second-level association (members are organisations, not individuals) of 34 national organisations that aim to innovate agricultural systems starting from seeds. According to the association, there is no way to innovate an agricultural system without diversifying the underlying genetic resources system, which can then directly lead to the diversification of food systems. To achieve its vision, RSR supports, facilitates and promotes contacts, dialogues, exchanges and sharing of information and knowledge among actors who affirm the values of agrobiodiversity and are opposed to practices that generate erosion and the loss of diversity, such as intensive agro-industrial monoculture-based models.

Even if RSR does not claim to be a living lab or even label themselves as such, many of their practices and actions could be considered, unbeknownst to the many actors, as Living Labs. If the term Living Labs means a laboratory in which issues are tackled through collective discussion and concrete actions, Rete Semi Rurali was unknowingly a Living Lab *ante litteram*. All RSR initiatives are a cohabitation of knowledge of a very variegated nature: the central problem/issue is tackled by people from different backgrounds and experiences who come together to find an effective synthesis that considers the vision of all the players in the chain (for example, in cereals, the cultivation and processing of local varieties of wheat will involve farmers, researchers, millers but also bakers and consumer-citizens).

RSR was created informally in the early 2000s out of the common vision of several Italian agricultural associations, which considered agrobiodiversity to be a substantial element for the continuation of agricultural practices, especially in peripheral areas and because climate change was already showing its first signs. The creation of the association was an important moment for the agricultural sector as it structured into a network with a common conviction. Therefore, through its many meetings throughout the territory, RSR has brought together syntheses, reflections, paths and practices already present in the communities, and, over time, has legitimised and promoted them within a dynamic and collective management of agrobiodiversity. RSR proposes and carries forward this essential and innovative element in its daily activities, dividing its action into 4 thematic areas (Box 1). It takes shape through horizontal thematic (peer-to-peer), participatory and multi-actor meetings often organised directly on farms. The seeds come together with agronomic cultivation techniques and the knowledge associated with their use, for this reason a central objective of RSR is to involve local communities and society. The association's slogan and the founding mission which steers all of its activities are 'to every soil its seed, to every seed its soil'.

For the coordination of activities and actions, there is a permanent staff of about 15 people (administration, agronomists, sociologists), and another 5-7 who collaborate on an occasional basis.

KEY FEATURES

- **Main topics:** agroecological practice, community seed banks, participatory plant breeding, organic heterogeneous material, and local and organic varieties
- **Founded in:** 2007
- **Type of organisation supporting the living lab:** NGO - seed network
- **Type of actors involved:** multi-actor approach
- **Scale of the living lab:** national

During its organising territorial meetings, the association has brought together thousands of people, including members, farmers, institutions, researchers and the simply curious.

RSR encourages the flow of information and innovation in agriculture at the European level since it is a member of both the consortium that promotes genetic improvement for organic farming, the European Consortium for Organic Plant Breeding (ECO-PB), and the first social movement to address agrobiodiversity and access to seeds, the European Coordination Let's Liberate Diversity! (EC-LLD).

RSR mainly participates in public and European funds calls and has a minimal and unstable private contribution. The 34 member organisations pay a very low fee and do not account for revenue for activities.

BOX 1. RETE SEMI RURALI THEMATIC AREAS

1 – ACTION RESEARCH:

The diversification of agricultural systems needs to bring research back into the field (decentralised) involving the actors (participatory), the so called participatory plant breeding. RSR coordinates such meetings within the network.

2 – COMMUNITY SEED BANKS:

Within the new diversified seed systems, an important role will be played by the CSBs, formal or informal entities that facilitate the use and cultivation of diversity by farmers, hobbyists and citizens. In its central office RSR hosts a CSB with varieties of wheat, rice, tomato and lentils.

3 – COMMUNITY:

Talking about seeds means talking about the communities that grow them, process them and, finally, eat them. Each RSR member tries to do this in their own territory.

4 – SOWING CHANGE:

To promote change in agricultural systems, it is necessary to build a political, legal, economic and social environment that makes this possible.



Picture 6: Rete Semi Rurali's seed bank in 2019 has recovered more than 200 local Italian rice varieties from IRRI (International Rice Research Institute). The aim is to carry out varietal trials and create mixtures to reintroduce and cultivate them in organic farming systems. Source: Lucas Worsdell - "Raices de sobranía" - May 2021.

WHAT CAN WE LEARN?

The importance of the figure of the facilitator. This work of building bridges, facilitating, strengthening, and maintaining relationships has proven, through the experience of RSR and others, to be fundamental to an inclusive agroecological transition. From the experience of RSR it is necessary to learn to identify the facilitator as a person with an aptitude for relationship management and as a real professional figure who perceives common issues and enhances them, finding synergies through his or her skills catalysing processes and mitigating possible conflicts. The person in charge of "facilitating" such processes has transversal skills ranging from technical to economic, social, and research and can dialogue with different players and worlds.

POSITIVE IMPACTS



HEALTH: Diversification of diet starts with a diversification of available genetic resources. A diversified diet has a positive impact on people's health.



SOCIETY AND EQUITY: The strategy used by RSR to encourage the circulation of knowledge within its own communities of reference constitutes an alternative model to the top-down approach to innovation in agriculture hitherto promoted by conventional agriculture.



ECONOMY: The Community Seed Banks tool allows farmers to achieve greater independence from the conventional system while supporting the growth of knowledge capital and seed availability.

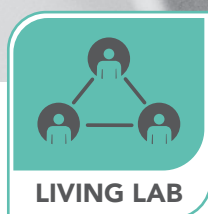
LIMITATIONS & CHALLENGES



POLICY: The circulation of knowledge requires figures not recognised at the public policy level on issues related to technical dissemination in agriculture. For example, in the regional Rural Development Programmes for the promotion of operational groups, the costs of the "facilitator" are not covered.



ECONOMY: RSR's sustainability mechanism is provided by public funding and donations from private foundations, and to a small extent, through its own social base. This mechanism leads to an uncertainty of the sustainability of territorial initiatives over time and to inefficient use of the resources that must be employed for the ongoing pursuit of donors' projects.



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INITIATIVE N°7 – FRIÛL DI MIEÇ



www.des-mediofriuli.it
Facebook: @PANeFARINE

SOLIDARITY ECONOMY DISTRICT - FRIÛL DI MIEÇ

The Distretto di Economia solidale (DES) - Solidarity Economy District was created in 2016 by a group of young aspiring farmers with the aim of revitalising the Middle Friuli territory in the North-East of Italy through the creation and enhancement of a cereal chain conducted with organic methods, promoting solidarity economies on a local scale. Since 2019 it has been collaborating with the H2020 project "AgriLink"¹⁶², that supported the work of facilitating and monitoring the activities of the District, configured as a Living Lab. Other farmers joined in and now form a solid network that managed to close the production chain, buying a bakery in Udine in 2021. The flours are then sold to private individuals and bakeries and distributed through other channels.

KEY FEATURES

- **Main topics:** agroecological practice and production
- **Founded in:** 2016
- **Type of organisation supporting the living lab:** NGO
- **Type of actors involved:** farmers, scientists and advisors
- **Scale of the living lab:** regional

This initiative does not express directly the word "agroecology", but in some activities the agroecological aspect is considered, for example in the management of natural and social resources. Within AgriLink, the activity "Living Labs for innovation support services" is aimed at developing and testing innovative services that connect researchers, farmers and private and public consultants. Throughout the project, the co-creation of knowledge was bound by each partner bringing to the table their unique contexts. For Friûl di Mieç, two individuals were funded, one for facilitation and one for monitoring, which are the central activities to ensure sustainable management of their Living Lab.

DES has developed collaborations with different actors at the regional level: in addition to AIAB FVG (Associazione Italiana Agricoltura Biologica-Friuli Venezia Giulia), which contributes assistance and networking services, the University of Udine (Department of Economics, Society and Territory) participated with surveys for regulatory support and socio-economic structuring of the initiative. A RDP project financed the purchase of small materials and the creation of labels. Finally, as part of the AgriLink Friûl di Mieç project, it has developed relations with others European LL.

The success of the project depends on the framework, as it is a project in which farmers can experiment without risking too much in terms of yield or economic loss, as each measure provides reimbursement when needed and good accompaniment from experts.

WHAT CAN WE LEARN?

The initiative has contributed to the recovery of abandoned land in areas where agriculture was facing a major crisis, generating an agricultural cooperative that produces markets flours that are in demand in the region. The interest and action of different actors has found a channel for promoting the area.

¹⁶² AgriLink has the overall aim of "creating services and tools to support a demographically and professionally heterogeneous group of farmers and other stakeholders in consolidating the wheat supply chain that is based on the cooperative management of common lands", see the website: <https://www.agrilink2020.eu/>



Picture 7: Workshop and exhibition of bakery products from the DES chain in a public presentation. Source: DES - Solidarity Economy District - Friûl di Mieç.

POSITIVE IMPACTS



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Marketing takes place through local and solidarity-based supply chains. The flour thus becomes a real product that is the identity of the territory and of the participatory process that has succeeded in activating farmers, consumers and other actors in the mid-Friuli area.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Abandoned crops have been revived following organic cultivation.

LIMITATIONS & CHALLENGES



COOPERATION: Although the process has succeeded in involving various actors, there is still little knowledge of these innovative social-productive dynamics at the political and institutional level.



GOVERNANCE: These processes need continuous monitoring and facilitation. Unfortunately, in the agri-food sector there are no professional figures who follow this area of work, except when funding is obtained from specific projects.



LIVING LAB



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INITIATIVE N°8 – TERRA DI RESILIENZA

TERRA DI RESILIENZA MONTE FRUMENTARIO



MONTE • FRUMENTARIO
TERRA • DI • RESILIENZA

<http://www.montefrumentario.it>

Terra di Resilienza is an initiative born in Campania, Southern Italy, as a laboratory of social innovation, with the aim of reactivating the communities of the Calabrian-Lucan Apennines that have suffered a strong depopulation. The main ambition of this initiative is to restore the communities' social identities through research, recovery and enhancement of the local rural heritage, combining traditional knowledge and practices with technological innovation and socio-economic transformation. The social innovation process promoted by this initiative is based on the "relation of proximity" between the actors of the local food supply chain and on the idea of an active community capable of transforming an apparent disadvantaged area into an advantaged one.

The Living Lab experience began in 2004 with an event organised by the Pro Loco, a volunteer, grass-roots organisation promoting the local culture of specific places.

This event, held at Caselle in Pittari called "Palio del Grano", aims at gathering the community's social protagonist and triggered the process of research and recovery of traditional cereal varieties of Cilento. It consists of a week of "laboratory, experimentation, observation, experience, knowledge, exchange and learning" linked to grain culture, ending with a manual harvest competition between the eight districts of Caselle in Pittari. The seeds from the "Biblioteca del Grano" (Wheat Library) were distributed to be cultivated by the farmers of the neighbouring areas.

From the experience of Pro Loco, in 2012 the Terra di Resilienza social cooperative was founded, with the aim of introducing an agroecological approach to wheat production. Due to the Terra di Resilienza cooperative, which is now made up of twenty-five members and four employees, the "Biblioteca del Grano" became increasingly structured. In 2017 it becomes the Monte Frumentario, the cooperative's mill, financed both with private funds taken out by the cooperative and from the Waldensian Church.

Terra di Resilienza can be defined a living lab as it comes from a collective will to reconstruct the productive fabric relating to the wheat chain in a shared and co-designed perspective. All the phases of the project, from the recovery and selection of cultivated wheat varieties, the distribution of seeds, the cultivation method, the transformation and distribution of the finished product, was regulated by a participatory and extended decision-making process by all individuals involved in the initiative. The process of social innovation carried out by this initiative intends to restore value and functionality to a secular transmission mechanism of knowledge and practices related to ecology, agriculture, sociality and food culture, with the aim of enhancing the biocultural diversity of this specific area.

KEY FEATURES

- **Main topics:** social innovation, agroecological practice and food sovereignty
- **Founded in:** 2004
- **Type of actors involved:** farmers, researchers, consultants, farmers cooperatives, public institutions, retailers, consumers organisations, citizens.
- **Scale of the living lab:** regional

The mill first deals with the transformation of cereals and the distribution of flour in local restaurants, bakeries, pasta makers and pastry shops. Monte Frumentario is responsible for distributing seeds from the "Biblioteca del Grano" to local farmers. The system is informal, with the only condition being for an individual to become a "compare" (literally godfather), which means establishing an informal relationship with the other members of the cooperative, as close as family in southern Italy. The "compare" is required to return the seeds entrusted to him by the cooperative, which in turn guarantees the purchase of the production at a price previously established, usually much higher than conventional grains. A small part of the production is not purchased from the cooperative, but left to the producer, "so that he can eat his bread and his pasta".

To date, twenty-six producers cultivate wheat for the cooperative, for a total of one hundred hectares of land managed with an agroecological approach. Due to the presence within the cooperative of an agronomist trained in regenerative organic agriculture who deals with the training of older farmers whose approach is more traditional, most of the producers started adopting agricultural practices based on the diversification of the environment, the total absence of chemical treatments for fertilisation and pest control, crop rotation, and regeneration of soil through fermented manure. However, the traditional practices of some farmers revealed to be already agroecological in terms of environmental and social impact. The main products are wheat, spelt, barley, rye and chickpeas. The products coming from the processing of flour are widespread throughout the production area of Caselle in Pittari and the neighbouring towns. The Wheat library hosts now more than seventy different varieties of traditional cereals, while the Palio del Grano has reached its seventeenth edition, involving thousands of participants from all over the country such as farmers, millers, students, researchers, restaurateurs, bakers, associations, public, and private institutions.

Terra di Resilienza is part of a national network (Rete Semi Rurali) made up of thirty-four organisations that promote the dynamic and collective management of agricultural diversity. It is part of the Consortium La Rada¹⁶³ and collaborates with diverse national and international organisations including for example Deafal and Slow Food. It also deals with ecotourism and research in the humanities.

In the near future, the cooperative will open its own malting and backing plant. The structure will also host spaces dedicated to cultural laboratories. On the account of the collaboration with Rural Hack¹⁶⁴, an innovative monitoring project will be implemented for the collection of environmental data in the fifty wheat fields of the farmer's network.

WHAT CAN WE LEARN?

The process of innovation of agricultural practices favoured by the presence of researchers within the cooperative and the interaction with local farmers allows the members to adapt the agroecological approach of the cooperative to the specificities of the territory, revealing also that traditional knowledge and practices are often recognised as agroecological.

¹⁶³ The aim of the Consortium La Rada is to make its vocation and skills available to the local communities through services based on legality, solidarity, guaranteed quality and the competence of the staff employed. La Rada associates 21 social cooperatives operating mainly in the south west area of Italy (Salerno and other provinces) and provides services for children, young people, families, women, the elderly, people with disabilities and local communities. <https://www.consorziolarada.it>

¹⁶⁴ Rural Hack has the aim to facilitate access to the advanced technologies and precision agriculture at reasonable costs to allow farmers to create infrastructures and products. <http://www.ruralhack.org/en/>



Picture 8: Harvesting the mixture of ancient grains by hand with young local participants of the Camp di Grano on one of the farms of the Cumparete ahead of the Palio.
Source: Lucas Worsdell - "Raices de sobrania" - July, 2021.

POSITIVE IMPACTS



COOPERATION: Promotion and development of synergies and collaborations between the actors of the cereal supply chain both upstream and downstream, creating opportunities for socialisation between the communities of small rural centers.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Use of agricultural practices that promote soil fertility such as experimental biofertilisers derived from the fermentation of fresh cow manure with ash, milk, sugar and yeast.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Sell at alternative channels to large-scale distribution such as bakeries, pizzerias, restaurants, pastry shops and direct sales. The initiative try to provide fair remuneration for farmers.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: The cumparete promotes innovation and conservation of the cultural, agricultural and food heritage of the area.



EDUCATION: Strong connection of the community to the educational activities of the Palio, for example families see the participation of their children as a highly educational experience.

LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR ECONOMICS: Being an informal initiative under many aspects, access to credit or public funding is more difficult to obtain.



COOPERATION: The cooperative struggles to reach lease agreements on agricultural land, which for the most part is managed informally, thus not allowing to make investments to secure the crops.



GOVERNANCE: Rural development policies, together with the agricultural development vision of a certain part of the population, do not pay attention to the need to preserve and promote the ecosystem approach balances of a territory that only as a whole can offer the conditions for widespread agricultural sustainability, except when funding is obtained from specific projects.



MOVEMENT



PRACTICE



EDUCATION



LIVING LAB



SCIENCE

panacea
PANE A LIEVITAZIONE NATURALE

<https://www.viabaltea.it/spazi> - Panificio
<https://www.facebook.com/panepanacea/>

INITIATIVE N°9 – PANACEA

COOPERATIVA SOCIALE PANACEA

Panacea and the related food chain called *Stupinigi* is the km0 baking project started in 2014 when a bakery managed by a social cooperative was opened in Turin. This project aims to produce bread for the city of Turin, basing the production on proximity agriculture, therefore using raw materials (I) coming from a nearby area where the environment is preserved, and (II) cultivated with sustainable agriculture practices. The Stupinigi Park, near Turin, is the production area of this project because it is a natural park with some areas predisposed for farming, accordingly satisfying the related demand of the food production chain.

This production chain includes four family-run farms of medium size that hire lands inside the Stupinigi Park, and a mill, specifically the family-run Mill Roccati of Candia Canavese, placed 30 km away from Turin and being both a roller mill of the '900 century and a stone mill.

The Panacea bakery is a social cooperative, it combines the quality of the production, in terms of health and taste, with the research of offering dignified job positions to socially or physically disadvantaged people. Panacea has 17 partners working in the bakery and in the four commercial activities, where the bread is sold, in Turin and Stupinigi. The cooperative has an administration council constituted of a president, five counsellors, and other referents of the production and selling areas.

This cooperative started harvesting and propagating traditional cereal varieties during its development due to the collaboration with the University of Pollenzo and the Research Centres of the University of Piacenza, Italy. In the first years, it had a small number of seeds; after the harvest, it made a mixture of the varieties of cereal produced/planted in purity. When quantities have become abundant, the cooperative started cultivating and seeding a mixture, 'the Panacea mix', composed of 5 different soft kinds of wheat. The mixture guarantees a good yield and a homogenous flour during the years.

Producers receive numerous advantages from working inside this production chain:

1. The production chain pays cereals with a negotiation that falls outside the cereal exchange: before starting the cultivation and production, the price for goods and services of each actor is established and the surplus value created is divided equally among all actors; therefore, it is a transparent economic relationship.
2. The flour of the Stupinigi food chain has become a brand (La Filiera della farina di Stupinigi – 'The supply chain of the flour of Stupinigi'), and this product is linked to recognising a specific territory; in fact, the Stupinigi food product obtained a territorial value of quality. It has been an element of change that farmers interiorised, moving their work towards production based on quality.
3. The decision to create a unique lot identifying the flour from Stupinigi has changed the way of thinking of farmers: while in the past they were uncomfortable to work with other producers, now they collaborate, and they see their work as a production of the territory, rather than just their own.

KEY FEATURES

- **Main goal:** creation of a fair food chain
- **Founded in:** 2014
- **Type of organisation:** social cooperative
- **Farming sectors:** cereals
- **Scale of the organisation:** regional

The cooperative organises visits to cereal fields for the consumers to understand that their bread is produced 14 km away from Turin, creating a relationship based on trust from producer to client.

Moreover, since October 2019, Panacea has been part of a project called Non Di Solo Pane (Not Only Bread), having the objective to realise formative internships for disadvantaged people (migrants or those with psychological handicaps) to provide support in finding employment in the future. In 2020, the goal was successful, as 12 out of 15 of the participants were able to find work. This success demonstrates that if a good education is offered to people, any person can find a job.



Picture 9: Working partners at Panacea bakery.
Source: Isabella De Vecchi.

WHAT CAN WE LEARN?

Evaluation of the Economy of the Common Good. The project of Panacea and its food chain shows that it is possible to produce sustainable food for the nearby cities through a productive system being fair for both the people and for the environment (since they produce cereals with low chemical inputs and in biodiverse fields). In this context, Panacea started to carry out the Evaluation of the Economy of the Common Good that pays attention to the value, beyond the economic: the relation with the environment, amongst farmers and workers, and with clients and suppliers. The Evaluation of the Economy of the Common Good stimulates the business to give value to these aspects, helps bring consciousness to internal ethical issues, and is a communication instrument to make consumers understand the business's choices.

POSITIVE IMPACTS



COOPERATION: A solid network in continuous evolution surrounds Panacea. For instance, the first fair trade bakeries opened in Turin have recently contacted Panacea to develop collaboration processes: Panacea collaborates with the bakery 'il Boschetto' and another one placed in Michelino sharing the doughs and giving them the possibility to use its oven every Sunday.



SUSTAINABLE AND FAIR ECONOMICS: Workers having disadvantages recognised by law, and workers belonging to categories that hardly find jobs compose the social cooperative of this food chain: foreigners, people being more than 50-years-old or workers with mental difficulties are involved in a regular, enjoyable and healthy working environment.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: The food chain promotes the project and its bread as a cultural project related to Italian tradition through meetings and courses in which it shares the value of a particular typology of cereal and cultivation. The bread has a solid cultural and symbolic meaning that facilitates consumers and producers' awareness.

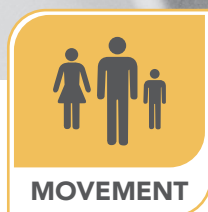


ENERGY AND WASTE MANAGEMENT: Panacea created a network to reuse the bread surplus. Particularly, for two years, the partner project Repopp of the city of Turin has been part of Panacea network: this project delivers bread of the day before to disadvantaged families. Since last year, Biova Project has become a member of this collaboration by utilising the bread to produce beer. To complete the process against food waste, Panacea produces crackers with draffs of Biova Project beer production.

LIMITATIONS & CHALLENGES



TRADITIONAL FOOD AND HERITAGE CONSERVATION: This production chain has developed little promotion about the farming aspects because it has been a more widespread awareness-raising project, not limited to the agricultural field: consumers and producers demanded information about the creation of sustainable and healthy food production; accordingly, the food chain focused on the promotion of these aspects.



MOVEMENT



PRACTICE



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<https://www.terraterra.farm/>
Facebook: @terraterraroma

INITIATIVE N°10 – TERRA TERRA

TERRA TERRA

Terra Terra is a grassroots movement initiated in 2004. It aims at promoting a model of food production that respects the environment, and cultural traditions and identities. This is a model intended to get consumers and producers closer, encouraging knowledge sharing and triggering virtuous processes of production quality as well as social relations. The activities are based on solidarity and mutual aid, which are fundamental principles of the association.

The association was founded in the context of Forte Prenestino, a historic social centre in Rome, which began to host farmer's markets organised by Terra Terra. The movement soon became a reference point for small farmers all around Rome, who had created, up until 2007, an informal collective that turned into Terra Terra. The association maintained the same horizontal decision-making approach that has characterised the movement since the beginning.

The association is open not only to farmers but also to artisans and citizens (co-producers or prosumers). To date, there are about forty producing members. Its principles include the desire to build a great alliance between workers in urban areas and workers in rural areas, overcoming the divisions and roles imposed by the current society. In fact, despite the difficulty of connecting the urban and rural worlds, Terra Terra organises collective workdays, for example, during the grape harvest, pruning season or tomato transplants.

Terra Terra is strongly rooted in the territory, especially in the areas where the markets are held. In addition to Forte Prenestino, monthly markets are now held at Casale Garibaldi (Centoncelle neighbourhood) and Città dell'Utopia (Ostiense neighbourhood), while in the past the markets were also held in other areas like Pigneto neighbourhood and all areas within the first urban belt of Rome. Over time, the initiative has been characterised by the emergence of several territorial nodes outside Rome, namely different producers group living in different areas of the Lazio region who, on the account of their proximity, have set up additional farmers' markets. So the initiative does not only operate in Rome but also in other areas of the region.

The association does not receive external funding and is therefore self-financed by membership fees. The agricultural products offered at Terra Terra markets are not necessarily certified organic. Nevertheless, producers can only sell at the farmers' markets if they go through a participatory guarantee system. The farm visits carried out for the purposes of the guarantee also become an opportunity for collective growth, due to the sharing of knowledge and good practices between farms and farmers. This model, together with the practices used in the field (for instance drip irrigation, organic fertilisation, minimum

KEY FEATURES

- **Type of organisation:** association of farmers, artisans and citizens
- **Main goals:** promoting a food production model that respects environment, traditions and cultural identities, a model able to get consumers and producers closer
- **Founded in:** 2004
- **Farming sectors:** arable crops, livestock/permanent grasslands, horticulture and permanent crops
- **Scale of the organisation:** regional

tillage, green manure etc.), is fully in line with some principles of agroecology and at the same time promotes the principles of food sovereignty. However, Terra Terra does not often use the term agroecology in its initiatives and prefers to speak of “peasant agriculture”.

In 2010, Terra Terra was one of the subjects that led to the birth of the movement Genuino Clandestino - Communities fighting for food self-determination. This is a national movement composed by producers’ and co-producers’ territorial networks practicing and supporting peasant agriculture. In addition, they organise self-managed markets with the system of participatory guarantees, promoting transparency in both the production and distribution of food.



Picture 10: Terra Terra market at Casale Garibaldi, Rome. Source: Terra Terra.

In the future, Terra Terra plans to bring together even more farmers and citizens with the aim of opening new farmers’ markets and new territorial nodes in the region.

WHAT CAN WE LEARN?

The initiative has become a key reference point in the region of Rome. For several years it has promoted an alternative agricultural model to the agro-industrial one by organising farmers’ markets, training sessions and workshops open to the citizens. Terra Terra experiments a model of economy that mutually engages producers and consumers to subvert food supply chains and enhance social relations as well as sensory and taste relations.

POSITIVE IMPACTS



COMMERCIALISATION IS LOCAL, FAIR

AND/OR COLLECTIVE: The price of the products at the markets is determined directly by the farmers, in this way the production costs are really covered, while at the same time increasing consumer/producer awareness of the issue. Furthermore, only local food or from Terra Terra's network of farmers can be sold at the markets.



SOCIETY AND EQUITY: The initiative uses a participatory and inclusive approach in its decision-making processes. Moreover, pursuing the principles of solidarity and mutualism, it positively relates with other local organisations active on these issues by carrying out joint initiatives.

LIMITATIONS & CHALLENGES



COOPERATION: The participatory guarantee system, it is not easy to apply. It is a practice that needs to be carried out continuously to work properly. It is often difficult to put it into practice because of the lack of interest on the part of co-producers or the fact that producers are located far away in the region. In the latter case, there is an economic and time-related problem, since the producers have to reconcile their production activities with visits to the various farms, and they have to self-finance the travel expenses for the visits.



MOVEMENT



PRACTICE



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INITIATIVE N°11 – DIRITTI A SUD


**Associazione
Diritti a Sud**
<https://www.dirittiasud.org>

DIRITTI A SUD

Diritti a Sud is an activist organisation for the protection of workers by both carrying out social campaigns and producing environmentally and socially sustainable tomato sauce, promoting its consumption in Italy and Europe. The organisation was founded in 2014 in Nardò (Puglia), and now includes 15 activists divided into working groups that deal with the agroecological cultivation of tomatoes, and the creation and implementation of cultural projects aimed at raising awareness on the exploitation of workers, or administration and financial aspects.

Since 2015, on the account of the initial crowdfunding, tomatoes grown and harvested by Diritti a Sud, together with those of the Solidaria association (from Bari), are used to produce about 22.000 Sfruttazero jars per year. This zero-exploitation tomato sauce is packed into single bottles labeled with the face of one of the producers. The Sfruttazero sauce is directly sold to consumers, in farmers' markets, or in community trade networks outside the

large-scale retail channel, located in Italy or in other European countries. Sauce sale is the association's main source of income, even if they occasionally have obtained other forms of financial support, for example from the Banca Etica bank, as well as from the Waldensian Church and Young Project Awards of the Lush Spring Prize 2019.

Even if Diritti a Sud is not certified as organic producer, it applies agroecology to agriculture: organic soil management, the use of biofertilisers, avoiding pesticides, optimising the use of water, limiting mechanisation, and partly introducing the cultivation of local varieties. The term agroecology is explicitly used by this initiative, although it is mainly linked to agricultural production methods. Above all, it applies agroecology from a social point of view, given that the protection of workers' rights is at the heart of their activity by providing them a fair salary. The association engages in local production and is politically active at a regional, national and international level. It also shares technical means, labour power, experience, extension services, and markets with other local producers, such as Piccola Apicoltura Mediterranea, with which Diritti a Sud created the District of Small Farming Agriculture of the Piana di Nardò. Through the Italian anti-capitalist network Fuorimercato - Autogestione in Movimento (literally translated as "Off-market - Self-management on the go"), it has connections with international movements such as La Via Campesina and Movimento dos Trabalhadores Rurais Sem Terra.

In the near future, Diritti a Sud is planning to open a headquarter that hosts its own point of sale and a socio-union desk for workers. In addition, it aims to consolidate its network by implementing the sale of agricultural products in collaboration with the initiative of the Small Farming Agriculture District of the Piana di Nardò, with the future goal of creating a CSA.

KEY FEATURES

- **Type of organisation:** cultural association
- **Main goals:** political activism focused on the protection of fundamental workers' rights and sustainable agricultural production
- **Founded in:** 2014
- **Farming sector:** horticulture
- **Organisation scale:** local, regional, national, and international

WHAT CAN WE LEARN?

With its work, Diritti a Sud wants to demonstrate that producing healthy food that does not damage the environment or exploit workers is possible. This association proposes a concrete alternative to people's exploitation and natural resources, combining political commitment with economic sustainability and thus demonstrating tenacity and courage.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Production of agroecological tomato sauce obtained by preserving soil fertility, reducing water waste, using self-produced biofertilisers, avoiding the use of chemical pesticides, and covering soil with mulch.



COOPERATION: Promotion and development of collaborations between farmers, associations, and local networks. Direct relationship with consumers through the Participatory Guarantee Systems (locally quality assurance systems built on trust, social networks, and knowledge exchange, that certify producers based on active participation of stakeholders). Dissemination of its activities and projects relating to the issues of workers' rights in schools.



GOVERNANCE: Political activism on the protection of workers' rights and issues concerning the promotion of local food circuits.



SUSTAINABLE AND FAIR ECONOMICS: Sales at alternative channels to the large-scale retail channel, such as farmers' markets and direct sales. Protection of workers with equal pay. Participation in solidarity economy networks.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Economic sustainability and re-use of proceeds to finance the business. Use of non-monetary forms of exchange, such as time banking (a system of bartering various services for one another using labour-time as a unit of account).



SOCIETY AND EQUITY: Workers are part of the decision-making process. Everyone participates in all the associative activities, despite having their specialisation. Gender equality is the basis of associative principles. It includes workers who risk social exclusion, intending to integrate them.



EDUCATION: The association is responsible for raising awareness of children, young people and adults on the issues of exploitation of workers, sustainable agriculture and respect for the environment.

LIMITATIONS & CHALLENGES



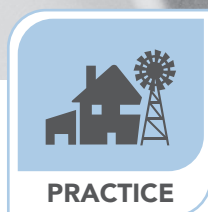
ENERGY AND WASTE MANAGEMENT: This initiative has no possibility of using renewable energy. As tenants, they cannot make investments of this type on the land they cultivate. Even though it contradicts their ethical concerns, agricultural production is also sold to distant markets because sometimes the local community can not afford participation in local food chains. This might have an impact on energy and CO₂ emissions.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Local varieties of plants cannot be used on a large scale because the lower productivity would make agricultural production economically unsustainable.



Picture 11: Harvesting of tomatoes from the SfruttaZero project, Nardò (LE), South of Italy
Source: Alessandro Bollino.



PRACTICE



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EDUCATION

INITIATIVE N°12 – IL PAPAVERO ROSSO

IL PAPAVERO ROSSO

SOCIETA' AGRICOLA SEMPLICE


www.ilpapaverorossocuneo.it

Il Papavero Rosso is an organic Agricultural Society located in Confreira, in Cuneo, North-West of Italy. Beyond the organic certification, the project main goal is to focus on the development of a “closed” supply chain by producing internally most of the raw materials (old varieties of autumn-winter cereals) needed to make its bread.

Il Papavero Rosso started in 2014 from its necessity and will to create organic baked goods and, rather than purchasing a third party's flours, self-producing their products entirely so that the source and quality of raw materials and final products can be guaranteed. It started in 2012 by selecting old and local varieties of soft wheat, rye and old species of spelt (farro dicocco, farro monococco) in the field on the account of the collaboration with CRAB (Centre of Reference for Organic Agriculture of the Province of Turin, Italy) and UNISG (University of Gastronomic Sciences, Bra, Italy). Legally, the society of Il Papavero Rosso was founded with four specific roles: the farmer, the sales & marketing expert, the baker and the technician miller. Currently, the organisational structure has partially changed: only two partners remained, and they are melding with a producer of organic pasta produced with local cereals, while the others takes care of the communication aspects of the society.

KEY FEATURES

- **Type of organisation:** agricultural holding
- **Agroecological practices concerned:** biodiversity valorisation, low-use of external inputs
- **Founded in:** 2014
- **Leading organisation:** Il Papavero Rosso
- **Agricultural sector:** arable crops
- **Initiative size:** regional

The partners of Il Papavero Rosso rent the land where their cereal is grown: some fields had already been organic, others were cultivated conventionally, and they passed through the 2 years of organic transition. The partners are experts in organic agriculture; as they work closely to the organic agricultural contractor who takes care of their cereal fields.

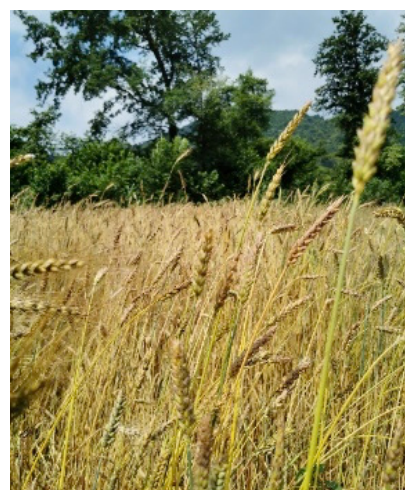
The main objective of Il Papavero Rosso's partners is to provide healthy food products. The environmental sustainability is a consequence of their agroecological farming practices, as is the crop rotation, the use of ancient and traditional seed varieties and no-tillage. Indeed, while they do not know or use this concept, they have ecological sensitivity, and some of their practices could be seen as agroecological.

Due to sourdough and old grains containing less gluten, Il Papavero Rosso produces a type of bread that is more digestible and is a product researched by consumers as a healthy food.

The work of Il Papavero Rosso is characterised by continuous experimentations in the fields matched with careful monitoring of each production step. The field experiments of (I) agroecological practices and (II) selection of old and local varieties of autumn-winter cereals have been carried out in collaboration with UNISG since 2012. In 2020, the experimental field of Il Papavero Rosso hosts more than 50 varieties of cereals.

This holding does not receive any external funds, and it has just recently achieved economic sustainability. It covers all the costs with only the sale of the final product, and it has reached stability between production and sale, offer and demand: the display of cereals, flours, bread and the sale are balanced. Il Papavero Rosso utilises diversified markets to diversify the source of income: the sale channels are Papavero Rosso store and local markets.

Il Papavero Rosso is involved in the “Rete in Grana” that united 20-25 farms to exchange knowledge, machinery, seeds and develop a common sale system. This network interests the entire food chain: from agricultural production to transformation and sale. The group has created a collective field of potatoes, and some producers utilise the fruit of the network to produce jams and other food. Moreover, the network opened a collective organic store in Caraglio (Cuneo, Italy).



Picture 12: Experimental wheat field of Papavero Rosso. Source: Alice Fassò, 2021.

WHAT CAN WE LEARN?

The experiential processes of co-creating knowledge promoted and valorised by agroecology are central in the learning process of Il Papavero Rosso’s partners. They learnt to protect biodiversity and reduce external input for cereal production on the account of the exchanges with researchers and the experiments on the field. Mainly, in the experimental field, they continuously research to add new cereal mixture to the production. They research cereal varieties suitable for the local climate, and they finalise the experimentation on the cereal production to develop a quality end product.

POSITIVE IMPACTS



SUSTAINABLE AND FAIR ECONOMICS:

Il Papavero Rosso utilises diversified markets to diversify the source of income: the sale channels include the Papavero Rosso store and local markets. Remarkably, they are organising the sale of products at organic markets in Turin together with the Rete in Grana.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE:

The partners have recently managed to cover the costs with the sale of the final product; they have found a balance between production and sale, between demand and supply.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

Through experiments of no-tillage, use of a mixture of ancient grains in the fields, and the reduction of external inputs.

LIMITATIONS & CHALLENGES



EDUCATION: Il Papavero Rosso started only this year (2021) to communicate the value of the local, organic and agroecological production of their raw materials. Accordingly, the education of the consumers, matched with a system of transparency and communication of the product, is still an aspect under development.



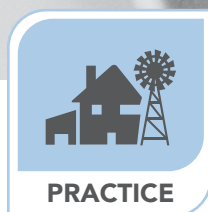
NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

To carry out the no-tillage, it would be necessary a roller-crimper machinery that Papavero Rosso does not own yet.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE:

Il Papavero Rosso deals with an ongoing dilemma: it would like to produce a healthy product accessible to anyone; nevertheless, to stay on the market and guarantee the consumer, the prices cannot be ‘popular prices’ due to the costs of production and certification.



PRACTICE



MOVEMENT



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INITIATIVE N°13 – ARVAIA



CITTADINI • COLTIVATORI • BIOLOGICI

<https://www.arvaia.it>

Facebook: @ArvaiaCSA - Instagram: @arvaia_csa

ARVAIA

Arvaia was one of the first example of Community Supported Agriculture (CSA) in Italy. The agricultural model is focusing on solidarity, mutualism and accessibility to genuine and ethical food, building an open and inclusive community around the idea of healthy and local products. Their main aim is to create an alternative food production model where members finance the cultivation of organic vegetables, fruits and cereals and where they can be directly involved in the production and distribution processes. Arvaia was founded as an Agricultural Cooperative Society in February 2013, in the Città Campagna Park of the municipal area of Villa Bernaroli, on the outskirts of Bologna (North of Italy). In 2015, with a public tender, the Municipality of Bologna assigned the entire park area (47 ha) to the cooperative's management.

About 10 ha are intended for production for the CSA, and another 27 ha are cultivated with alfalfa and cereals, which are sold to third parties. The remaining area is public, with green areas, bike trails and pedestrian paths. In the 2018-2019 growing season, 66.6 tons of products were distributed, 202 parts per week, 6.1 kg/part of vegetables and fruit with an average cost of 15.5 €/week per member. There are 8 distribution points, scattered around the city of Bologna, where members can pick up the agricultural products. Arvaia also allows non-members to buy fruits and vegetables directly on the farm and through a local market. The cultivation (about 75 species and varieties including vegetables, legumes, cereals and fruits) is financed through annual member's fees and defined, year by year, according to the cropping plan and the estimated costs. Members (about 200) can, anonymously, offer more or less than the fee, depending on their economic possibilities, still receiving the same weekly quantity of products. Choices about what and how to cultivate are made in a fully participatory way.

Members directly participate in the choices, decisions and work in Arvaia, pooling forces, ideas and resources, each according to their own possibilities. Arvaia relies on the shareholders' meeting, a board of directors (with legal liability), and a coordination group. 5 working groups manage daily activities in various sectors: economy and organisation, agriculture and public green, communication, events and training, operational groups, and distribution.

In Arvaia, 4-5 people work in farming activities, 1 in distribution and logistics, 1 in communication, and 1 president with administrative and representative functions. In addition to the annual membership fees and direct sales and market revenue, Arvaia is a beneficiary of European rural development funds as an organic agricultural cooperative.

KEY FEATURES

- **Founded in:** 2013
- **Agroecological practices concerned:** cover crop, diversified crop rotation, avoid the use of chemical inputs and use of organic matter (compost and manure).
- **Farming sectors:** CSA, horticulture, fruit growing, and cereals
- **Type of organisation:** cooperative
- **Number of stakeholders involved:** 200 users, 9 full entities, and three professional associates and clients.

Although Arvaia does not directly refer to agroecology or its practices, it follows organic regulations (as they are certified organic), promote an agricultural model free from synthetic chemicals with a high intensity of work rather than capital, and sustainable for the land and people. The products are seasonal but, through some unheated tunnels, the time window of certain crops is expanded. A drip irrigation system is used on vegetables to increase water use efficiency. To address the low level of soil organic matter, compost from local organic waste sources and manure from neighbouring livestock farms are applied. In addition, cover crops and green manure are used, together with optimal crop rotations to promote soil health. Another technical difficulty concerns the high presence of weeds, making weed control quite challenging, especially on vegetables grown in open fields. To promote biodiversity and ecological functions, semi-natural and natural areas within the agroecosystem have been left.

The ideas inspiring Arvaia can be fully framed in an agroecological perspective: a sustainable agricultural model, alternative to the industrial one, which produces healthy and local food accessible to all, based on relationships and solidarity. They apply a participatory approach for working and decision-making, and they have a vision on Food Sovereignty (inspired by the Declaration of Nyéléni - Mali, 2007). Workers and founders of Arvaia know very well the concept of agroecology. However, the desire to experiment and apply agroecological techniques has, in some cases, clashed with technical difficulties and with the need to immediately produce a certain amount of products to be supplied to the first financing members. This forced Arvaia, during the first few years of cultivation, to adopt intensive agricultural practices and to rely on a large amount of external inputs. However, year after year, the adoption of agroecological techniques increased, as well as the adoption of more sustainable sources of agronomic inputs.

Arvaia is also a Didactic Farm and organises several projects and courses for citizens and schools on sustainability, biodiversity, and horticulture, with a community garden open to citizens. The cooperative also organises cultural events and parties to engage the local community and have an additional revenue. From its beginning, Arvaia has tried to network with the dynamic ecosystem of realities interested in food issues of the territory of Bologna (solidarity purchasing groups, NGOs, local associations). It adheres to the network of Italian CSAs and the Regional Forum of Solidarity Economy (Emilia-Romagna). In addition, it is part of Campi Aperti, an association of producers and citizens that supports the food sovereignty and organic farming of the Bolognese territory, organising farmers' markets. Over the years, Arvaia has also participated in some research projects on the themes of organic, innovation, and the co-creation in short and local food supply chains.



Picture 13: Market day of Campi Aperti on Saturday al Pratello (Bologna)- where Arvaia with other farmers and CSAs sell their products. Source: Lucas Worsdell - "Raices de soberanía" - June 2021.

WHAT CAN WE LEARN?

Arvaia represents, as a CSA, an alternative agricultural model to the industrial one that seeks to move production and consumption towards short and local supply chains, connecting territory, food and people. The growing interest in the local production-consumption relationship (in Italy named “kilometro zero”) and the rediscovery of rurality, especially in urban areas, makes CSAs like Arvaia an excellent example to create new job opportunities in the agricultural field, especially for young people, linking the city and the countryside.

POSITIVE IMPACTS



SOCIETY AND EQUITY: The main objective is to provide local and seasonal food through a CSA mechanism. The average price of the delivered products is agreed annually in a participatory way, based on budgeted expenses and crop plans.



SUSTAINABLE AND FAIR ECONOMICS: The initiative is kept up due to the fees paid by the members who decide to finance the cultivation of the food they will consume during a year. All workers in Arvaia have the same type of contract. Arvaia was able to diversify its business, in addition to the simple distribution of products for member, an educational farm was developed as well as the maintenance of green areas in the park, organisation of events and direct sales and local market.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Agronomic techniques follow the official organic certification rules. Efficient use of natural resources and agriculture with a high investment of human labour are promoted. Natural elements are promoted within the farm.

LIMITATIONS & CHALLENGES



SOCIETY AND EQUITY: There is a certain amount of competition with other forms of short food supply chains such as numerous solidary purchasing groups, home delivery services, agricultural markets. The turnover of members is high, about 10% every year. It is therefore necessary to constantly find new members to maintain the economic sustainability of the initiative.



SUSTAINABLE AND FAIR ECONOMICS: Non-full-time workers with fixed-term contracts. Long-term economic sustainability is uncertain, as is the ability to provide more opportunities for stable employment in the agricultural sector, especially for young people.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Application of agroecological techniques comes up against technical difficulties. To date, drinking water has been used for irrigation and the initiative face difficulty to find sufficient quantity of compost to increase soil fertility.



PRACTICE



MOVEMENT



EDUCATION



LIVING LAB



SCIENCE

INITIATIVE N°14 – BIOLAND

BIOLAND

<https://www.bioland-italia.it>

Bioland has its origins in the agricultural movements of the 1920s, which aimed at minimising the negative effects of increasingly industrialised, global and chemical-dependent food production. From the 1950s onwards, on-farm events to demonstrate the success of the production methods based on a closed, organic cycle were organised. In the late 1970s and 80s the association "Bioland" and the certification trademark Bioland were registered in Germany. In 1991 the Bioland association spread beyond the German borders with the foundation of "Bioland Südtirol" by local fruit growers. In 2021, Bioland Südtirol gained an official recognition as a cooperative in Italy. Today, "Bioland Südtirol" is the largest association of organic farming in South Tyrol, with more than 900 active local growers and more than 30 local food transformation companies or cooperatives.

The goal of Bioland is to help its member farmers to produce food of high quality by providing practical coaching and dedicated consulting on ways of utilising sustainable practices that promote biodiversity, soil fertility, animal welfare, and a caring use of the natural resources to ensure a sustainable agriculture and a liveable future. Bioland not only unites small farmers and local food transformers but through its trademark also facilitates marketing and public-awareness activities. All the actors united under the banner of Bioland, have to adhere to the Bioland rules, which are based on 7 principles:

1. Closed-cycle organic farming, with a strong focus on nutrient recycling
2. Promoting soil fertility, with a focus on increasing humus and improving soil structure by growing catch crops, ventilating the soil, etc.
3. Animal-friendly husbandry according to the motto "Quality instead of quantity" by ensuring high welfare standards, including avoiding over-bred animals and GMOs
4. Producing high quality food by avoiding the use of pesticide and GMOs
5. Promoting the biodiversity and in particular the use of diverse varieties/breeds for ethical reasons and for enhancing resilience of agriculture and landscapes
6. Safeguard the most important building blocks of the natural world, such as air water and soil by using them sparingly and sustainably, for example by avoiding the use of synthetic fertilizers and pesticides and promoting shorter market chains
7. Safeguarding a liveable future for people by ensuring better income to farmers, creating more jobs in rural areas and offering better development opportunities.

KEY FEATURES

- **Agroecological practices concerned:** nutrient recycling, increase of soil fertility, animal welfare, avoidance of pesticides and GMO, promotion of biodiversity, ensuring better income for farmers and more (look at the 7 principles of Bioland described in the text)
- **Founded in:** 1991
- **Type of organisation:** farmers organisations
- **Farming sectors:** arable crops, livestock/permanent grasslands, permanent crops, and forestry
- **Members:** local organic farmers and market partners like butchers, bakers, beekeepers etc., which adhere to the "Bioland Guidelines"
- **Scale of the initiative:** regional

These principles are enforced by an independent inspection body to ensure that all farmers, food suppliers and processors associated with Bioland comply with these rules. They go beyond the EU's organic production protocol, for example by including aspects of developing and improving farmers' working conditions. Thus, although the term agroecology is not used directly, the initiative is fully aligned with the principles of agroecology as a practice (Wezel et al. 2009).

To achieve these goals, Bioland provides exhaustive advice and in-house consulting and favours the know-how exchange among its members by regularly organising democratically-run member meetings to exchange ideas, and discuss need, and current and potential solutions to problems. Moreover, Bioland frequently runs various consumer-awareness-raising campaigns and marketing activities. The products of Bioland members are marketed under the "Bioland" Trademark, which facilitates the commercialisation and valorisation of the products. The Trademark is well-established and recognised in Germany, but less among south Tyrolean consumers, which is why the initiative also created a dedicated Platform "Bio in Südtirol"¹⁶⁶ to promote organic agriculture, raise awareness on the diversity of organic agriculture in South Tyrol and make every organic farm in South Tyrol known to the public.

The initiative also organises specialised courses, farm visits, praxis-workshops, informational events and discussion sessions on topics ranging from the correct usage of agricultural machinery, the practical application of pasture management in mountain territories, to the necessity of informing the consumers about the importance of locally and sustainably produced food. Specific agroecology courses are planned for the future, which are meant to provide concrete tools and basic knowledge for implementing this transition.



Picture 14: Team Bioland, South Tyrol (Italy), 2021. Source: Bioland.

¹⁶⁶ <https://www.bioinsuedtirol.it>

WHAT CAN WE LEARN?

Bioland is a network of people sharing common values and contributing to a more inclusive society, by developing and promoting ecologically, economically, and socially related alternatives to the conventional industry farming systems with the goal of producing high quality and healthy food in a sustainable way.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

The initiative sets minimum requirements for environmentally friendly agricultural production methods and actively encourages and consults on practices that increase biodiversity, including the creation of biodiversity-enhancing ecological structural elements such as dry-stone walls, hedges, flowering strips, etc. Synthetic fertilisers and pesticides are avoided by producers.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Members are support in their commercialisation and valorisation of products by promoting them under the "Bioland" Trademark.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Encourages safeguarding the traditional values, farming culture and strong connection with the land, which contributed to safeguarding ancient and intrinsically agroecological practices.

LIMITATIONS & CHALLENGES

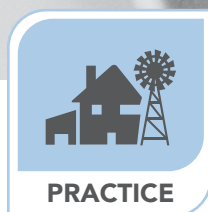


COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Difficulty in economically accessing arable land, which has exorbitant prices in the area. Subsidies and incentives needed to promote and support the agroecological transition on farms are often too low. In some cases, the incentives themselves can also pose as obstacles for agroecological transition, as they are binding, meaning that any ecological elements (hedges, dry-stone walls...) can not be removed once erected.



COOPERATION: Collaboration among stakeholders is often difficult because of the diversity of interests, resources, and priorities at stake.





PRACTICE



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INITIATIVE N°15 – LE GALLINE FELICI



<https://www.legallinefelici.bio/>

LE GALLINE FELICI

Le Galline Felici is a group of farmers located in Sicily, aiming to establish a direct relationship with consumers through purchasing groups. The goal is to make consumers active and aware, transforming them into co-producers and co-funders, creating dynamics of solidarity and agricultural and social development projects, and building a solidary economy based on relationships.

Le Galline Felici was born in 2008 and owes its name to the actions of some of the founding members of saving hens from slaughterhouses at the end of the egg industry cycle. Initially made up of 10 farms, today the consortium has 40 plus, as well as many external suppliers, with 500 people involved in total. The member farms - mainly organic certified - produce cereals, flours, baked goods, fruits and vegetables, preserves, jams, honey, oil, and fish by applying principles and ideas from organic and regenerative agriculture, permaculture, and agroforestry.

The members of the consortium know their customers and stay in touch with them by hosting guided tours at their farms, participating in meetings of purchasing groups and attending the distribution points of G.A.S. (Gruppi di Acquisto Solidale, that means ethical purchasing groups). The consortium simply collects all the production coming from the member farmers to be distributed to the purchasing groups. Each purchasing group is organised as an association of consumers that deals with the consortium through deputy members who are in charge of organising purchases, as well as passing information on the consortium to the consumers.

The consortium is also engaged in a co-production project with the "customers" of the consortium's network for the production of avocados. Since the current production is insufficient to satisfy the demand, the consortium asked its consumers to finance new avocado production facilities with a commitment to wait around 7 years (the time it takes for the plant to be productive) before receiving the product. This allowed small producers to have access to credit without guarantees and interest.

All decisions made by the consortium pass by the board of directors, the important ones in the assembly phase, the very important ones in the assembly phase with at least two thirds of the shareholders present. The consortium has a coordination group with representatives from each area (communication, procurement, logistics, processing) who meet every week. The boards of directors is open to all members also subject to oversight external to the consortium.

KEY FEATURES

- **Agroecological practices concerned:** grassing of orchards, coexistence of cultivated areas and wooded areas, permanent meadows, crop associations, flower strips
- **Founded in:** 2008
- **Type of organisation:** consortium of producers
- **Farming sectors concerned:** cereal growing, horticulture, fruit growing, olive growing, fishing
- **Number of stakeholders involved:** around 40 farms plus 40 external suppliers
- **Scale of the initiative:** local, regional, national and international

A large part of their products are exported to European countries such as France, Belgium, Netherlands, Luxembourg, Austria, Switzerland and Germany. While the export to these countries is in constant rise, in Italy and in Sicily it is decreasing. This is mainly related to the competitiveness of less structured production companies that are born recently in Italy, but also the decrease of consumer awareness regarding local food.

Due to the growth of its network, over the years, Galline Felici farming products sales have increased from € 300,000 to about € 6,000,000. Ethical purchasing groups (G.A.S.), which include around 60,000 people, are its main buyers.

The initiative is also involved in projects about environmental protection, reforestation, and fighting desertification. They participate in the LIFE Desert Adapt project¹⁶⁷, with one research subject based on the prickly pear as a pioneer plant capable of accelerating reforestation around 10 years ago. The consortium has recently hired a young agronomist (Roberto Di Stefano) trained in regenerative organic agriculture who deals with the training of older farmers who operates within a traditional approach. They also promote the creation of areas for bee nutrition on other farms. From a social point of view, they fight against illegal hiring and promote cultural projects to combat emigration from Sicily.



Picture 15: Mobile chicken coop in prickly pear field - Visiting the farm "Caudarella" of Michele Russo et Vittoria Lo Dico – part of the Galline Felici Consortium.
Source: Angelica Marchetti, June 2021 https://www.legallinefelici.bio/fr_FR/michele-russo.

WHAT CAN WE LEARN?

On the account of its strong propensity to activate inclusion and networking processes, the Galline Felici consortium can access highly profitable sales channels compared to large-scale retail trade, allowing small production companies to obtain sales power and a production surplus value that would be hardly reached in other ways. The ethical approach of the consortium, linked to environmental development and social promotion projects has resulted in a strong sense of involvement and collaboration with consumers, who very often financially supported the consortium's entrepreneurial choices and the companies in difficult times.

¹⁶⁷ <http://www.desert-adapt.it/index.php/en/>

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Use of techniques, practices, and approaches that preserve and promote soil fertility and avoid contamination of soil, water, and air.



COOPERATION: Promotion and development of synergies and collaborations between producers and consumers. Direct relationship with consumers who sometimes become co-producers by financing the initial costs of agricultural activity.



SUSTAINABLE AND FAIR ECONOMICS: Sale at alternative channels to large-scale distribution, such as farmers' markets and direct sales. The initiative attempts to provide access to a fairer remuneration for farmers.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: The final price of agricultural products covers the costs of production. Promotion and use of local supply channels to support their development.



SOCIETY AND EQUITY: The decision-making process is horizontal and participatory.

LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR ECONOMICS: It is not always easy for the consortium to absorb the production of all the members, especially for some products that are widespread in all companies and therefore often in excess.



GOVERNANCE: Difficulty in meeting the need for an ever-greater commitment in decision-making, involvement, and internal communication processes in order not to risk distorting the identity of the consortium, given its continuous growth in terms of the number of companies involved.



ENERGY AND WASTE MANAGEMENT: Agricultural production is also sold to distant markets because the local community do not absorb fully their product as they work on large volumes. This might have an impact on energy and CO₂ emissions.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Locally, the initiative is less competitive than other unstructured realities that offer quality products at lower prices.





PRACTICE



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INITIATIVE N°16 – GIROLOMONI

GIROLOMONI
DIGNITÀ ALLA TERRA!

www.girolomoni.it
Facebook: @ginogirolomoni

GIROLOMONI AGRICULTURAL COOPERATIVE

The Girolomoni Agricultural Cooperative is a company specialising in the production of organic pasta using the durum wheat grown by its farmer members. In addition to the production of pasta, their main aim is to manage the entire production chain, from the cultivation of the wheat to the finished product, ensuring that farmers receive a fair income.

The history of the cooperative is deeply linked to the advent of organic farming in Italy, particularly in the Marche region (central Italy) where the initiative was born. Gino Girolomoni, one of the founders of the cooperative, was one of the forerunners of organic farming at a national level when there were still no regulations governing this agricultural model. The initiative was born towards the end of the 1970s, at the height of the Green Revolution. The area in which it was born was the inland areas of the province of Pesaro-Urbino, characterised, like most of central Italy, by a hilly terrain; this meant that mechanisation was more difficult at the time. Moreover, these were marginal areas far from the main urban centres. Based on the above, the initiative decided to focus on organic production and the rediscovery of the values of rural traditions.

Over the years the initiative has grown and has been able to make significant investments on the account of the success of its flagship product. Today, the Girolomoni Agricultural Cooperative can count on total control over the production chain of its pasta. Over the years it has been able to invest, first in the construction of the pasta factory and recently in the construction of the mill. The latter was built on the account of funds from the Rural Development Plan (CAP), which the company can access since the social base of the company is composed by farmers. The cooperative's members are around 300 farms that each year deliver their wheat to be processed first into flour and then into pasta, so that the supply chain remains under the control of the farmers.

Today, more than 80% of the pasta is sold on the foreign market, demonstrating the strong attractiveness of the product. Due to the excellence of its product, the initiative has been able to gain an important niche in the market, which is why it is now able to sustain itself financially. Despite the expansion due to the great demand for the product on the market, the initiative remains strongly linked to the territory in which it was born: today 40 % of the wheat used comes from farms located in the province of Pesaro-Urbino, where the mill and pasta factory are also based. The percentage reaches 70 % if production is considered on a regional scale, while the remainder is produced in neighbouring regions or in some cases in southern Italy. The surface area of all the member farms of the cooperative reaches 30,000 hectares. Even if the term agroecology has not yet entered the lexicon of the initiative, it seems to embrace an agroecological approach through agroecology's three major pillars. This means not only aspects linked to organic production, but also support for science, as described below, and the ability to influence the

KEY FEATURES

- **Agroecological practices concerned:** link to organic farming, cooperation and sharing of knowledge
- **Founded in:** 1977
- **Type of organisation:** agricultural cooperative
- **Farming sectors concerned:** arable crops
- **Number of stakeholders involved:** around 300 farmers
- **Scale of the initiative:** regional and national

social dynamics of the area, such as avoiding the abandonment of marginal areas. The latter aspect could have had important negative consequences at an environmental but also cultural level.

The initiative carries out several collaborations on the territory both with local research bodies, such as the Marche Polytechnic University, and with other production realities that share the same vision gathered in "Con Marche Bio" (Consortium of organic producers of the Marche Region). Recently, on the account of the "Fondazione Seminare il Futuro" (Seeding the future Foundation), the cooperative has contributed to the financing of research projects aimed at obtaining durum wheat varieties suitable for organic and biodynamic agriculture in Italy.



Picture 16: Overview of the Girolomoni cooperative, from left: pasta factory, mill, silos and warehouses. Source: Girolomoni key informant.

In the near future, through the promotion and development of new synergies between actors in the area, the initiative is also working towards the creation of a biodistrict on a regional scale, which would become the largest in Europe.

WHAT CAN WE LEARN?

Since its foundation, the aim of the initiative has been to restore dignity to the land and its rural communities. Even today, decades after its creation, the initiative continues to pursue the same mission, which has objectively proven successful. Therefore, the choice of pursuing these objectives proved to be effective and can be considered as an important element of success of the initiative. Moreover, the firm desire to maintain a social base made up of farmers remains one of the main strengths of the initiative which, year after year, continues to grow by bringing together more and more producers who are determined to abandon conventional agriculture.

POSITIVE IMPACTS



SUSTAINABLE AND FAIR ECONOMICS: The company own all the equipment needed to processing the agricultural raw material until the finished product reaches the market. In this way they operate in the best economic conditions and at the same time support the economy of the rural areas by making the equipment available as a resource.



ENERGY AND WASTE MANAGEMENT: The energy needed to power the pasta factory's drying plant is met through the use of local renewable sources. In particular, the biomass boiler is fuelled by wood from forests in the same area.



COOPERATION: As an agricultural cooperative, the approach to collaboration and networking between farmers themselves and other actors is fundamental. An important example of cooperation is the work that is leading to the creation of the biodistrict on a regional scale. In addition, the initiative has important collaborations with various research institutions.

LIMITATIONS & CHALLENGES



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

Not all member farms have completed their transition to organic farming. In fact, especially for farms that have recently joined the cooperative, it is necessary to train and guide farmers towards a complete ecological transition that is also able to work in the best possible way on restoring soil fertility.



SCIENCE



PRACTICE



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MOVEMENT

Sant'Anna
School of Advanced Studies - Pisa<https://www.santannapisa.it/en>

INITIATIVE N°17 – SANT'ANNA SCHOOL

SANT'ANNA SCHOOL OF ADVANCED STUDIES, PISA - GROUP OF AGROECOLOGY (GOA)

Scuola Superiore Sant'Anna is an internationally renowned public university located in Pisa (central of Italy). It's core mission is to provide undergraduate BSc (Bachelor of Science) and MSc (Master of Science) courses to a small number of selected students, as well as to achieve post-graduate teaching and research. The school consists of eight institutes and research centers that focus their research on applied science. The Center of Plant Sciences hosts two PhD programmes that include agronomical projects; one of those is the International PhD programme in "Agrobiodiversity" which includes a high number of projects based on agroecological principles. Research areas include, for example, the application of agrobiodiversity-based solutions at the genetic level and the study of species and habitats to improve the performance and sustainable management of crops.

The **Group of Agroecology (GOA)** is a 10-unit research group integrated in the agronomical field laboratory called "Land Lab" within the Life Sciences Institute. This research group is among the national pioneers in the study of what is currently defined as 'agroecology'. In the beginning, the Land Lab contributed to the definition of "landscape agronomy", i.e. an approach to analyse agricultural landscapes placing the farm and farmer context in a central position while studying how the socio-technical system interacts with management practices, resources and land patterns.

The Group of Agroecology's main area of research concerns the management of weeds using non-chemical but agronomical approaches, i.e. with a strong focus on the role of functional biodiversity and the introduction of an uptake of agroecological practices on farms.

The research group tries to collaborate with farmers in ways that are interesting/convenient and low-risk for them. In fact, the first approach is to discuss the needs and requirements that need to be met. Then, tests are carried out in a controlled environment (experimental fields at the Interdepartmental Centre for Agro-Environmental Research "Enrico Avanzi") involving the farmers and inviting them to participate in the analysis of the results. Finally, the tested agronomic technique is transferred and applied on the farms themselves, thus initiating the "most delicate phase since it risks compromise the farmer's income".

KEY FEATURES

- **Main goals:** research on the role of functional biodiversity and introduction of agroecological practices on farms.
- **Main topics:** landscape agronomy, agroecology, functional biodiversity
- **Type of organisation:** public university
- **Type of actors involved:** 3 permanent technicians, 3-5 PhD students, 1 technologist, 2-3 research associates, 2 scholarship holders, and 3-4 profiles with temporary contracts.
- **Funded by:** Scuola Superiore Sant'Anna di Pisa

Over the years, the research group has expanded to include a team of 3 permanent technicians, 3-5 PhD students, 1 technologist, 2-3 research associates, 2 scholarship holders, and 3-4 profiles with temporary contracts. The Group of Agroecology has close collaborations with Italian and European universities.



Picture 17: Weed sampling in Trentino region (North East Italy). Source: Stefano Carlesi – Group of Agroecology of Scuola Sant’Anna di Pisa.

WHAT CAN WE LEARN?

Over the last 20 years, a change in the way experimental research is conducted has been witnessed in some academic circles: from purely scientific studies conducted in a controlled environment, to field trials and participatory trials with farmers. The Land Lab researchers adopted this participatory approach right from the start, with nice medium and long term results. Initially, this direct interaction with stakeholders was not considered scientific enough but, given the various independent initiatives in several countries, a collective awareness was created that was also understood by policy-makers. This has been a fundamental aspect, since by succeeding in directing research policies towards the agroecological paradigm, the work carried out has had a real impact at territorial level.



SCIENCE



PRACTICE



LIVING LAB



EDUCATION



MOVEMENT

INITIATIVE N°18 – LAIMBURG RESEARCH CENTRE



<http://www.laimburg.it>

LAIMBURG RESEARCH CENTRE

Laimburg Research Centre (LRC), was founded in 1975 as a public body of the Autonomous Province of Bolzano. It conducts applied research in agriculture and food processing and devotes the utmost attention to solving problems related to agricultural practices. LRC focus on concrete problems affecting South Tyrolean agriculture through a unique system of exchange with local stakeholders that has significantly expanded over the decades, and which manifests itself in targeted advisory board meetings with local players and enables the RCL to guarantee efficient results and solutions for stakeholders. These meetings ensure that local stakeholders have a - as active as possible - voice in the research activities of the RCL, and thus enable joint and efficient coordination on the use of available resources (personnel and funding).

The main objective of the LRC, as an applied research institute, is to provide a current response to practical needs. To achieve this, the orientation of research or experimental activities are geared towards finding solutions to real-life problems. LRC also engages associations and societies representing specific interest groups in the fields of food processing and agriculture, from the smallest farmers' associations such as the Association of Herb Growers to the VOG (Consortium of South Tyrolean Fruit Grower's Cooperatives). This system has evolved continuously since the 1980s. For example, using questionnaires, it is possible to receive feedback from various stakeholders, on how the initiative can be further improved and optimised as well as receive guidelines on the potential further development.

Stakeholders in strong relationship with the LRC are as following: internal and external scientists, farmers, farmers' cooperatives, chambers of agriculture/farmers' associations, downstream industry (food and bio-based), and public authorities. The research program of the LRC is developed and updated yearly in collaboration with various stakeholders and multiple organisations in primary production, such as the South Tyrolean farmers' association and the various producer associations (14% of total representation in the area), organisations in the organic farming sector (5%), agricultural cooperatives (6%), associations and cooperatives in the wine sector (7%), representatives of the largest South Tyrolean food and drink companies (15%), representatives of other research institutions (5%), various departments of the South Tyrolean provincial administration (18%), representatives of agricultural schools (6%), extension services (2%), and others (22%). This process of setting up the research program consists of several topic-specific meetings and events with over 100 stakeholders, submitting their project proposals (between 80 and 100 proposals per year).

Subsequently, the decisions on which the proposed projects make it into the yearly program are made

KEY FEATURES

- **Main goals:** applied research in agriculture and food processing with a specific focus on agricultural practices.
- **Type of organisation:** research centre
- **Founded in:** 1975
- **Main topics:** agroecological practice and production
- **Type of actors involved:** scientists, farmers, extension workers, farmers' cooperatives, chambers of agriculture/farmers' associations, downstream industry (food, bio-based) and public authorities
- **Funded by:** local governance

based on democratic terms. Normally, more than 60% of the proposals were accepted in the yearly program, while in recent years, between 60 and 70% of the proposals have been included. In addition, the researchers of LRC also introduce their own project proposals and the relevance of these projects is also discussed with the stakeholder representatives. Project topics or proposals by stakeholders include intercropping strawberries, mulching in apple orchards, biocontrol of apple pests, biochar, carbon sequestration and others.

To date, LRC does not directly use the term agroecology in its research, however, the initiative applies and supports multiple elements of agroecology in its research approach, such as knowledge co-creation, development of synergistic effects, participation, connectivity, soil health, input reduction and increasing functional biodiversity. An example of agroecological principles which have been directly applied are the Domino¹⁶⁸ project which aims to improve the long-term sustainability and ecological footprint of intensive organic fruit orchards through different leverage: fertilisation, biodiversity management, etc. The LRC activities cover all crops and agricultural practices common in South Tyrol, with particular focus on arable crops and horticulture.

Last but not least, LRC also organises various training and refresher courses, including the very popular courses on transitioning to organic farming. In addition, it offers trainings through Thematic Networks EU-Projects. Thematic Networks are multi-actor projects which collect existing knowledge and best practices on a given theme to make it available in easily understandable formats for end users such as farmers, foresters, advisers and others. Examples of Laimburg Thematic Network Projects covering agroecological practices are BIOFRUITNET¹⁶⁹ on organic fruit production and Inno4Grass¹⁷⁰ on sustainable grazing systems.



Picture 18: Laimburg Research Centre, South Tyrol (Italy), 2021. Source: Laimburg.

¹⁶⁸ <http://www.domino-coreorganic.eu/>

¹⁶⁹ <https://biofruitnet.eu/>

¹⁷⁰ <https://www.inno4grass.eu/en/>



SCIENCE



EDUCATION



LIVING LAB



PRACTICE



MOVEMENT

INITIATIVE N°19 – AGROECOLOGY AND ECOSYSTEM

UNIVERSITÀ
DEGLI STUDI
DI PADOVA

<https://www.mastergiscience.it/tag/agroecologia>
Facebook: @MasterGIScience
Instagram: @giscience_unipd

AGROECOLOGY AND ECOSYSTEM SERVICES

UNIVERSITY OF PADUA

The course "**Agroecology and Ecosystem Services**", which started in the 2006/2007 academic year as part of the Master's degree course in Natural Sciences at the University of Padua, offers a space for research and debate with social stakeholders on contemporary multidisciplinary issues related to agroecology. It is a 6-credit optional course, attended by students of Natural Sciences. It also attracts students from degree courses in Local Development, Anthropology, Environmental Engineering and Agricultural Sciences (the course is also open to students enrolled at Ca' Foscari University in the Inter-university degree course in Anthropology).

The course provides an in-depth theoretical exploration of the main threads of the debate on agroecology, models for implementing public policies on agroecological transition, food and technological sovereignty, land management, and local development at the national and international level. A central teaching unit of the agroecology course is on assessment tools¹⁷¹, workshop activities which include the use of agricultural sustainability indicators at the landscape and farm level, mapping of agro-ecosystems and green and blue infrastructure for ecosystem services assessment using Open Source Geographic Information Systems (GIS). The appropriation of the use of Open-Source GIS tools, and the debate on the democratisation of technologies, becomes essential to rediscover and consolidate the role of technology as a public good. Different topics related to agroecology are then addressed in online and in-presence seminars open to all, to underline the importance of keeping open and dynamic the concept of university as a common good and its role of knowledge sharing.

Participatory research-action tools and methods for agro-ecosystems and land management (Participatory Rural Appraisal/Participatory Learning and Action) are also addressed. The evaluation of the teaching is based on the direct involvement of the students in the preparation of a work and the sharing of it in a final seminar.

KEY FEATURES

- **Main goals:** offering a space for research and debate with social stakeholders' issues related to agroecology
- **Main topics:** models for implementing public policies on agroecological transition, food and technological sovereignty, land management, local development at national and international level
- **Leading organisation:** University of Padua
- **Type of actors involved:** students, farmers, representatives of associations, organic marketing, filmmakers, artists
- **Funded by:** University of Padua

¹⁷¹ For example, a collaboration is ongoing with the Colombian agroecologist Tomas Enrique Leon Sicard for the purpose of testing the Main Agroecological Structure Index (SAP) in Italy. This is a new and promising agro-ecological index that integrates bio-ecological and socio-cultural indicators and is a valuable tool to support the planning of agro-ecosystems and socio-environmental relationships with the surrounding landscape.

These training activities are the basis for activating formative research activities in particular with Master's theses adopting a geographical and political ecology approach, in the analysis of agroecological policies and environmental policies, on agro-ecosystems ecological dimensions and the feasibility of ecological transition models. For example, a student recently completed a master's thesis on the application of MESMIS and the use of GIScience to model agroecological alternatives to oil extraction in the Ecuadorian Amazon. The research assessed the feasibility of spreading the cultivation of guayusa (*Ilex guayusae*) and breeding paiche (a fish, *Arapaima gigas*).

The course dialogues with the Municipality of Padua, especially developed on the theme of public green management and ecological networks in the municipal area.

WHAT CAN WE LEARN?

Involvement of different actors: The course is conceived as an iteration hub: farmers, representatives of associations, organic markets, film-makers, artists and students have the opportunity to network.

Agroecology research and education: The course provides an insight into the different facets of agroecology: from the sustainable management of natural resources to the political and territorial debate around it. The organisation of events that are open to all makes it possible to broaden the range of audiences on the subject.

Technological Sovereignty: Agroecology enters fully into the debate on multiple sovereignties: food, energy, land and technology. Open geographical data, open source and low-cost technologies are questioning and challenging the concentration of information and technologies in the hand of industrial agriculture, which seems to have a monopoly on technological innovation. The deconstruction of these narratives, and the appropriation and sharing of technologies are fundamental steps towards their democratisation by adopting the "technology for all" approach¹⁷².

Alternative: The initiatives created a collaborative hub between many local stakeholders and people interested in every component of agroecology. This was achieved through the University, who has been able to become the leading actor in this process. The course has also contributed to the issue regarding the access and sovereignty of technologies, advocating for a democratisation of them and their adoption to foster the agroecological transition.

¹⁷² The volume "De Marchi Massimo, Diantini Alberto, Pappalardo Salvatore Eugenio, Drones and Geographical Information Technologies in Agroecology and Organic Farming: contributions to technological sovereignty, CRC Press." will be published in 2022.



SCIENCE



PRACTICE



LIVING LAB



EDUCATION



MOVEMENT

INITIATIVE N°20 – LIFE DESERT ADAPT


www.desert-adapt.it/index.php/en/

LIFE DESERT ADAPT

Desert-Adapt is a research project that aims to demonstrate innovative climate adaptation strategies and technologies to improve land quality, soil conservation, and plant support in Mediterranean areas under desertification risk. The first key objective is demonstrating the effectiveness of innovative adaptation technologies to improve socio-economic development and environmental quality in three European regions affected by climate change applying Desertification Adaptation Models (DAM) tailored to site-specific conditions and opportunities. The second key objective is promoting and replicating the developed DAM frameworks among a variety of stakeholders, particularly local farmers seeking socio-economic opportunities from climate-resilient and profitable land use and policymakers, to help enable replication and upscaling in the project regions and beyond.

The Deser-Adapt Manifesto is perfectly in line with the agroecological approach, by aiming to (i) protect and enhance ecosystem quality and services, (ii) seek long-term self-sustainable economic investments, and (iii) be inclusive for the local population.

Desert-Adapt which started in 2017 involves an international and diverse network, composed of 19 partners from Italy, Portugal, Spain, and the Netherlands. They are Universities, landowners, municipalities, private companies, and associations. Università degli Studi della Campania "Luigi Vanvitelli" is the project coordinator.

Since it is based on an interdisciplinary approach, Desert-Adapt involves several scientific disciplines, such as Agronomy, Ecology, Animal science, Plant science, Social science, Political science, Economics, Microbiology, and Soil science. Moreover, an integrated ecosystems approach is proposed by this project, based on the adoption of an integrative soil and land use management, in addition to the development of climate change-resilient and tailored land-use systems. Regarding the agronomical aspect, this project promotes agroecological practices such as organic fertilisation, cover crops use, reduction in frequency and depth of soil tillage, implementing agroforestry systems, and increasing agrobiodiversity through the use of plant associations.

The interaction among all the stakeholders can be considered agroecological as well, since a bottom-up approach is adopted. For example, farmers are encouraged to teach their colleagues, gaining an important role in the sharing of knowledge. Consequently, even if term agroecology is not used

KEY FEATURES

- **Main topics:** demonstrating the effectiveness of innovative adaptation technologies; promoting and replicating the developed Desertification Adaptation Models frameworks
- **Founded in:** 2017
- **Main goals:** demonstrate innovative climate adaptation strategies and technologies in Mediterranean areas under desertification risk
- **Leading organisation:** Università degli Studi della Campania "Luigi Vanvitelli"
- **Type of actors involved:** universities, landowners, farmers' organisations, municipalities, environment and food related organisations, enterprises
- **Funded by:** European Commission (60%) and partners of the project

explicitly by this initiative, all its features perfectly suit the agroecological principles and techniques. In fact, Desert-Adapt supports the development of agroecology studying and promoting adaptation models to desertification by spreading land management practices that guarantee agricultural income, social welfare and environmental sustainability. Additionally, it spreads knowledge through open information events organised in the farms chosen as case studies.

Finally, all the methods and tools used in this project will be useful to establish, replicate, and upscale the integrated land use management in other areas with climatic conditions like the Mediterranean ones, by enhancing terrestrial carbon sinks and optimise net GHG removals.



Picture 19: Experimental comparison between an olive grove of a Desert Adapt project partner managed according to agroecological practices with permanent grass cover and a conventional olive grove. Note how the application of agroecological adaptation measures reduces soil erosion, maintains soil fertility and ensures productivity at lower cost. Source: Photo by Rafael Da Silveira Bueno.

WHAT CAN WE LEARN?

This project demonstrates how it is possible for small-scale farmers and municipalities that own hundreds of hectares of land, to change agronomic management in an economically advantageous and socially sustainable way, as well as adapt to climate change. Moreover, Desert-Adapt is a new demonstration of how international and interdisciplinary collaboration can be extremely enriching and useful for farmers, universities, environmental and food-related organisations, and for the population.

5. CONCLUSION AND FUTURE PERSPECTIVE

This mapping project has revealed many crucial aspects of the country's agroecological context, providing an overview of the present level of implementation of the Italian agroecological transition and good practical examples on the ground, as well as numerous suggestions and reflections regarding the future were raised during the interviews with key informants.

The origins of agroecological values and approach in Italy were recognised in the late 1800s and early 1900s within the academic world, on the account of some pioneers who combined concepts from ecology with agronomy, proposing a new systemic approach to agronomic sciences. The start of agroecology coincides in its first developments with the birth and emergence of organic farming; however today, organic certification is not perceived as a guarantee of a genuine agroecological approach (Table 1, ITA-KI-2, ITA-KI-3, ITA-KI-4, ITA-KI-5, ITA-KI-8, ITA-KI-9, ITA-KI-11 & ITA-KI-15; Migliorini et al. 2018), that goes beyond the simple implementation of practices at field level but encompassing a structural change in the all system from production to sale, addressing also social and economic aspects.

The adoption of agroecological practices remains confined to a few farmers and is highly heterogeneous across territories and areas of agricultural production. Even among more active territories, the application of agroecology is uneven, since it is not so much the regional administrations that have the greatest influence as the agro-morphological and environmental characteristics of the hillier and mountainous areas (ITA-KI-11, Table 1). Agroecological practices seems to be more widespread in marginal areas (ITA-KI-11, Table 1).

Beside the application of agroecological practices, we can say that agroecology in Italy is now in a momentum of great ferment across all its activity categories, gaining more and more attention from various actors. This is positive but challenging at the same time, as this ferment often results in great dispersion and confusion, often because the concept of agroecology is not well known or interpreted in the same way (KI-all, Table 1). Many initiatives and organisations, which do not always define themselves as agroecological, have already been promoting and developing a more sustainable and in many ways "agroecological" agrifood system for many years. On the account of this project, some of these initiatives have been identified and catalogued according to their activity categories of reference.

At the level of academia, movements and science, there is a growing general common understanding, of the concept of agroecology although not yet standardised, due to the International development (FAO 2018; HLPE, 2019) and the European projects which allow wider dialogue. On the other hand, the concept of agroecology remains very poorly understood at the level of the end consumer who once again, as with organic years ago, is faced with a new word that is not easy to understand (ITA-KI-5 & ITA-KI-6, Table 1).

Movements, like NGOs and other association, are important actors in influencing the political and social dimensions of agroecology (Wezel et al. 2020), however, many of the issues addressed by movements, such as food sovereignty, are difficult to understand to a wider audience and easily create divergence among these same actors (ITA-KI-11, ITA-KI-13 & ITA-KI-15 Table 1). In this sense, the national movements must necessarily increase their ability to network and

to know how to structure themselves to assume a more significant role and impact than the one they have to this day (ITA-KI-6, ITA-KI-11, ITA-KI-13, ITA-KI-15, Table 1). For example, even though there are several important actors on a local or regional scale, there is still no movement or network capable of representing peasant agriculture nationwide, a term often used by movements as a synonym for agroecological agriculture (ITA-KI-5, Table 1).

In future, awareness-raising, citizen education and transparent communication systems will have the important role of gaining and maintaining the trust of consumers/citizens themselves and avoiding the increasingly widespread "green-washing" (ITA-KI-15, Table 1), a phenomenon that is also gaining ground in the field of agroecology as documented in a recent paper by Transnational Institute, Crocevia and Friends of the Earth International¹⁷³.

In the future it is expected that more agroecological initiatives, such as some of those represented in this report, will emerge, and for this reason there is a great need not to disperse what has already been learned. More and more collaboration and knowledge co-creation will be needed, not only between agroecological initiatives but also between all the actors involved, both nationally and internationally. Now more than ever, the activities of organisations working closely with Italian agroecological farmers should be promoted by regional CAP Rural Development Plans and beyond (Table 1, ITA-KI-6, ITA-KI-8, ITA-KI-9, ITA-KI-15).

In respect to this, the need to identify the role of "community facilitators" as a professional activity has emerged (Table 1, ITA-KI-6, ITA-KI-8, ITA-KI-9 & ITA-KI-1). The person who is in charge of "facilitating" transition processes, possesses transversal skills ranging from technical to economic, social and research aspects and is able to dialogue with different actors and worlds informally and in different contexts; this figure has been called a social broker, free-actor (person with no vested interests), innovation broker (collector and distributor of innovations), or catalyst (Klerkx and Rein Gildemacher 2012, Peter Wigboldus et al. 2016).

Also, the need to promote and enhance paths for accessing to land, starting up and running agroecological farms has emerged. These are not just issues related to the world of agriculture, in fact these issues take on a much broader role including cultural, social and environmental issues. A challenge for the years to come will certainly be to put these issues on the national and local political agenda to reverse the current trend of investments aimed mainly at favouring industrial agriculture.

Looking to future perspectives, youth-led innovation has often been mentioned by our informants, according to whom young people should be at the heart of this agroecological movement and better supported and incentivised (Table 1, ITA-KI-1, ITA-KI-2, ITA-KI-4, ITA-KI-5, ITA-KI-7, ITA-KI-9 & ITA-KI-11). In Italy there is a perceived growing interest in agroecology among young people, university graduates in agricultural disciplines and not only, and many young people decide to return to the land after their studies, with greater readiness to innovations than the old generation of farmers and better communication and networking skills (Table 1, ITA-KI-1, ITA-KI-4, ITA-KI-5, ITA-KI-7, ITA-KI-8, ITA-KI-9, ITA-KI-10 & ITA-KI-11). Also in the field of research, a new generation of university researchers is expected with a much more open outlook than the older generations, partly due to study and research pathways in international contexts (for example through Erasmus programmes). In particular, they are more open to collaboration

¹⁷³ <https://www.tni.org/en/junk-agroecology>

between different disciplines and to a participatory approach (ITA-KI-11, Table 1). On the other hand, the Italian university system is often reluctant to adopt a transdisciplinary approach to these new trends. A challenge in the coming future for the academic world be to leave more room for innovation as well as facilitate the active involvement of the student's participation and involvements in projects (ITA-KI-2 & ITA-KI-11, Table 1). This same project was an example of a good agroecological approach that, through the active participation and involvement of young professionals in the country, provided the opportunity to lay the foundations for a future network of young people interested in this field.

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Working in big inclusive teams and involving different actors can be extremely challenging and time-consuming, but it certainly multiplies the positive effects of it, and we are convinced that it is always worthwhile.

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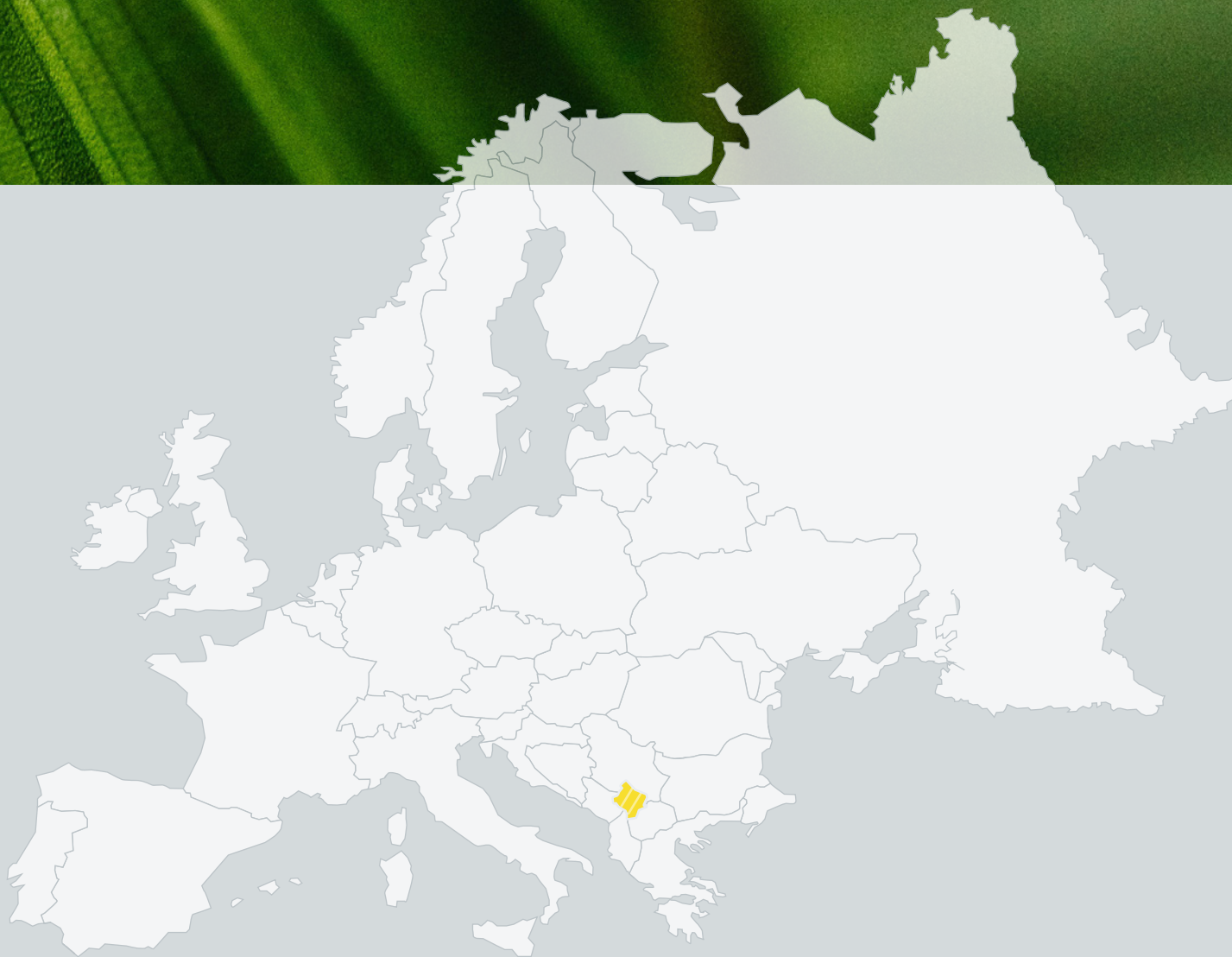
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MAPPING AGROECOLOGY IN KOSOVO

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KOSOVO

EXECUTIVE SUMMARY

Agroecology in Kosovo is still in its initial phase. As a term, it is rarely used and when it is, it is mostly in its most narrow meaning. Still, since Kosovo has maintained plenty of traditional farmers, some agroecological practices are noticeable. For instance, families in rural areas who produce for their own needs, use old varieties of crops, crop rotations and homemade organic fertilisers, and practice companion planting in their polyculture gardens. When it comes to production, agroecology is primarily seen through organic agriculture, which is also in the beginning phase but increasing.

There are no studies or research being done on agroecology, the impact of agriculture on the environment, nor suitable sustainable practices. Thus, the need for upscaling knowledge production, especially at the academic level, is recognised. The institutional infrastructure, in the sense of available funding and support from experts, is poor. Civil society, non-governmental organisations and individuals are campaigning for societal and environmental change, and are often involved in corresponding emerging movements. This also influences agricultural practices which is slowly creating a favourable environment for the spread of agroecology.

KOSOVO

EXECUTIVE SUMMARY

IN ALBANIAN

Agroekologjia në Kosovë është në fazën fillestare. Si term rrallëherë përdoret dhe shumë shpesh vetëm në kuptim të ngushtë. Megjithatë edhe tek fermerët tradicional, prej të cilëve ka shumë, vërehen disa praktika të agroekologjisë. Për shembull, familjet në zonat rurale që prodhojnë për nevojat e tyre përdorin varietete të vjetra të kulturave, praktikojnë mbjelljen shoqëruese të bimëve në kopshtet e tyre polikulturore, bëjnë rotacion të të mbjellave dhe përdorin plehra organike të cilat i bëjnë vet. Sa i përket prodhimit, agroekologjia shihet më së shumti nën prizmin e agrikulturës organike, e cila poashtu është në fazën fillestare, por me prodhues të çertifikuar organik në rritje.

Nuk ka studime ose hulumtime të cilat merren me agroekologjinë, ndikimin e agrikulturës e as me praktikën e përshtatshme dhe të qëndrueshme në Kosovë. Prandaj nevoja për të rritur krijimin e dijes, veçanërisht në rrafshin akademik, vërehet. Infrastruktura institucionale në kuptimin e fondeve dhe mbështetjes nga ekspertët është e vobektë. Si rrjedhojë, shoqëria civile, organizatat jo-qeveritare dhe individ të tjerë po e promovojnë ndryshimin shoqëror dhe mjedisor, e që shpesh ndërlidhet me lëvizje të ngjashme të cilat po zhvillohen në botë. Kjo ndikon në praktikën agrikulturore gjithashtu, duke krijuar dalëngadalë një mjedis të favorshëm për përhapjen e agroekologjisë e si rrjedhojë të bëhet edhe më e njohur.

IN SERBIAN









Agroekologjia na Kosovu je u početnoj fazi. Kao termin, koristi se retko i najčešće u uskom značenju te reči. Uz mnogo tradicionalnih poljoprivrednika, primećuju se neke agroekološke prakse. Na primer, porodice u ruralnim sredinama koje proizvode za sopstvene potrebe koriste stare sorte useva, u svojim polikulturnim baštama praktikuju sadnju biljaka koje se međusobno slažu, rotiraju useve i prave domaća organska đubriva. Kada je u pitanju proizvodnja, agroekologija se uglavnom posmatra kroz organsku poljoprivredu koja je također u početnoj fazi, ali sa postepenim povećanjem broja sertifikovanih organskih proizvođača.

Ne postoje studije niti istraživanja koja se odnose na agroekologiju, utjecaju poljoprivrede na životnu sredinu niti o odgovarajućim održivim praksama na Kosovu, stoga je prepoznata potreba za proizvodnjom znanja, posebno na akademskom nivou. Infrastruktura koju nude institucije, u smislu raspoloživih finansijskih sredstava i podrške stručnjaka je na slabom nivou. Civilno društvo, nevladine organizacije i pojedinici vode kampanje za društvene promene i promene za životnu sredinu, a često su i uključeni u pokrete u nastajanju. Ovo utiče i na poljoprivrednu praksu, polako stvarajući povoljan ambijent za širenje agroekologije, kako bi postala poznatija.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Kosovo are summarised in Table 1.

Table 1: List of key informants in Kosovo.

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED
1	Company	Medicinal and aromatic plants	
2	Infrastructure	Agricultural development	
3	University	Agroecology	
4	NGO	Permaculture and regenerative agriculture	
5	NGO	Organic production	
6	NGO	Food sovereignty	
7	Company	Composting	
8	NGO	Supporting women in agriculture	

2. CONTEXT

Kosovo is a Southeastern European country, with a climate which combines both Mediterranean and continental conditions. Geographically landlocked, and located on a plateau, Kosovo's surface is almost 1.1 million ha, out of which about half is agricultural land (570,000 ha), with 52% being pastures and meadows, 45% arable land, and only 3% permanent plantations with fruit trees. (KAS – Agricultural household survey 2019).

The high rates of unemployment in Kosovo keep agriculture very present. The majority of families in the sub-urban and rural areas produce food at a smaller scale, mainly for self-consumption, but also directed to farmer markets. Land is mostly owned by men and because of the inheriting tradition, it is very fragmented – an average farm is smaller than 1.5 ha and is fragmented into several smaller land plots (Fetahu et al. 2018).

The agricultural sector has an economic importance, as it employs 2.3% of Kosovo's workforce. Agricultural production is supported by direct payments from the Ministry of Agriculture, Forestry and Rural Development, which increased by 150% in the last 5 years, with approximately 30.6 million euros in 2019 (Kosovo Agriculture in Numbers 2020). Furthermore, even though Kosovo is not a member of the UN, the country received millions of euros of financial support for agriculture by international donors, including the GIZ, Swiss Caritas, and USAID.

The agriculture sector contributes to 8.1% of the GDP of the economy of Kosovo, but the annual trade balance is almost 650 million euros more of imported produce, as opposed to exported (Bakija et al. 2019). Much of the agricultural produce is imported from neighbouring Balkan countries, as well as big producers, including Turkey, Germany, Spain and Egypt. As a consequence, only a small fraction of the local production is available at the Kosovar markets. Kosovo faces severe environmental problems, including pollution, which is primarily due to two coal power plants that produce about 90% of the country's energy, although their closure was planned decades ago. The coal (lignite) used by these power plants degrades the land through mining and polluting (side-produce, combustion) and creates significant damage to agricultural surfaces (Ramadani et al. 2018).

Besides this, the agricultural sector is affected by land loss due to contamination, erosion, construction (especially illegal construction or achieve without proper urban planning), inadequate manure treatment and wastewaters created by farms and the processing industry. There is also a lack of proper implementation of strategies and policies which are recommended by external states like the EU and the USA, to tackle these issues, mainly due to political obstacles preventing them from being implemented.

Vocational training and expertise in the agricultural sector in Kosovo is largely insufficient—a high percentage of farmers haven't finished school and only 12% have completed a vocational agricultural school (Zejnnullahi 2018). Additionally, advisory services in Kosovo are very understaffed, with only one extension specialist for more than one thousand farmers. In addition to having to deal with a number of tasks outside of their primary expertise, the specialists often have limited knowledge related to specific agriculture sector they are advising on, farm management, marketing and business planning (OECD, 2018). Furthermore, agricultural technicians, as well as decision makers in governmental institutions, are often not well trained in the industries they are representing. (KI-2, Table 1).

In Kosovo, agroecology is a new term, and not very known, as pointed out by most of the key informants. (KI-2 & KI-7, Table 1). While it is somewhat present in the academic and institutional level, it is viewed on a theoretical basis alone. Among NGOs and small businesses, it is more present through the various regenerative practices used for agricultural production and environmental sustainability. Currently, agroecology is mostly present through organic agricultural practices among professional producers, and through traditional farming knowledge among families that produce for their own needs. Furthermore, there are NGOs and several businesses who are creating change by raising public awareness about different practices, through marketing of local products and organising educational activities on topics such as organic agricultural practices, urban food production, composting, permaculture education, and similar concepts. The organic sector has been growing since 2013, when the organic agriculture subsidies programme started. At the moment, the majority (95%) of organic agriculture focuses on cultivation of medicinal and aromatic plants, as well as non-wood forest produce (e.g. berries, mushrooms), all of which are being exported. The collection and cultivation of these crops almost tripled since 2017, as these are the most profitable for export (Halimi et al. 2018).

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



Although agroecology is in its initial phase in Kosovo, there are a couple universities that offer study courses or classes related to the topic. For example, the Faculty of Agribusiness at University Haxhi Zeka, Peja/Peć, offers the study programme “Agro-environment and Agro-ecology”, and the International Business College Mitrovica offers a study programme titled “Environmental and Agriculture Management”. In the other faculties related to agriculture, there are only few classes that touch on the topic of environment, sustainability (in any form) and consequently agroecology. Nevertheless, even when courses are directly linked to agroecology, the topic is approached in a narrow way, without including many practices and social components of agroecology, instead focusing on the scientific level which investigates and analyses agroecosystems. Moreover, the students attending the previously mentioned faculties do not have practical experience in sustainable production, and are therefore not equipped to become producers after their studies have been completed.

Kosovo also seems to not have many agroecological experts (Ramadani et. al 2018) that are sufficiently equipped with knowledge for any kind of sustainable agricultural production. The staff of universities and organisations that work in the education and training are urging for more expertise in the field to further the potential of agroecology in Kosovo. (KI-2, Table 1)

The NGOs that are connected to agroecology provide education and training on various agricultural topics, focusing primarily on agricultural practices and their influence to the environment, as well as on regional development. These programmes are targeting students of agricultural sciences, farmers and business owners, as well as the larger public, to raise awareness on agroecology. The NGO sector is quite strong in Kosovo, with many working directly with farmers, providing short- and long-term training in agriculture, especially organic agriculture (Halimi et al. 2018). A good example is youth education where the NGO “Initiative for Agricultural Development of Kosovo” provides internship positions for students to learn about agricultural practices through field work with producers.

There are also organisations that deal with environmental issues and bring forward the topics of sustainability, food waste, permaculture, food sovereignty, and many others. One example is “GAIA Kosovo” that provides education in the form of events, workshops and trainings to people from Kosovo and abroad, tackling environmental and social issues through topics of permaculture, societal inclusion, gender equality, regenerative agriculture, and much more.

3.2. LIVING LAB



Currently, no initiatives were found in Kosovo that can be recognised as agroecological living labs.

3.3. MOVEMENT



Although there are no organisations or cooperatives dedicated directly to agroecology, the movement activity category is still developing in Kosovo. A number of NGOs are working on the promotion of sustainability, with the aim to improve agricultural practices and provide additional education for farmers and the general public (Madžarić et al. 2019).

There are several grassroots organisations that are creating urban gardens and bringing food production back to cities which are gathering a large number of youth that challenge the mainstream perspective. There are also several NGOs that cooperate with decision-makers to create policy and lobby for “greener laws”. As an example, NGOs Fondacioni Jeshil and GAIA Kosovo both work toward promoting permaculture and creating local solutions for global problems. The work of such initiatives is broad, as they focus on environmental, as well as social sustainability, in all of their actions and activities. They also develop pilot projects on permacultural gardens across Kosovo, in urban, sub-urban and rural areas, functioning as community garden examples for training purposes. Both organisations work with schools, universities, farmers, young people, and at times even directly with farmers in order to support in becoming certified organic. Others put their efforts into presenting topics such as food sovereignty and composting to the public. Finally, the NGO “EcoKosWomen” works towards gender equality by supporting a number of female farmers of all ages in knowledge building on topics such as sustainable agricultural practices and business management.

3.4. PRACTICE



The term agroecology is not well-known in Kosovo and most farmers do not use it when describing their work. When agroecology is recognised, it is through the organic sector which is developing fast at the national level. Though there are still only a very small percentage of organic producers, since 2017, certified organic production almost tripled in ha of cultivated land and collecting capacities - mainly for medical and aromatic plants, as well as non-wood forest products (Halimi et al. 2018).

Despite the lack of awareness for the term, agroecological practices in Kosovo are visible, when the traditional knowledge existing at country level is considered. These agricultural traditions include small-scale farming practices, agricultural polyculture gardens, organic and homemade fertilisers, integrated pest and disease management, as well as seed saving. However, some traditional practices also involve certain soil degrading practices, such as deep ploughing, tillage or burning field residues post-harvest.

Organic production is often oriented towards commercialisation and the great majority of organically produced products are being exported to European and North American markets. Existing companies are currently producing medicinal and aromatic plants (both wild-harvested and cultivated) and non-wood forest products (collecting mushrooms, berries, etc.), as these can easily be preserved and sold abroad at satisfying prices. The local organic market is only starting to gain interest and may increase in coming years however, the country’s low GDP is the main limiting factor for the proliferation of local consumption of organic produce.

The certification for organic agriculture in Kosovo is heavily centralised, as it is managed by only two inspection agencies, which are foreign, private enterprises (“Albinspekt” from Albania and “Q-check P.C.” from Greece) (Halimi et al. 2018). This reality makes certification more complicated and financially burdensome for farmers, which is not easy for small producers. There is however discussions occurring within the Ministry of Agriculture, Forestry and Rural Development to establish a Kosovo certification body in the coming years.

Advisory services in agriculture are very poor, as they lack resources and capacity, meaning that one advisor is responsible for several hundreds of farmers. Further, farmers don’t seem to be interested in increasing their agroecological capacities, both in knowledge and production, as their main interests are usually financial.

Most businesses that have incorporated agroecological practices are founded by young people that are aware of environmental issues, and usually have received grants (e.g., start-up grant or a project by foreign donor). There are many international donors that offer grants for entrepreneurship and agriculture. We found no examples of Community Supported Agriculture nor cooperatives that connect small farmers and place their produce on the market together. Besides organised initiatives (businesses, producers, NGOs) there is a small number of individuals that practice permaculture, regenerative agriculture, biodynamics, and other types of sustainable agricultural practices, but all on a very small-scale.

3.5. SCIENCE



When considering the scientific sector, Kosovo has a few Universities with study courses or classes related to agroecology; namely, the University of Prishtina/Priština, with its Faculty of Agricultural and Veterinary sciences, as well as the Faculty of Agribusiness at the University of Haxhi Zeka in Peja/Peć, which offers agroecology related classes to their students. Some additional universities offer related classes, but in a smaller number. Nevertheless, the curricula offer a very narrow agroecological understanding, and the students do not gain enough knowledge to produce using agroecological techniques, nor does it involve political, economic or cultural aspects of agroecology.

Most young people that are aspiring to pursue agriculture professionally prefer to study abroad, and often do not return to Kosovo. Several local universities have connections with institutions abroad, but mostly with the intention to strengthen the capacities of their staff without creating enough opportunities for the students.

Agricultural practices and research in Kosovo is largely supported by international grants. Several projects relevant to agroecology were implemented through these international projects, with big stakeholders such as USAID, Swiss Caritas or GIZ. Another example of a large and successful project is KOSAGRI, which took place from 2010 until 2017. This project was realised in partnership with CIHEAM, the Mediterranean Agronomic Institute of Bari, Italy, which assisted the Ministry of Agriculture, Forestry and Rural Development (Madžarić et al. 2019). Altogether though, there is still a significant lack of knowledge and infrastructure, such as agricultural research, novelties in education, and financial services and information services which is hindering the further development of agroecology.

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 2: An overview about initiatives, cases and examples described and analysed.



















INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Organika	National	Civil society – NGO	Support and promote organic agriculture					
2	Initiative for Agricultural Development of Kosovo (IADK)	National	Civil society - NGO	Promotion of good agricultural practices and rural development					
3	GAIA	Local / National	Civil society - NGO	Promotion of regenerative agro-environmental practices					
4	Fondacioni Jeshil	National	Civil society - NGO	Raising awareness on sustainable practice and reducing food waste					
5	Botanic	Local/national	Business	Supports local farmers and provides organic produce for Kosovo market					
6	Kompostopia	Local	Business	Increase organic production, local value chain					

Table 3: Additional initiatives, cases and examples in the country - not included in this report.

INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
				EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
Walnut Tree Foundation	Local / National	Civil society – NGO	Promotion and use of regenerative agriculture practices.					
Agro-Florentina sh.p.k.	National	Farmers, exportation of organic product	Organic production for export, supporting small scale farmers.					
EcoKosWomen	National	Civil society – NGO	Supporting women in agriculture.					



EDUCATION



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE

INITIATIVE N°1 – ORGANIKA



ORGANIKA

<https://organika-ks.org/en/home/>

ORGANIKA

ORGANIKA is an association established in 2013 in Prishtina/Priština, with the aim to improve interactions between stakeholders in the organic sector in Kosovo. It promotes the development of organic agriculture in the country, but they do not use the term agroecology in their work. They currently work with around 40 farmers, supporting them in becoming certified organic, as well as by training them in different practices directly in the field.

The organisation focuses on providing trainings and workshops for the production of medicinal and aromatic plants, non-wood forest products, and organic fruit, as well as by supporting farmers to find markets for their products. Such educational activities are organised on a regular basis, lasting from one to several days. Some activities target vulnerable groups of farmers, for instance there is a set of trainings for women which aim to increase their knowledge in production and marketing, thus increasing their revenue in their existing companies or empower them to start their own business. Trainings include both theoretical and practical knowledge, as well as visits to organic producers who present their work and discuss the benefits and challenges they are faced with.

ORGANIKA collaborates with a few international organisations such as USAID and GIZ, who support the implementation of agroecology related projects.

Beside these collaborations, ORGANIKA is a member of IFOAM, and it is well connected to institutions in Kosovo, with whom they cooperate on policy making.

ORGANIKA plans to increase their capacities in the future to support an increasing number of farmers by providing education about organic production to farmers and the public in order to impact the local market. ORGANIKA's reliance on outside projects for financing creates a limiting factor for such growth though.

WHAT CAN WE LEARN?

The desire for transition to organic agriculture in Kosovo is much higher than the support offered. It would be very useful to have more organisations and institutions pushing for the transition to organic agriculture, as well as stable financing coming from the government.

KEY FEATURES

- **Type of education and training:** training and activities for promotion of organic agriculture
- **Main topic:** organic agriculture
- **Trainings duration:** several days
- **Type of legal entity:** non-governmental organisation
- **Founded in:** 2013
- **Accessible to:** farmers



EDUCATION



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE


<https://iadk.org/>

INITIATIVE N°2 – IADK

INITIATIVE FOR AGRICULTURAL DEVELOPMENT OF KOSOVO (IADK)

IADK was established in 2004, and has been located in the town of Vushtrri/Vučitrn since 2013. The organisation works on facilitating rural development in Kosovo, with an aim to create better socio-economic conditions in rural areas, reduce unemployment, produce healthy food, transition to a sustainable use of natural resources and engage in environmental protection. The team of IADK consists of around 20 permanent and temporary staff.

The initiative works very closely with farmers and supports them by providing training, equipment and grants in order to increase their knowledge, production capacities, and help them find their place in the market. The trainings they offer are both theoretical and practical, including examples of good practices in various sectors, such as sessions which focus on specific topics: medicinal and aromatic plants, animal husbandry, fruit and vegetable processing and rural tourism. Trainings are based on both conventional or organic agriculture.

IADK is active in lobbying for policies and projects which contribute to rural development in Kosovo according to EU standards. They also cooperate with other non-governmental organisations, municipalities and government authorities. One of the projects they are part of, "Supporting the value chain of Medicinal Herbs and Aromatic Plants by creation of employment and export continuation", which is supported by GIZ (a German funding agency of international development and cooperation) has enabled them to work with 260 farmers, providing them with trainings of several weeks aimed to aid them in their transition to organic production. Besides working directly with producers, the objective was to improve the value chain for the medicinal herbs and aromatic plants sector by doing such things as building capacities in terms of collection points for this produce (increase facilities, such as drying stations). The initiative doesn't use the term agroecology in their work, but it is implementing it through providing education to farmers, promoting integrated pest management and promoting organic agriculture.

KEY FEATURES

- **Type of education and training:** workshop and activities for rural development
- **Main topics:** rural development
- **Type of legal entity:** non-governmental organisation
- **Accessible to:** farmers
- **Project duration:** up to several weeks

WHAT CAN WE LEARN?

With its vast experience working in the field and training farmers, the organisation is trusted and producers seek their expertise. The initiative works with a large number of beneficiaries, in all sectors of agriculture. IADK also offers internship possibilities that are a very efficient way of involving young people, coming straight from universities, in agroecology. The NGO provides positions for students and young graduates to learn about agriculture with producers in practice and through field work, as well as about project management.



MOVEMENT



EDUCATION



PRACTICE



LIVING LAB



SCIENCE

INITIATIVE N°3 – GAIA


<http://gaiakosovo.org/>

GAIA

The non-governmental organisation GAIA, was established in 2010 as a response to the social and environmental issues present in Kosovo. The organisation currently hosts three community-based programmes in three different and specific contexts, one of which is specifically focused on permaculture education, which has been running since 2017. This programme aims to create a centre for learning and experiencing different ways of co-living with people and nature. In Boževce/Bozhefc, where the programme is located, the organisation implements agroecology in different ways, both through agricultural practice and social aspects.

Permaculture can be used in various way but within the programme, GAIA focuses on food production practices, such as various regenerative methods in polyculture gardens and orchards. For instance, they use a no-till method, composting, only homemade organic preparations (for pest, disease management, and fertilisation) and traditional farming knowledge.

All of GAIA's programmes are focused on education, with a strategic aim to increase the capacities of youth, organisations and initiatives in Kosovo. The other two GAIA programmes are located in other regions and are not related to agriculture (one on peacebuilding in Mitrovica/Mitrovicë and the other on educating children and youth in Gračanica/Graçanicë). All activities hosted by GAIA are implemented with non-formal education methodologies.

GAIA is part of the international Service Civil International and collaborates with a large number of organisations in Kosovo and abroad that work in the field of permaculture and food production.

WHAT CAN WE LEARN?

GAIA is a grassroots organisation, where long-term volunteers and permanent staff shape the programmes according to the needs they have recognised in society. Since the organisation works with local people and analyses the local context, it has a strong influence in civil society. GAIA's work is pioneering, bringing innovative and very much needed practices, as well as offering solutions for gaps that are not met by other institutions or organisations.

The organisation also creates non-formal education activities which are appropriate for all people from different generations and with different knowledge and experiences. It has already involved hundreds of people in its educational and volunteering activities, both from Kosovo and abroad.

KEY FEATURES

- **Main goals:** permaculture education
- **Founded in:** 2010
- **Type of organisation:** non-governmental organisation
- **Farming sectors:** arable and permanent crops, regenerative food production
- **Scale of the organisation:** national, with long-term local programmes

POSITIVE IMPACTS



EDUCATION: GAIA organises various activities, from 1-day events to full Permaculture Design Certificate course trainings. These activities aim to explore the regenerative ways of living and co-existing with nature and society.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

They initiate regenerative agricultural practices in their permaculture gardens and orchards that increase soil fertility, promote efficient water management, increase natural biodiversity, and protect ecosystems.



SUSTAINABLE AND FAIR ECONOMICS:

All educational activities are offered free of charge to make them accessible to people who wouldn't usually be able to afford such learning opportunities.

LIMITATIONS & CHALLENGES



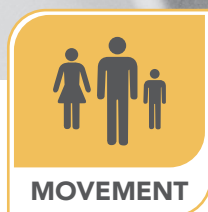
GOVERNANCE: Farmers receive compensation through already existing funding mechanisms, however this represents a limit as the European and national political frameworks do not always permit innovation, or even adaptation to local settings.



SUSTAINABLE AND FAIR ECONOMICS:

One of GAIA's primary challenges is to maintain regular and long-term income for their staff, since the majority of their resources are directly linked to volunteering, which doesn't offer a stable working environment and presents issues of continuity.





MOVEMENT



EDUCATION



PRACTICE



LIVING LAB



SCIENCE

INITIATIVE N°4 – FONDACIONI JESHIL


<http://fondacionijeshil.org>

FONDACIONI JESHIL

Fondacioni Jeshil was established in 2014, in Prishtina/Priština. It is an environmental NGO working through permaculture ethics and principles to develop more sustainable solutions for rural and urban areas. The organisation engages in various activities such as public events, workshops and trainings for people to understand the environmental issues present in Kosovo.

One of their missions is to increase knowledge on permaculture. While agroecological topics such as food sovereignty and food waste are their primary aims of focus, the initiative does not use the term agroecology. Fondacioni Jeshil focuses on promoting sustainability, working on community outreach and education, building awareness, reconnecting youth to nature and raising environmental consciousness. The initiative has also set up several schools or community gardens to bring people together.

Within their project "Let's talk about food waste", the organisation is initiating a public dialogue on food waste and piloting innovative solutions for its reduction in Kosovo. They are currently involved in the creation of composting facilities in the municipality of Prishtina/Priština and Lipjan/Lipljan. Further, the organisation is developing an online platform for sharing food surpluses, creating a documentary and awareness-raising campaign, organising food system related public events and organised a public forum meeting.

They are collaborating with different institutions and non-governmental organisations such as the FAO and Nyeleni – the international movement for food sovereignty.

WHAT CAN WE LEARN?

The initiative is well recognised by the citizens and attracts a lot of attention with its activities. They focus a lot of their work on the education of consumers and the general public. Being based in the capital of Kosovo, the initiative has close contacts with the younger generations, especially considering its cooperation with schools.

The strategy of the organisation is designed with permaculture ethics and principles, which bring environmental topics closer to the people.

KEY FEATURES

- **Main goal:** food sovereignty
- **Founded in:** 2014
- **Type of organisation:** non-governmental organisation
- **Main topic:** food sovereignty and food waste
- **Scale of the organisation:** national

POSITIVE IMPACTS



COOPERATION: The initiative is cooperating and working with many national and international partners, thus brings different perspectives to their work.



ENERGY AND WASTE MANAGEMENT: The initiative is reducing the amount of waste generated in the city by setting up composting schemes and facilities, including vermicomposting. The education of waste is an important part in their work, and trainings and awareness-raising campaigns are regularly organised for this.

LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR ECONOMICS: Local and sustainably produced food is not very accessible in the capital Prishtina/Priština, therefore the organisation has recognised the need for a system of connecting producers and customers. However, this connection between the capital and surrounding rural areas has not been achieved yet.



EDUCATION: Working at the policy-making level is challenging due to the lack of human capacity in public institutions and difficulties in administration.





PRACTICE



MOVEMENT



LIVING LAB



SCIENCE



EDUCATION

INITIATIVE N°5 – BOTANIC



Facebook: @Botanicllc
Instagram: @Botanicllc

BOTANIC

Botanic is a young, woman-run agricultural enterprise founded by two sisters in 2018, which started with an initial start-up grant. This initiative is one of the rare examples of local organic produce company, collecting and cultivating medicinal and aromatic plants. A large part of the collected and packed product is exported internationally as organic, raw materials. The enterprises' agroecological agricultural practices are: seed saving, crop rotations, and traditional fertilisation methods made by the farmers themselves.

Since Botanic's objective is to be an environmentally responsible business, it offers certified organic products in recycled and biodegradable packaging. Even though the business currently only offers medicinal and aromatic plants, it is developing capacity to begin producing organic vegetable and fruits, for the local market.

Botanic is often present at local events related to sustainability and in agricultural fairs. In 2021, they were showcased as an example of an environmentally friendly business at the Sustainable Development Week in Kosovo. The initiative also places great importance on connecting with other producers and organisations involved in the environmental and agricultural sector in Kosovo.

WHAT CAN WE LEARN?

The promotion and development of synergies, and collaboration between actors in the food supply chain could be further strengthened. Direct relationships with consumers is still limited as organic remains a rather small niche. By having a business that is wholly run by women creates positivity impacts for gender equality where the majority of women are unemployed.

KEY FEATURES

- **Agroecological practices concerned:** organic agriculture, including seed saving, crop rotation, traditional fertilisation
- **Founded in:** 2018
- **Farming sectors concerned:** permanent crops
- **Lead organisation:** botanic
- **Types of stakeholders involved:** around 40 farmers

POSITIVE IMPACTS



EDUCATION: Botanic encourages their farmers to attend trainings and seminars about organic agriculture to continue their education, and they provide workshops and activities for continuous learning for their employees. It is also present at environmental fairs where they sell their products and promote organic agriculture.



SOCIETY AND EQUITY: The business is run by young women and all of their suppliers are women. In this way, Botanic directly supports them and their families.

LIMITATIONS & CHALLENGES

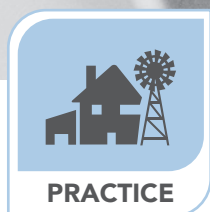


COOPERATION: The promotion and development of synergies and collaboration between actors in the food supply chain could be further strengthened. Direct relationships with consumers are still limited.



SUSTAINABLE AND FAIR ECONOMICS: Botanic is a small business that is not yet producing a sufficient income. The staff of the business needs to have other sources of income to make ends meet.





PRACTICE



EDUCATION



LIVING LAB



SCIENCE



MOVEMENT

INITIATIVE N°6 – KOMPOSTOPIA



kompostopia

a composting utopia

Facebook: @Kompostopia

KOMPOSTOPIA

Kompostopia is a newly developed business that was founded in 2019 and is operating in Peja/Peć, Western Kosovo. Their aim is to connect waste related environmental problems and poor agricultural input management.

Kompostopia is run by 3 permanent staff members who collect organic waste from households in the municipality of Peja/Peć and turns it into compost. The facilities are currently rather small, but in the next few years, the operation capacity is planned to increase.

Kosovo does not legally allow for any business to be categorised as a 'social business' when they first begin. They first need to establish themselves as a regular business and after 3 years can transition to a social business, which is Kompostopia's aim. Waste management is a large issue in Kosovo, so this kinds of composting facilities, even though small in capacity, are a positive example of a business which involves the local community and employs young people.

The concept of compost is not very known to farmers in Kosovo, as it's not usually used in larger-scale agriculture, so it is a particular local product which farmers can use without needing to import it from other countries.

Another objective of Kompostopia is to work more on education. They are currently running and developing a training programme for farmers and citizens (e.g. school children), with an aim to teach farmers how to do on-site composting.

WHAT CAN WE LEARN?

Kompostopia is a pionner in the field of waste management and composting in Kosovo, which is opening doors to composting on a wider scale in the rest of the country. In less than 3 years, the initiative established a connection with local institutions and supports them in creating new composting facilities.

KEY FEATURES

- **Agroecological practices concerned:** composting
- **Founded in:** 2019
- **Lead organisation:** Kompostopia
- **Number of stakeholder involved:** 20

POSITIVE IMPACTS



ENERGY AND WASTE MANAGEMENT:

Reducing and recycling organic waste is the major goal of the initiative. The business also provides 2-days training programmes for elementary and high school students to make them aware of composting practices and to inspire them to implement such methods in their schools.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

By creating compost, the business directly influences waste management, as well as raising awareness on increasing soil fertility. At the facility, rain water is collected and used for maintaining composts' humidity.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: The business is running well, but so far, they have no savings for investment. The establishment and the further development of the company was based on external grants and subsidies.



COOPERATION: They have found it difficult to initiate contacts with local public institutions, and only recently, were contacts and common ground established with the municipality of Peja/Peć.



SOCIETY AND EQUITY: Waste management and composting is seen as a dirty and low-status job, and few people want to get involved in it.



5. CONCLUSION AND FUTURE PERSPECTIVE

Even if agroecology in Kosovo is in its initial phase, the existing initiatives are working on the development of sustainable practices in the country. At the moment, there are limited examples of agroecology and publically, agroecology is mostly seen through the sphere of organic agriculture, which is developing slowly as the market demand is moderate. Another limiting factor for agricultural development is the corruption in public institutions, and even though it is a general problem in governments, it also has effects on the low level of trust consumers have towards organic agriculture. Additionally, due to the lack of public awareness on environmental issues and the low GDP found in Kosovo, the organic sector is not considered to be completely developed, and almost all organic produce are exported. Stakeholders should explore and promote the benefits of transitioning to organic agriculture for the Kosovar market. Most farmers that engage in organic agriculture are motivated by higher subsidies and higher prices for their produce.

Currently, the public is not aware of the concept of agroecology, including farmers and environmental stakeholders. However, potential for agroecology in Kosovo does exist, but it needs a dissemination of much more information about its approaches and principles and its implementation in practices, science, education and training, and social movements. The initiatives that were most recently developed have great potential to set the foundations for the development of agroecology at the country-wide level.

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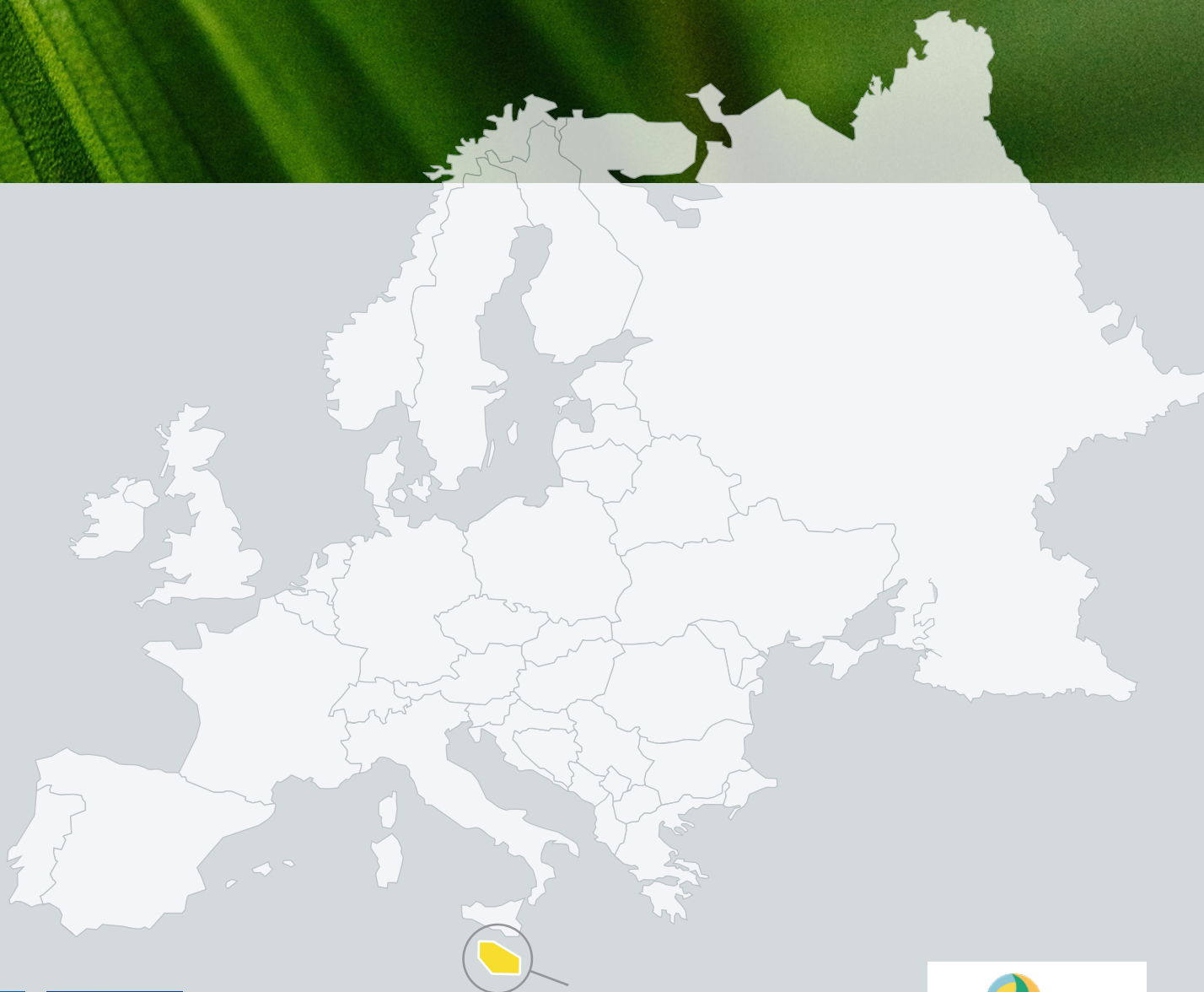
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MAPPING AGROECOLOGY IN MALTA

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MALTA

EXECUTIVE SUMMARY

This investigation aims to map agroecological producers, initiatives and research institutions in Malta, while gauging the development of agroecology as a system of principles with dedicated institutions. The data was collected through interviews both in person (farmers, shop owner) and online.

While the interviews revealed a poor awareness of agroecology as a term, there was a keen interest in the principles that are central to it as a practice. While almost all participants were organic farmers, shops or NGOs, and identified strongly with the organic sector, they were often keen to stress that their practices went beyond the rigid regulations and obligations imposed by the process of certification, and were strongly beholden to the environment and their communities.

Currently, Maltese farming is declining, due to an aging population, a dearth of youths (the participants in this study are an exception), and to the fact that land has a high opportunity cost as recreational or developable land. Maltese agriculture remains traditional, with small family farms that are usually fragmented between various heirs. Further, drought and increasing pests are also compounding pressure on farmers, while imports are pushing prices down, creating less economic viability for farmers. While organic farmers are still few in number, they exert a disproportionate influence on agricultural debates and the consciousness of farmers as a whole, creating a new generation of youths in the industry that is slowly changing the perception of the sector in many ways.

The principles of agroecology were first introduced into Maltese agriculture by a number of farmers who began experimenting with organic practices. These individuals formed the Malta Organic Agricultural Movement, and in subsequent years (particularly after EU accession), other NGOs (mostly from environmental backgrounds) have focused on such sustainable farming principles. However, the market demand for sustainable farming products is still low, and while the government has responded to the increasing awareness of organic products, transforming its share in the market is a slow process. Maltese farmers also face structural challenges relating to planning and regulation. While various spaces and movements have brought organic farmers together, there is a lack of effort to speak with one, unified voice.

Educational programmes focusing on agroecology are scant and no living labs have been established in Malta thus far. Nevertheless, there is academic interest in conducting research on the topic, and at least one institute has a specific focus on bridging agriculture with environmental conservation.

Most of the initiatives surveyed in this study are of a commercial, primarily individual, nature. However, there is evidence that those involved are committed to the principles that animate their practices - principles which are in turn deeply committed to environmental and social responsibility. Shared spaces are emerging in which farmers co-act and cooperate with other farmers, activists, and consumers. Lastly, there is a lack of strong institutional frameworks that recognise, support and provide required incentives for the unique opportunity of organic agriculture in Malta. According to interviewees, such institutional support and recognition is needed to increase the number of grassroots initiatives that bring people back to the land.

MALTA

EXECUTIVE SUMMARY (IN MALTESE)

Dan l-istudju sar bil-mira li jiġu 'mmapjati inizjattivi agroekoloġiċi varji fil-gżejjer Maltin, inizjattivi li jinkludu kemm l-intrapriżi ta' produtturen kif ukoll movimenti bħal NGOs, u istituzzjonijiet ta' riċerka. L-iskop ta' dan l-eżerċizzju kien li tinholoq stampa tal-livell ta' żvilupp tal-agroekoloġija, kemm bħala sistema ta' prinċipji kif ukoll f'termini tal-istituzzjonijiet li jhaddnuha u jirrapreżentawha.

L-intervisti ma' bdiewa u mas-sid tal-ħanut saru wiċċ imb'wiċċ, u l-kumplement saru online. Il-maġġoranza tal-partecipanti kienu bdiewa organiċi, jew jidentifikaw mas-settur organiku. Hafna mill-intervisti urew li t-terminu 'agroekoloġija' għadu mhux magħruf sew hawn Malta, però l-partecipanti urew interess qawwi u għarfien tajjeb tal-prinċipji varji li huma ċentrali għall-agroekoloġija bħala prattika. Infatti, spiss saħqu li fix-xogħol tagħhom imorru lil hinn mir-regoli u obbligi stretti marbutin maċ-ċertifikazzjoni tal-organiku, u kellhom sens ta' responsabilità kbira lejn l-ambjent ta' madwarhom u l-komunità tagħhom.

Il-biedja Maltija qiegħda tonqos. Il-popolazzjoni ta' bdiewa xjaħet, u hemm nuqqas ta' zghazagh, għalkemm uħud mill-partecipanti f'dan l-istudju huma eċċezzjoni f'dak ir-rigward. L-irziezet Maltin huma zghar u frammentati bejn werrieta differenti. F'dawn l-aħħar snin, żdiedet ukoll l-'opportunity cost' tal-art agrikola, minħabba li hemm domanda kbira għall-art rikreazzjonali u żviluppabbli. In-nixfa u ż-żieda fil-mard qegħdin jawmentaw l-isfidi għall-bidwi, filwaqt li x-xogħol impurtat qiegħed inaqqaslu d-dħul. Il-bdiewa organiċi għadhom ftit, però għandhom influwenza relattivament kbira fuq il-kuxjenza ta' bdiewa oħrajn u fuq riflessa id-dibattiti li jsiru madwar il-biedja f'Malta. Ġenerazzjoni ġdida ta' bdiewa organiċi zghazagh qiegħda ftit ftit tibdel il-perċezzjoni tas-settur tagħhom.












L-agroekoloġija dehret l-ewwel f'Malta bl-inizjattivi tal-bdiewa li bdew jesperimentaw bi prattiki organiċi. Dawn għaqdu l-Malta Organic Agriculture Movement, u fis-snin ta' wara, partikolarment wara li Malta ingħaqdet mal-UE fl-2004, numru ta' NGOs oħrajn, ġeneralment b'għanijiet ambjentalisti, iffukaw iktar fuq il-biedja sostenibbli. Minkejja dan, id-domanda għall-organiku għadha baxxa, u għalkemm il-gvern irreaġixxa għaz-żieda fil-kuxjenza tal-organiku, għadu jrid isir iktar xogħol biex jitwessgħa s-suq. Il-bdiewa jaffaċċjaw problemi ukoll marbutin mal-ippjanar u r-regolazzjoni. Bdiewa organiċi għandhom rabtiet ma' xulxin, fi spazji u f'movimenti differenti, però għadhom m'humix jitekellmu b'vuċi waħda. Programmi edukattivi iffukati fuq l-agroekoloġija huma ftit, u l-ebda living lab għadha ma twaqqfet f'Malta s'issa. Fl-istess ħin, hemm interess akkademiku f'li ssir iktar riċerka, u jeżisti mill-inqas istitut wieħed li jiffoka fuq ir-rabtiet bejn l-agrikoltura u l-konservazzjoni ambjentali.

Il-maġġoranza tal-inizjattivi inkluzi f'dan l-istudju huma ta' natura kummerċjali u primarjament individwali. Dan però jindika ukoll li daww involuti jemmnu fil-prinċipji tagħhom u huma kommessi għalihom, anka meta wieħed iqis l-opportunitajiet kummerċjali tal-organiku. Flimkien mar-relazzjonijiet li qed jinbnew bil-mod il-mod mal-attivisti, riċerkaturi, u fuq kolloxx mal-konsumaturi, din toħloq bażi soda fuq xiex ikompli jinbena s-settur. Minkejja dan, però, ħafna mill-partecipanti saħqu li hemm bżonn iktar għajjnuna istituzzjonali, u rikonoxximent tal-isforzi li qed isiru biex jitwasslu dawn il-prinċipji soċjalment u ambjentalment responsabbli lin-nies.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Malta are summarised in Table 1.

Table 1: List of key informants in Malta

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED
1	Academic	Education on integrated agricultural systems	
2	NGO	Mainly horticultural crops	 
3	Foundation	Represents young farmers and livestock keepers	
4	NGO	Represents organic farmers	
5	Small/medium enterprise	Marketing of organic products	 
6	Individual farmer	Mainly horticultural crops	
7	Individual farmer	Mainly horticultural crops	
8	Research Centre	Research on agroecology and ecosystem services in agroecosystems	 

2. CONTEXT

With an area of 315km², Malta is the smallest country of the European Union. However, with an estimated population of 504,062 inhabitants in 2019¹⁷⁴, it is the country with the highest population density (1,599 inhabitants/km²) in Europe. This is reflected in the very high percentage of urban dwellers: 95% of Maltese live in urban areas. Agricultural land covers 10,380 ha: 9,070 ha of which is arable land and 1,310 ha is permanent crops¹⁷⁵. However, according to Eurostat, the Utilised Agricultural Area (UAA) in Malta in 2010 was 11,450 ha (higher than the FAOSTAT4¹⁷⁵ estimation for the same year, that was 10,330 ha) and the number of agricultural holdings was 12,530 ha. In 2016, 9,210176 agricultural holdings were counted, suggesting a sharp decrease in comparison with 2010. In Malta, agricultural land is now widely sold as recreational or developable land, thus greatly increasing its opportunity cost. Agriculture's share in Malta's GDP has been declining in comparison to the relatively high rates of total GDP growth since the 1980s (Ministry for Rural Affairs and the Environment 2003).

¹⁷⁴ <https://data.worldbank.org/country/malta?view=chart>

¹⁷⁵ <http://www.fao.org/faostat/en/#data>

¹⁷⁶ Eurostat 2021: <https://ec.europa.eu/eurostat/data/database>

On average, Maltese farms are very small (0,9 ha) and the per capita UAA is only 0.03 ha/person. It is worth mentioning that the UAA in Malta increased by 6% between 2003 and 2010. The total irrigable area followed a similar trend, increasing from 2,300 ha (in 2003) to 3,150 ha (in 2010), 630 ha of which are potato farms, 430 ha vineyards, 100 ha citrus plantations, and 90 ha olive groves. The number of individuals working in agriculture grew by 3.5%, from 17,870 to 18,500 between 2003 to 2010. Despite a marked decline in investment in the agricultural sector in the 2009-2019 period (with an average annual decrease in investments equal to -7.0%), the agricultural labour force continued to grow in the same period with an increase of 1.6%. It is important to note that women only represent 6% of farmers in Malta. In 2010, only 4.8% of farmers were youths (<35 years old), while 57.5% were above 55 years of age. This makes Malta one of the EU countries with the lowest ratio of young to old farmers: this ratio in 2010 was equal to 0.08, considerably lower than the EU average of 0.14 (Rovný 2016). It should be noted, however, that many women, sons and daughters are 'ghost farmers', invisible to the system but crucial to the family enterprise (MLT-KI-3, Table 1).

An increase was recorded also in the area cultivated with fodder crops that, in 2010, occupied 48% of the Maltese UAA. Despite this, the Livestock Units (LSU) decreased by 12.3% between 2003 and 2010 to reach a value of 42,910 LSU in 2010. Cereals cover roughly one third of the arable land in Malta. During the decade of 2008-2017, the average extension of the area cultivated with cereals was equal to 3,030 ha, the average production was equal to 14,349 t and the average yield was equal to 4.735 t/ha. Malta has the smallest percentage of area fully converted or under conversion to organic farming in the EU, with only 0.5% (55 hectares out of 10,380 hectares of agricultural land) in 2019.



3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



In Malta, the University of Malta (UoM) and the Malta Centre for Applied Sciences and Technology (MCAST) are the two research institutions offering training in agriculture, with courses ranging from BSc diplomas to PhDs. The Centre for Environmental Education & Research (an institute within UoM described as an initiative under the education and training activity category) is the only institution (public or private) that provides formal training with a specific focus on agroecology.

The University of Malta, which is overseen by the Maltese government, has a department called the Institute of Earth Systems¹⁷⁷ which offers training in rural sciences, including environmental management and agriculture. Although there is a single case of an academic working hand-in-hand with the Malta Organic Agriculture Movement (MOAM) to develop pesticides from non-synthetic produce (MLT-KI-4, Table 1), there are no programmes dedicated specifically to organic farming or agroecology, even though students have explored these areas in their dissertations and lecturers have done so in some publications.

The Malta Centre for Applied Sciences and Technology (described as an initiative under the education and training activity category) is a separate institution also run by the government, with a focus on hands-on learning. It offers individual courses geared towards specific industries, such as rabbit-rearing and includes one on organic farming¹⁷⁸, which are brief and of an introductory nature. On the other hand, their other agricultural courses do range from these introductory courses to PhD programmes. Organic farming is included in the BSc degree on Horticulture but only its regulatory structure and basic principles¹⁷⁹.

The Centre for Environmental Education & Research offers a Master's in Education for Sustainable Development, which gives a broad perspective on sustainable development issues with an approach that is coherent with the agroecological approach. Informal education is also carried out by the centre, especially in their multipurpose Centre for Research and Practice in Education for Sustainable Development (ESD) located in Fawwara, in the Siġġiewi council. The Permaculture Research Foundation of Malta¹⁸⁰ has organised in the past non-academic, irregular events and courses on aspects related to agroecology, including permaculture for the city, forest gardens, composting, permaculture design, and other related subjects.

3.2. LIVING LAB



No living labs were identified in Malta in this study. However, some movements, in particular The Veg Box (an initiative described later in this report), could in the future evolve and achieve the status of living labs. The Veg Box¹⁸¹ is clearly oriented toward the creation of a network of stakeholders that includes farmers, citizens and other actors, as is the NGO and business Biome Munch. These organisations have the space, desire to experiment with new techniques, and interest to work with others. MLT-KI-5 (Key Informant n°5 KI], Table 1) stated that they are trying to expand their network of farmers and consumers, and operate countrywide.

¹⁷⁷ <https://www.um.edu.mt/ies>

¹⁷⁸ <https://shortcourses.mcast.edu.mt/course/160>

¹⁷⁹ <https://www.mcast.edu.mt/courses/ag3-03-21/>

¹⁸⁰ <https://www.bahrijaoasis.com/permaculture-malta>

¹⁸¹ <https://thevegbox.com.mt/>

3.3. MOVEMENT



Social movements in Malta are relatively small and usually linked to the initiative of one or a few specific activists. Of all the movements featured in this study, only MOAM has a committee of more than three people. Nevertheless, even small movements play an important role in the promotion of agroecology and related issues.

One common feature found in these movements is the mission to raise awareness on the importance of local and organic food, as well as traditional agricultural practices. Each movement focuses on these goals in different ways. For example, the Malta Organic Agriculture Movement (MOAM) regularly hosts talks to explain the benefits and the opportunities of organic agriculture (MLT-KI-4, Table 1). The Malta Youth in Agriculture Foundation (MaYA) has the broader scope of representing the interests of young farmers, including a growing number of such young people who have made the switch to organic practices.

Many of those interviewed had a more personal stake in the sector, often blurring the line between marketing and activism, particularly in the case of the Veg Box and Biome Munch, who are both NGOs and businesses. Both seek to create sustainable communities, as well as advocate for healthier lifestyles and a more ecologically-sensitive society. Similarly, all of the farmers in the study saw themselves as environmental stewards and were in some way or another involved in environmental issues, whether in proactive projects or in opposition to development projects which were impinging on the countryside (MLT-KI-3, Table 1). Almost all of the farmers in the study saw the buyers of their food products as potential partners, rather than as simple “consumers”. Nevertheless, it seems that these partnerships remain weak, seeing as many were unwilling or unable to set up more structured forms of collaboration, such as Community Supported Agriculture schemes.

When talking about ‘awareness’ and consumer perception, almost all farmers (particularly MLT-KI-4 & MLT-KI-6, Table 1) saw high prices, not just the environmental and health benefits, as a crucial part of the discussion and of the process of convincing consumers to appreciate their products more.

3.4. PRACTICE



Agroecological practices in Malta are mainly implemented by organic farmers and by non-certified farmers that are able to market their products through direct contact with buyers. Most organic farms in Malta are very small in size, sometimes less than 1 ha.

The farmers interviewed were not familiar with the term “agroecology” but they knew, and to some extent, have adopted some agroecological practices. For example, one farmer practised agriculture rooted in the maintenance of a healthy soil biome - without the use of any pesticides and by maintaining areas of biodiversity around the farm. A recurring theme for all of the farmers interviewed was a concern for increasing pests, which has been affecting the viability of many crops all across Malta. Yet, some farmers were confident that the biodiversity they had built on their farms would re-establish equilibrium within a year or two.

All of the organic farmers interviewed claimed that organic certification fees represent a burden for small farmers that is unjust when one considers the environmental benefits of their practices. This, compounded with a perception of the conversion process as strict, complex, and long, might be serving as a barrier to further experimentation with organic farming, or at least to the official registration of such activities. Some farmers are known to grow organically, but their small scale and part-time nature dissuades them from applying for the certification. Others mentioned that they felt that their current system, based entirely on communication and mutual trust with their consumers, worked well enough already.

Some interviewees (MLT-KI-2, MLT-KI-4 & MLT-KI-6, Table 1) drew a distinction between 'organic from abroad' and 'organic in Malta'. They also extended this distinction to conventional agriculture, which they consider to be more environmentally sensitive in Malta simply by virtue of its size and relatively traditional nature. One interviewee revealed that, they had too much supply and were constantly looking to grow the demand. This however might have reflected the aforementioned issues of high prices or of competition from imported produce, as well as the location of her shop, which is not in a central area.

3.5. SCIENCE












The Institute of Applied Sciences at Malta College of Arts, Science and Technology (MCAST) is the main research institution in Malta on themes related to agroecology. They carry out research on a wide array of issues ranging from ecosystem services to climate change and pollinators ecology. Their main area of investigation is the Maltese archipelago but they have good links with research networks from other EU countries. Malta is believed to provide optimum conditions to conduct research related to agroecology (MLT-KI-8, Table 1) due to its small land size, location, climate and socio-economic profile.

MCAST's research group focusing on agriculture, aquatics and animal sciences, as well as the agricultural research department of the University of Malta seem to not be specifically adopting an agroecological approach in their research.

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 2: An overview about initiatives, cases and examples described and analysed.

INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Centre for Environment Education & Research, University of Malta	National	Academic	Promote environmental education and research in the Euro-Med region by seeking to catalyse change towards a sustainable society.					
2	Biome Munch	Local	NGO	Provide the community with produce grown with ethical and organic practices. Educate the community on growing their own food, living simply, nutrition, and living sustainably.					
3	Malta Youth in Agriculture Foundation	National	Foundation	Build bridges between young farmers, government entities and the general public.					
4	Maltese Movement of Organic Agriculture	National	NGO	Endorse any initiatives on a national scale in-favour the use of natural products to grow crops without any chemical residues.					
5	The Veg Box	Local	Small/medium enterprise	Provide healthy local produce to the local consumers.					
6	Malta College of Arts, Science and Technology (MCAST). Institute of Applied Sciences	National	Research Centre	Provide universally accessible vocational and professional education and training with an international dimension.					





EDUCATION



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE

L-Università
ta' Malta<https://www.um.edu.mt/ceerv>

INITIATIVE N°1 – UNIVERSITY OF MALTA

CENTRE FOR ENVIRONMENT EDUCATION & RESEARCH, UNIVERSITY OF MALTA

The Centre for Environment Education & Research (CEER) is part of the University of Malta and aims to promote environmental education and research in the Euro-Med region by seeking to catalyse change towards a sustainable society. In Malta, CEER coordinates environmental education initiatives, increases the opportunity for environmental education research, organises training and workshops to promote agroecological practices, offers consultancy to governmental and non-governmental institutions related to sustainable development, and actively participates in environmental decision making to promote a good quality of life.

CEER implements many projects and its work is offered to many stakeholders. They offer a two years Master of Science (MSc) in Education for Sustainable Development, as well as workshops and trainings to various stakeholders such as students, farmers, farmers organisations, local communities, NGOs, and public institutions. Workshops and trainings are held in the Fawwara Centre in the countryside of the island. The Centre also has land that serves as educational gardens inspired by permaculture principles which are used for formal and non-formal educational sessions promoting experiential learning to explore different food production techniques, that protect surrounding ecosystems and enrich long-term soil fertility.

The main topics of such workshops and trainings are related to agricultural practices, horticulture, permanent crops, sustainable food systems and advice for the transition towards agroecological practices and permaculture. They adopt a transdisciplinary approach and agroecological issues are embedded in the broader discourse on environmental education. The training sessions can last from a few days to several weeks. Fawwara Centre also acts as a place of contact, helping to connect people with similar research and interests, facilitating the forging of new networks and serving as a breeding ground for new ideas, initiatives and collaborations.

The research interests of their academic staff range from carbon literacy and the management of resources and waste, to development law and policy. The Centre take parts in several European Funding projects concerning Education for Sustainable Development (ESD) and sustainable practices. Food production and consumption are at the centre of CEER research and education initiatives. They aim to promote sustainable relations between people and nature, focusing on the possibility of healthy, clean and safe foods. The Centre is a member of the national network 'Ekoskola' and to international network such as the 'Anna Lindh Foundation'.

WHAT CAN WE LEARN?

CEER is a remarkable example of how different disciplines and approaches to the sustainable use of resources are linked, as well as displaying the benefits of adopting a transdisciplinary approach to sustainability.

KEY FEATURES

- **Type of education and training:** MSc and non-formal education sessions
- **Main topic:** integrated farming systems and socio-economic issues
- **Training duration:** a few days to 2 years (MSc)
- **Type of legal entity:** university
- **Accessible to:** postgraduate student



MOVEMENT



PRACTICE



EDUCATION



LIVING LAB



SCIENCE

INITIATIVE N°2 – BIOME MUNCH


<https://biome-munch.com/home>

BIOME MUNCH

The aim of the registered NGO, **Biome Munch**, is “to provide the community with produce grown with ethical and organic practices, in a way that is both affordable and accessible to the consumer [...] and educate the community on growing their own food, living simply, nutrition, and living sustainably”. They also aim to involve the whole community at different levels, from customers to people that learn and adopt the alternative practices that they promote.

Biome Munch is a recently created, small-scale movement, having started less than two years ago during the COVID-19 lockdown. It is run by two individuals who share tasks related to online communication, community outreach, and farming their land.

The association comes from a pre-existing movement (Get trashed Malta) that was promoting actions to reduce food wastes and increase the consumption of local food. They are currently experimenting with a subscription system akin to a basic Community Supported Agriculture (CSA) scheme, where subscribers can receive a weekly “farm to fork box” scheme with fresh vegetables in 7 or 12 kg boxes. The two founders of the organisation, one of which a registered farmer who runs a small-sized enterprise (less than 3ha), started growing produce on their family’s land in Burmarrad, which had been lying fallow for some time. They turned their attention wholly to growing food in a way that regenerates the land, and seek to follow the principles of a circular economy, both on the farm and with their clients.

Besides having an ecological business, the two also show commitment towards advocating for sustainable practices. Their aim is not just to promote food products, but an environmentally-conscious agricultural within a community of like minded individuals. Clients have the opportunity to visit their farm and harvest their own produce, thus creating a community of consumers that are educated about food systems. Their agricultural land is surrounded by some of the last remaining natural oak woodlands in Malta, rich ecosystems which they care for with their neighbouring farmers, and which they would like to continue to integrate even more consciously with their farming practices in the coming years. They also aim to try new methods and share their knowledge with other commercial farmers, including farmers that are not currently adopting agroecological practices.

Biome Munch’s system integrates arable crops, livestock, horticulture (vegetables, fruits) and permanent crops. The Funding sources of the organisation arrive mainly from the revenues of the farm and from the training activities they organise. In terms of geographical scope and target, Biome Munch is a markedly local entity.

KEY FEATURES

- **Main goal:** increase the availability and accessibility of healthy agricultural products and raise awareness about sustainable living
- **Founded in:** 2020
- **Type of organisation:** informal NGO
- **Farming sectors:** diversified
- **Scale of the organisation:** local

The founders of Biome Munch are not familiar with the term agroecology, but their practices follow its principles closely. The initiative is not part of a formal network although they maintain good relationships with other organisations including The Veg Box (both a commercial and a knowledge- and resource-sharing relationship), MaYA Foundation, and Thrive and other farmers. Their future aims include strengthening their current Community Supported Agriculture scheme.

WHAT CAN WE LEARN?

One of the main lessons that can be learned from Biome Munch's experience is that viable agroecological initiatives can be carried out successfully in relatively small farms. One of the main strengths of this initiative is their ability to communicate through social media.



Picture 1: The co-founders of Biome Munch. Source: <https://biome-munch.com/why-biome-munch/>

POSITIVE IMPACTS



EDUCATION: The initiative has a good capacity to involve people in activities and raise awareness. They also reach a good number of people through social media.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: The initiative relies on this type of commercialisation.

LIMITATIONS & CHALLENGES



COOPERATION: Biome Munch is striving to become a strong movement, however it is still in its initial stages and there are several challenges that they will have to face to upscale their capacity to bring an appreciable impact to their community.



MOVEMENT



PRACTICE



EDUCATION



LIVING LAB



SCIENCE

MaYA
foundation

MALTA YOUTH IN AGRICULTURE

<https://www.maya.org.mt>

INITIATIVE N°3 – MaYA FOUNDATION

MALTA YOUTH IN AGRICULTURE (MaYA FOUNDATION)

The MaYA foundation was established in 2013. Instead of providing a formal membership, MaYA has increased their supporters by collaborating in unique ways. The foundation aims to build “bridges between young farmers, government entities and the general public, and giving agriculture a broader scope”.

It is particularly focused on young farmers as the next generation in the agriculture sector, but also seeks to involve youths working in other industries, at the policymaking and regulatory level, and activists from other sectors. Experiences of different young farmers, and debates or discussion on current issues in the sector are mainly disseminated through social media. MaYA directly lobbies the government to improve conditions and incentives for young farmers.

The foundation also acts as a reference point for young people in the sector (from farmers to activists) by sharing knowledge with researchers and hosting networking opportunities. Moreover, they aim to bring farmers together and connect them closer to consumers. Currently, the foundation is also promoting a rural Corporate Social Responsibility (CSR) scheme in which it identifies suitable producers or projects and links them with local companies willing to invest in the scheme, which also ensures the visibility of the companies that support the CSR scheme.

In particular, MaYA seeks to support farmers to improve the marketing of their produce. They strongly believe that organic produce has the potential to add value and increase the security of farmers’ livelihoods. However, MaYA is not directly focused on agroecological producers. Instead, MaYA aims to highlight the inherent sustainability of Maltese agriculture, which it distinguishes from forms of intensive agriculture practiced abroad. The organisation aims to bridge the world of conventional farming with environmentalism and agroecological approaches, including organic farming and permaculture, highlighting the commonalities rather than the divergences. Although the term and concept of agroecology is not used by the organisation, MaYA agrees with the principles of agroecology and actively argues in favour of environmentally-conscious and small-scale family farming.

MaYA works with the Maltese Movement of Organic Agriculture (MOAM) and another farmer-advocacy NGO, Għaqda Bdiwa Attivi (Active Farmers Association), as well as with a good number of environmental NGOs, such as Friends of the Earth Malta and Movement Graffiti. The foundation works in different areas of the agricultural sector and acts at the national level.

KEY FEATURES

- **Main goal:** building bridges between young farmers, government entities and the general public
- **Founded in:** 2013
- **Type of organisation:** foundation
- **Farming sectors:** arable crops, livestock, horticulture (vegetables/fruits) and permanent crops (fruit trees)
- **Scale of the organisation:** national



Picture 2: The founder of MaYa foundation. Source: <https://jeanetteborg.com/2018/04/01/maya-is-4/>

WHAT CAN WE LEARN?

An interesting characteristic of MaYa's work is "The Rural Corporate Social Responsibility (CSR)" programme promoted by MaYa in collaboration with the Merill Rural Network. This program aims to foster private investment to support agricultural activities. Another specificity of MaYA is its status - it is a foundation and as such, gathers a wide range of supporters who are not necessarily obtaining direct benefits from the affiliation, as is the case in other organisations.

POSITIVE IMPACTS



SOCIETY AND EQUITY: MaYa represents young farmers, a category that has many challenges to face, including the small average farm size on the island and the international competition in agro-food products. MaYa is supporting the acknowledgement of young farmers rights and priorities among decision makers.

LIMITATIONS & CHALLENGES



COOPERATION: Despite working with youths, MaYA sometimes has to deal with a suspicion of representative institutions that are normally associated with older farmers.



MOVEMENT



PRACTICE



EDUCATION



LIVING LAB



SCIENCE

INITIATIVE N°4 – MOAM MALTA


<http://moammalta.com>

MALTESE MOVEMENT OF ORGANIC AGRICULTURE

The Malta Organic Agriculture Movement (MOAM)

NGO was founded in 1999 with the primary goal “to endorse any initiatives on a national scale in-favour of the use of natural products to grow crops without any chemical residues”. It encourages organic farmers to gain the skills required to deal with the ever-changing challenges of agriculture and supports new converts. Its members range from organic farmers to concerned consumers.

MOAM interfaces with government authorities, distributes information regarding natural pesticides and fertilisers to farmers, holds talks about organic practices, advocates for the banning of harmful pesticides, and participates in decisions taken by the International Federation of Organic Agriculture Movements (IFOAM).

KEY FEATURES

- **Main goal:** development of organic agriculture
- **Founded in:** 1999
- **Type of organisation:** NGO
- **Farming sectors:** arable crops, permanent crops, vegetables, small livestock
- **Scale of the organisation:** national

The NGO aims to show that organic farming has fewer hidden costs than conventional farming by quantifying these hidden costs and by highlighting the fairness of farming organically, both for land and farmer. It also demonstrates the effects conventional farming has on insects and other elements of biodiversity, highlighting the negative effects on food production in the long-term and encourages farmers to work with their natural ecosystems, for their own benefit.

MOAM encourages small, mixed farming and agroforestry systems, such as olive groves where chickens roam freely depositing manure as fertiliser and consuming the fruit flies that plague the olive fruit, as well as by growing cover crops around the trees. Most of MOAM’s farmers implement basic organic practices such as using compost and manure as fertilisers, companion planting, and to a less extent other practices, such as seed-saving, no-till and mulching. Yet, there is still a tendency to use (organically approved) pesticides, as well as a reduced understanding of the importance of biodiversity and of the practices that increase it. However, the organic farmers interviewed believed that they use less pesticides than their counterparts abroad, and do not grow on an industrial scale in monocultures.

MOAM has also collaborated with the university, for example by publishing a leaflet targeted at organic farmers that contained recipes for pesticides and fertilisers made out of wild plants and weeds. A member of MOAM has also given lectures at the Malta College of Arts, Science and Technology (MCAST).

One of MOAM’s current projects is being implemented at a school for children with special needs in Wardija, which will have the first certified organic school grounds in Malta. The children are involved in basic tasks such as sowing food crops and indigenous trees.

MOAM's members are involved in different types of agricultural systems, as well as those that integrate arable and permanent crops, vegetables, and small livestock in diversified systems. The NGO acts at the national level and aims to reach a national audience of both farmers and consumers. MOAM is also advocating for more affordable organic products, which they believe will temper the perception of organic food as an exclusive and elite product.

MOAM does not normally use the term agroecology in its advocacy, since it is not a term widely used by Maltese organic farmers.

Key informant 4 (MLT-KI-4, Table 1) stated that MOAM had a good relationship with the organic agriculture board in the directorate of agriculture, but that never the less the organic sector is not well represented in government policies. Organic farmers also suffer from certain bureaucratic limitations that have hindered the sector as a whole.

WHAT CAN WE LEARN?

The MOAM is grounded on the direct involvement of a few very active members, including some of the movements founders. An interesting characteristic of MOAM is its capacity to bridge the gaps between relevant institutions and small-scale farmers.

POSITIVE IMPACTS



TRADITIONAL FOOD AND HERITAGE CONSERVATION: The Movement represents the interests of Maltese organic farmers in meetings with government authorities, and provides informative sessions hosted by experienced organic farmers that are open to both farmers and consumers.

LIMITATIONS & CHALLENGES



SOCIETY AND EQUITY: MOAM is facing the challenge of a declining number of organic farmers in Malta. A significant limitation, similar to that experienced by MaYA Foundation, relates to farmers' apathy and suspicion with regards to collective representation, a reality that is equally true of organic farmers.



GOVERNANCE: Traditional (conventional) farmers are still sceptical of agroecological solutions. Rising costs, importation and a flawed market system are pushing farmers out of their land at the expense of ecology and resilience. This is making the dissemination of agroecological principles among conventional farmers, with the aim of converting them to organic, very difficult, and the organisation has often found that its arguments are met with scepticism. Fragmentation is also found between NGOs within the environmental and agricultural sectors.



MOVEMENT



PRACTICE



EDUCATION



LIVING LAB



SCIENCE


<https://thevegbox.com.mt>

INITIATIVE N°5 – THE VEG BOX

THE VEG BOX

The Veg Box is a limited company, started in 2019, although its roots go back as early as 2012 when the current manager took over a small garden and started selling small amounts of surplus produce. It is located in Manikata, in the North-western part of Malta, in a site where other economic activities are carried out, including crafts, woodworking, welding, a farmer run shop, rural tourism and workshops.

The Veg Box produce comes from many local, rural producers, four of whom supply most of its needs, and a few other part-time producers. The products on sale range from fresh vegetables to fresh fruit, honey, and some animal products such as traditional Maltese goat or sheep cheese. Thus far, no contractual links (such as CSAs) are established with consumers. The Veg Box acts at the local level and exclusively supports Maltese farmers with organic certification. The small shop associated with the Veg Box is a social space for exchanges about food from producer to consumer. The farmers and practitioners who are part of the Veg Box community also share ideas and frequently visit each other's farms to observe and learn from one another.

The main aim of the Veg Box is to add value to a farmer's work, in order for them to receive a better price. All prices are created verbally by the farmer and Veg Box, and often prices remain stable throughout the season to ensure that the farmer is fairly remunerated. Even if the Veg Box does not conceive itself as an agroecological organisation, the shop owner identified a few different principles of agroecology that they are following. The main source of revenue for Veg Box is the sale of vegetables, fruits, nuts, herbs and other products. They recently received some funding from the EU under the EIT Climate-KIC, a Knowledge and Innovation Community working to accelerate the transition to a zero-carbon, climate-resilient society. The Veg Box collaborates informally with Friends of the Earth Malta and MaYa Foundation.

WHAT CAN WE LEARN?

The Veg Box represent an important actor for the organic sectors and despite its small scale, it plays a key role in linking producers and consumers. Important to be mentioned is that in a context like Malta (characterised by a very high percentage of urban population and very small average farm size) even very small farms can provide reasonable incomes.

POSITIVE IMPACTS



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: The Veg Box guarantees an added value to its producers by offering a stable commercial outlet for their produce where fair prices are guaranteed for their produce.

LIMITATIONS & CHALLENGES



GOVERNANCE: The demand for the produce in the shop is lower than the supply it can deliver, a situation which is being addressed by increasing marketing strategies, as well as searching for other avenues to sell their products, such as supermarkets or a new shop.



SCIENCE



EDUCATION



LIVING LAB



PRACTICE



MOVEMENT

INITIATIVE N°6 – MCAST



<https://www.mcast.edu.mt/institute-of-applied-sciences-2/>

MALTA COLLEGE OF ARTS, SCIENCE AND TECHNOLOGY (MCAST). INSTITUTE OF APPLIED SCIENCES

The Malta College of Arts, Science and Technology (MCAST) was established in 2001. The Institute of Applied Sciences of MCAST is one of six institutes with a research focus on environmental science, food science, chemical technology, health science, and applied science. MCAST is also considered the country's leading vocational education and training institution.

MCAST collaborated with several organisations at the European level such as the Joint Research Centre of the European Commission, but also with national institutions and local NGOs. They receive funding from the European Union, through programs such as H2020 and from various national funds. The core research team consists of around 10 people who work with different stakeholders, such as scientists, farmers, bee-keepers, policy-makers, citizens, and environmental organisations. Their data is collected mainly at the national level but also at the Mediterranean scale.

MCAST's research team works on many fields of applied sciences, and agroecology is one of the topics covered. Their research on agroecology aims at collecting, analysing and assessing data, and to provide information to policy makers. Their main research on the farming sector is focussed on arable crops, horticulture, permanent crops, beekeeping, and agro environmental issues. Some of the specific topics found are floral resources pollen availability, the competition between honey bees and wild bees, and species distribution; ecosystem services assessment for agricultural areas; improved pest management strategies for orchards and farms using the biocontrol; spatio-temporal modelling of biodiversity and ecosystem services; and nature-based solutions to societal challenges including climate change.

KEY FEATURES

- **Main topics:** agroecological practices, arable crops, horticulture, beekeeping, agroenvironmental issues
- **Leading organisation:** Malta College of Arts, Science and Technology (MCAST). Institute of Applied Sciences
- **Founded in:** 2001
- **Funded by:** Ministry of Education, European Funds, National Funds
- **Type of actors involved:** scientists, farmers, advisors, farmers cooperatives, chambers of agriculture, farmers organisations, citizens, public authorities

WHAT CAN WE LEARN?

The Institute of Applied Science produces research which has relevance also beyond Maltian borders. It is a very interesting "laboratory" for research in agriculture and ecosystem functioning.

5. CONCLUSION AND FUTURE PERSPECTIVE

Agroecology in Malta is a relatively unknown concept and awareness is limited. Despite the contrasting trends concerning the agricultural sector (e.g. increase in the number of labourers, decrease in the number of agricultural holdings, stagnation of investments in the sector, high competition from imported products) most key stakeholders see the sector as promising. Yet, there are some important bottlenecks that need to be removed in order to seize fully the opportunities offered by an agroecological approach. In the first place, the level of awareness of producers and potential buyers of agroecological practices are still insufficient. When it comes to organic agriculture, certification fees and competition from imported organic products represent serious barriers for smallholders, which is continuing to jeopardising the development of organic agriculture in the country. Some legislation gaps hinder the growth of small enterprises in the agricultural sector (and elsewhere). For instance, there is no recognition of a “social enterprise status” with reduced taxes.

Different initiatives and movement related to agroecology can be found, which indicate a sign of dynamism in the sector. Most advocacy is for fairer and healthier food systems. It is interesting to see that movements usually act as aggregators for different type of stakeholders (such as farmers, activist, micro-entrepreneurs, consumers, etc.).

Research institutions, in particular the Institute of Applied Science, conduct valuable research and provide evidence to decision-makers. However, this evidence is rarely, or very slowly, translated into real policy change.

Although academic education opportunities on agroecology exist in Malta, it appears that informal training, especially those addressed to farmers, are lacking despite the interest of farmers.

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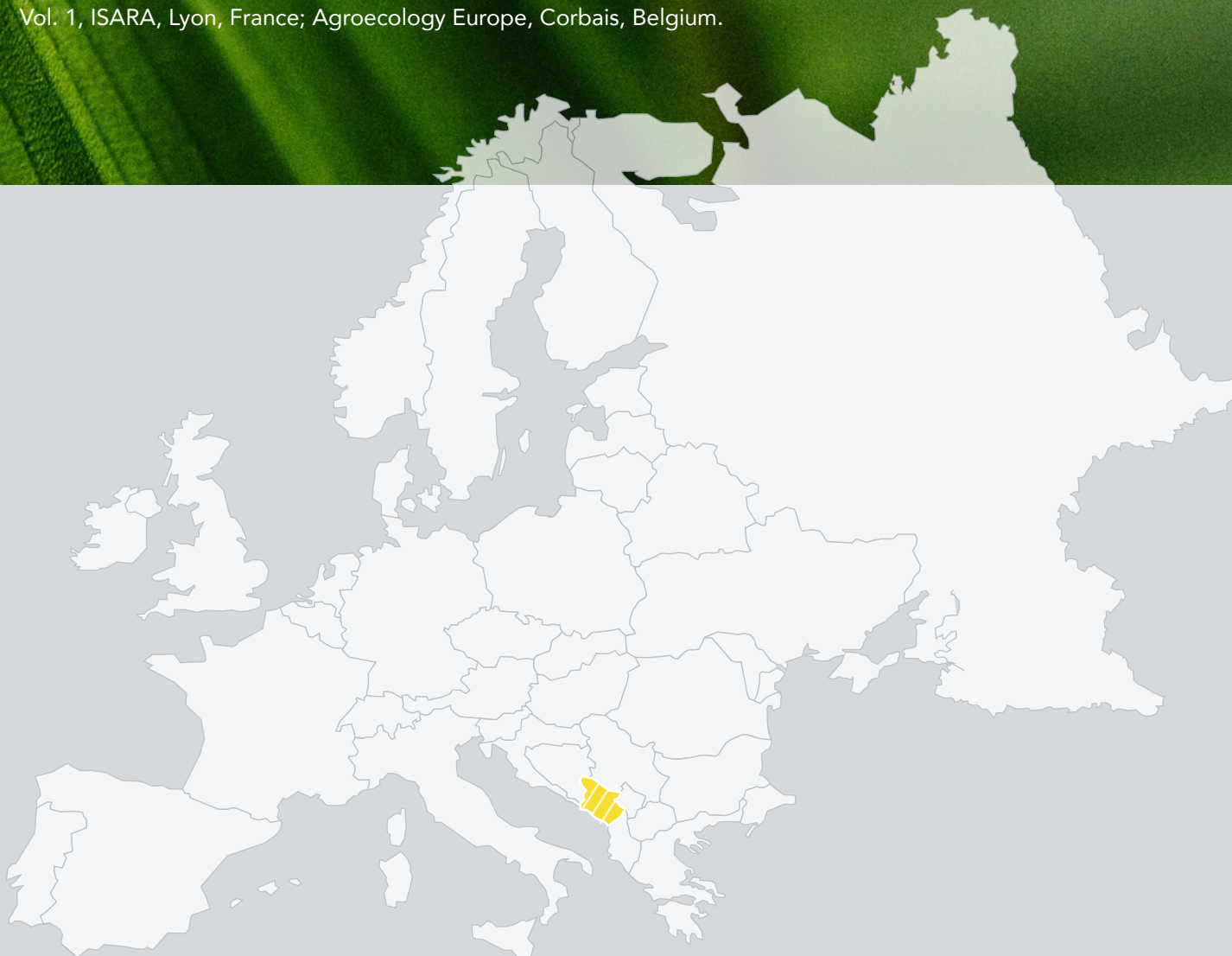
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MAPPING AGROECOLOGY IN MONTENEGRO

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MONTENEGRO

EXECUTIVE SUMMARY

This report aims to provide an overall picture of agroecology in Montenegro and to map different agroecology related initiatives. The situation of agroecology is analysed through the country's specific background. The development of agroecology in Montenegro is reviewed through key activity categories, each of them reflecting specific usage areas and the implementation of agroecology. After an initial overview of the agricultural situation and state of knowledge about agroecology, the report will provide the outcome of interviews conducted with selected key informants, aiming to obtain closer insight into agroecology-related initiatives through practical examples and cases. The most significant initiatives were further analysed through the different activity categories: one in regards to social movements, two on practice and finally, one science related initiative.

Although Montenegro only occupies a tiny area of the European continent, it harbours a large diversity of pedo-climatic and ecological conditions which are home to a variety of cultivated plants and livestock breed. Further, large scale or more intensive agriculture is limited by the fragmentation of arable land into small farms which are predominantly used for private consumption. This land structure opens the possibility for small scale organic farming, which has been able to achieve interesting increases although it still only accounts for about 2% of the total utilised arable land.

The term agroecology is rarely mentioned in Montenegro, where literature covering the concept and approaches is still limited. Consequently, the initiatives and movements containing approaches and principles link to agroecology mainly appear as a part of other practices and movements which are more closely related to organic farming or 'sustainable agriculture'. In addition, education and training on agroecology is still not very developed in Montenegro. Although these practices are increasing in number and in areas applied, they are still not present on a large scale. Even the scientific developments occurring in relation to agroecology are not usually using the term, although most of the focus seems to be on the preservation of traditional products and microbiological food safety. This report highlights in its conclusions the most important trends and future perspectives for development of agroecology in Montenegro.

MONTENEGRO

EXECUTIVE SUMMARY (IN MONTENEGRIN)

Ovaj izvještaj ima za cilj da pruži pregled cjelokupne situacije agroekologije u Crnoj Gori i da mapira različite inicijative vezane za agroekologiju. Trenutna situacija agroekologije u Crnoj Gori analizira se kroz kontekst zemlje i cijele pozadine razvoja. Stepenn razvoja agroekologije u Crnoj Gori sagledan je kroz pregled ključnih oblasti, od kojih svaki odražava specifičnu upotrebu i implementaciju agroekologije. U prvom dijelu rada nalazi se pregled situacije razvoja poljoprivrede i znanja o agroekologiji, dok se u drugom dijelu izvještaja nalaze rezultati intervjuova obavljenih sa odabranim ključnim informatorima, sa ciljem da se kroz praktične primjere stekne bolji uvid u inicijative vezane za agroekologiju. Dalje su analizirane, odnosno opisane najznačajnije inicijative za različite oblasti: dvije inicijative iz oblasti sa praksom, jedna inicijativa iz oblasti pokreta i jedna inicijativa iz oblasti nauke.










Crna Gora, iako zauzima malu teritoriju evropskog kontinenta, ima veliku raznolikost pedoklimatskih i ekoloških uslova koji pružaju stanište različitim uzgajanim vrstama biljaka i životinja. Poljoprivreda velikih razmjera, odnosno intenzivna poljoprivreda ograničena je fragmentacijom obradivog zemljišta u malim farmama koje pretežno uzgajaju i koriste proizvode za privatnu potrošnju. Sa druge strane, ova struktura zemljišta otvara mogućnost za organsku poljoprivredu malih razmjera, koja bilježi rastući trend, ali i dalje iznosi samo oko 2% ukupnog obradivog zemljišta.

Kada je u pitanju termin "agroekologija", ono se još uvijek rijetko spominje u Crnoj Gori i postoji ograničena literatura koja pokriva koncept i pristupe. Shodno tome, inicijative i pokreti koji sadrže agroekološke pristupe i principe uglavnom se pojavljuju kao dio prakse i pokreta koja su više povezani sa organskom poljoprivredom na lokalnom nivou ili takozvanom "održivom poljoprivredom". Agroekološko obrazovanje, edukacija i treninzi u Crnoj Gori još uvijek nijesu razvijeni na zadovoljavajućem nivou. Agroekološke prakse u Crnoj Gori, iako se broj inicijativa povećava, još uvijek nijesu prisutne u velikom obimu. Naučni razvoj vezan za agroekologiju još uvijek ne prepoznaje ovaj termin. Međutim, oni koji se mogu pomenuti odnose se na istraživanja očuvanja tradicionalnih proizvoda i ispitivanje mikrobiološke bezbjednosti hrane. U dijelu zaključka, ovaj izvještaj ističe najvažnije trendove i buduće perspektive razvoja agroekologije u Crnoj Gori.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Montenegro are summarised in Table 1.

Table 1: List of key informants in Montenegro.

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED
1	Private sector, farmer	Livestock management, organic production, mixed farming systems	
2	NGO	Permaculture	 
3	Private sector, farmer	Livestock management, organic production	
4	Research – University	Food sovereignty	 
5	Farmer – farmers organisation	Livestock	 
6	Private sector, farmer	Organic production, crop selection	

2. CONTEXT

Montenegro is a country characterised by a large diversity of pedo-climatic and ecological conditions. Within its borders, it harbours an ample variety of cultivated plant species and livestock breeds. The most important genetic resources for food and agriculture are mostly preserved (Marijana et al., 2013). An important moment in the history of Montenegro was when it adopted the Declaration on the Ecological State in 1991, which made Montenegro the first ecological state in the world¹⁸². This proclamation is vital because it led to the adoption of various laws that preserve nature and its resources, leading to a more sustainable society.

Every region of Montenegro encompasses its own distinct types of agricultural land uses. In the northern region, most of the population is engaged in agriculture, primarily raising cattle almost year-round within pasture. Historically, many developments came out of the northern regions, including special irrigation techniques, tillage systems, natural fertilisers, and special crop management. Crop management was often linked to plant selection and the adaptation of particular species of fruit or vegetables to their local conditions. In the central and southern regions, on the other hand, agriculture is less represented due to the less favourable climatic conditions, making it more densely populated, with a majority of the population living in cities. Consequently, these regions focus on urban gardening, permaculture and the production of small-scale organic food. Nevertheless, agroforestry is practiced in all of Montenegro, especially in the northern part.

¹⁸² <http://www.me/index.php/en/geography/nature/item/249-nature>

Although some principles of agroecology can be found within Montenegro, the term agroecology is not common within the region and is never mentioned within literature or agricultural internet sources. The term has appeared only recently, and not much is being done to promote this term or its practice. The main agroecological practices being implemented under organic farming, permaculture and sustainable agriculture are crop rotations, fertilisers from animal origins or compost, regionally adapted crops, local animal breeds, combined planting, reduced tillage, and mixed farming systems (Seremesic et al., 2021).

Montenegro has a similar agricultural history to the other states of former Socialist Federal Republic of Yugoslavia (Seremesic et al., 2021). After the Second World War, a collectivisation model started to dominate agriculture and small-scale, unmechanised family farms had to make place for larger scale mechanised farms with the assumption that this would create more efficient food production. From the 1950s, land reforms gradually allowed voluntary co-operation between private farmers and the socialist sector (Hoffman 1961 cited in Seremesic et al. 2021) which continued, with minor changes, until the 1990s. After Yugoslavia was dissolved, the private sector increasingly gained dominance in agricultural production systems, and family farming or smaller, private agricultural farm operations returned.

Agroecology in Montenegro is primarily found within organic agriculture, which has been increasingly developing in the last ten years and represents 1.9 % of the total agricultural land use (Seremesic et al., 2021). Currently, Montenegro provides free organic certification that encourages the development of organic production, but the results are yet to show success thus far (Seremesic et al., 2021). A list of registered organic producers, as well as those in the process of certification, can be found on the "Monteorganica" website¹⁸³.

The majority of farmland producing certified organic products is found in the northern region of the country due to its natural predispositions to high biodiversity, although recently organic management has been found increasingly in the central and southern regions as well, which primarily cultivate mediterranean crops like olives or grapes. Farmers that cultivate organic crops usually also have a part of land devoted to conventional agriculture which allows them to diversify risk since organic products are costlier to produce and in lower demand on the domestic market³.

Although the climatic, ecological and soil conditions for the cultivation of continental and mediterranean fruit species in Montenegro are highly favorable, these assets are not sufficiently used (MNE-KI-5, Table 1). This is due to the inability of farmer to sufficiently finance high cost investments on their own, as well as the risk of caring for young fruit trees without the possibility of return or earnings for two to six years, depending on the species (MNE-KI-2 & MNE-KI-5, Table 1).

The Ministry of Agriculture and Rural Development regularly supports and announces funds related to organic agriculture which in this regard, also indirectly supports the development of agroecology in Montenegro. In addition to this national budget, instrumental support is also provided by the EU Pre-accession Support for Rural Development (IPARD), World Bank Credit (MIDAS), and IFAD funds (Seremesic et al., 2021). These funds support organic food production and agroforestry, as well as additionally financing the purchase of technology that will improve soil management through better tillage systems. Further, a large number of policies such as the Agriculture and Rural Development Strategy 2014-2020 aim to establish different measures related to environmental protection, support for organic agriculture, conservation of indigenous genetic resources in agriculture, sustainable use of mountain pastures, support for manure management and agroforestry.

¹⁸³ <https://orgcg.org/pregled-proizvodjaca-organske-poljoprivrede>

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



After establishing independence, Montenegro transformed their education system and established the Biotechnical Faculty at the University of Montenegro in 2008 and in 2012 the Faculty for Food Technology, Food Safety and Ecology at the University of Donja Gorica (UDG) (Seremesic et al., 2021). These curriculums offer many courses related to organic farming, sustainable agriculture, as well as practices of agroecology. Nevertheless, education and training of agroecology in Montenegro is not currently very developed. Thus far, agroecology related education and training in Montenegro is organised primarily by non-governmental organisations such as SELJAK.ME and Paradigma who maintain education and training as a secondary goal in their mission statements. The number of agroecology initiatives, which could be used to develop training, seems to limit their development. Further, various organisations provide education and training for farmers, mostly free of charge. For example, the Seljak.me initiative, which organises educational trainings for farmers related primarily to agroforestry and organic farming, but also on the type of tillage systems best suited to different types of soil. Similarly, Paradigma provides most education and training on permaculture and on the principles of organic production, as well as on home gardening, urban gardening, and agroforestry.

3.2. LIVING LAB



Currently, there are no initiatives in Montenegro that are identified as living labs. To the author's knowledge, there is currently no clear entity that is being used as an incubator for the development and networking of knowledge, technology, and science for either the private or public sector who would work together towards a common goal. However, certain initiatives such as "FoodHub - Centre of Excellence" at the University of Donja Gorica (UDG) have the potential to become such living labs by connecting farmers, public, and private actors to provide resources to develop agroecology in Montenegro through innovative solutions and agroecology related research.

3.3. MOVEMENT



Considering the small size of Montenegro, there are a respectable number of NGOs and movements operating in the field of rural development that could relate to agroecology, although they may not explicitly refer to this concept. These entities are primarily actively involved in environmental protection, the promotion of cultural and historical heritage, education and solving various social problems (Seremesic et al., 2021). For instance, Paradigma NGO focuses on permaculture and urban gardens by offering many educational programmes related to agriculture and ecology. Another example is the NGO "Sjeverna Zemlja" (Northern Country) which is leading a regional scale movement in the northern part of Montenegro. Their main goals are the improvement and development of ecology and environmental protection, as well as training in agriculture, organic food production, and rural development. They are also work on promoting and developing education, culture, and tourism. Lastly, "Udružena seoska domaćinstva Crne Gore" (United rural households of Montenegro) aims to promote rural development and environmentalism, connecting Montenegrin farmers towards a common goal - the development of agriculture in Montenegro.

An increasing number of movements, founded mainly by young people, are aiming to transform the agricultural system by using resources sustainably as well creating easier and more frequent avenues to access funding and institutional support. While competitions for young farmers to access these funds are available with various NGOs, few projects are supported or adopted (MNE-KI-2, Table 1).

3.4. PRACTICE



Agroecological practices in Montenegro, although increasing in number and areas applied, are still not present on the large scale, neither in an organised nor coordinated way. Most agroecological practices in fact, appear as isolated initiatives developed by young or highly educated individuals with degrees in agriculture or ecology. These individuals are the forerunners in implementing sustainable and organic models in agriculture and act as ambassadors for the promotion of such practices among other, less informed farmers and consumers (MNE-KI-1 & MNE-KI-3, Table 1).

As mentioned above, the approaches of agroecology found in Montenegro are those relating to crop rotation, fertilisers of animal origin, compost, locally adapted crops and animal breeds, combined planting, reduced tillage, mixed farming systems (Seremesic et al., 2021), and recycling of nutrients and biomass. For instance, one initiatives called 'Farma Magaraca Martinići' uses fertilisers of animal origin and develops mixed farming systems with the integration of crops and livestock on farms. The initiative "Seljak.me" also promotes mixed farming systems where local farmers apply integrated farming methods and sell their products on an online platform. The use of organic fertilisation is widespread due to the country's traditional legacy in agriculture. Moreover, farms are increasingly practicing composting and implementing more efficient waste management systems.

Sustainable agriculture in Montenegro is directly contributing to the increasing biodiversity on agricultural land with food production in Montenegro still dominated by small-scale production. Thus, sustainable production relies on regional and national genetic resources, and cereal production, for example, is strongly based on the use of these resources (Seremesic et al., 2021).

3.5. SCIENCE



The scientific community in Montenegro is not using the term agroecology in its current studies and developments. Scientists, at the time of writing, seem to be focusing on topics such as the preservation of traditional products, microbiological food safety, food sovereignty, and by connecting scientific institutions and farmers.

The "FoodHub-Centre of Excellence" at the University of Donja Gorica is the most prominent example for this topic, with a mission to create innovations in the food sector through research, knowledge transfer, the development and improvement of autochthonous and traditional food and agricultural products, and resource use. This centre uses laboratories and technologies that focus on research in food microbiology and safety in every step of the food production process, from seeds to consumer's food.

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 2: An overview about initiatives, cases and examples described and analysed.















INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Paradigma	National	NGO	Promoting permaculture and organic food supply.					
2	Seljak.me	National	Farm network – farmers organisation	For farmers to cooperate at the national level. Education and support for farmers.					
3	Farma Magaraca - Martinići	National	Farm	Increase organic production. Promote rural tourism and save endangered animals.					
4	FoodHub - Centre of excellence	National	Science and research infrastructure	Research and promotion of food sovereignty, as well as the valorisation of traditional products.					

Table 3: Additional initiatives, cases and examples in the country - not included in this report.

INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
				EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
United rural households of Montenegro	National	NGO	Gathering and organising agritourism.					
Regional Development Agency	Regional	Local business	Developing cooperation among stakeholders and facilitating EU funding and networking.					
North Land	Regional	NGO	Nature protection and environmental improvement. Support of agricultural and sustainable development in Montenegro.					



MOVEMENT



EDUCATION



PRACTICE



LIVING LAB



SCIENCE

INITIATIVE N°1 – PARADIGMA



<https://paradigmango.me>
Facebook/Instagram: @paradigmango

PARADIGMA INITIATIVE “NOVA MOBA”

The NGO "Paradigma" started its operation in 2018 in Podgorica, the capital of Montenegro. Initially, the organisation was oriented to developing rural tourism via "Meanderbug", a platform for such development in Montenegro. As time passed, their mission grew to support local communities and the small-scale production of food. Today, they focus on production of organic food and ecological, environmental protection and agricultural education. They provide training on how to plant seedlings, compost, irrigate, and on other related topics. Workshops are held for citizens, kindergartens, primary and secondary schools. In addition to the employed members of the organisation, young people and other citizens regularly volunteer in the greenhouses that create their food products. This initiative supports the principles of agroecology link to soil health, biodiversity and recycling by using renewable resources and cycles of nutrients and biomass.

KEY FEATURES

- **Main goal:** promotion of permaculture and urban gardening
- **Founded in:** 2018
- **Type of organisation:** formal NGO
- **Scale of the organisation:** national

Since 2018, they have implemented a number of projects that support rural tourism (an important industry for the county) via the promotion of Montenegrin tradition, small-scale agriculture, environmental protection, and the production of organic food.

The COVID crisis has huge impacts on agricultural producers and those engaged in rural tourism, therefore the NGO has provided seedlings and seeds for farmers to keep them engaged in agriculture. They also donate part of their products to humanitarian organisations, such as local soup kitchens.

Since 2020 the 'Nova moba' initiative was launched to support small-scale organic food production. Moba is a term that is very popular in Montenegrin tradition and which has been used throughout history in rural areas to describe neighbours helping each other with farm work, without expecting anything in return. The initiative combines three distinct parts: humanitarian support, "instant garden", and the development of a mobile application that aims to provide a connection between gardeners and other members of their community looking for donated goods. Their approach consists on recycling large bins that were previously used for other purposes, in people's houses and in urban gardens. These so-called 'green towers' are filled with soil and selfmade compost that can be used to cultivate vegetables and fruits (an idea originally from the USA). The NGO donates these compost bins primarily to vulnerable low-income families and single parents, as well as children and individuals with disabilities. 'Nova Moba' also donates greenhouses all around the country to help establish new urban gardens. All funds for the development of the project are supported by the US Embassy in Montenegro.



Picture 1: Example of Green Towers.
Source: Private gallery of an interviewee.



Picture 2: Members of the initiative Nova Moba.
Source: Private gallery of an interviewee.

WHAT CAN WE LEARN?

The elements link to agroecology in this initiative are primarily the production of organic food and compost. An important aspect of Paradigma NGO is their aim to contribute to both practice and education. The initiative is highly recognised in Montenegro by the general public both for their widespread reach and because the greenhouses built in various cities throughout Montenegro provide food for the residents of the most vulnerable groups, and thus address the serious issues of hunger and malnutrition.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

The initiative supports the small-scale production of organic food all over the country. Various fruits, vegetables and other plants are planted in different urban gardens in the capital city, which contribute to biodiversity and resource management. They also produce high quality compost.



ENERGY AND WASTE MANAGEMENT: Reduction and recycling of food waste.



SOCIETY AND EQUITY: The primary users of 'green towers' are vulnerable groups of citizens with limited access to food.



EDUCATION: 'Paradigma' offers a wide range of education, both for young people in primary and secondary schools, and all citizens who are interested in learning more about agriculture, planting, and composting. They also raise awareness on environmental protection and agriculture, as well as agroecology.



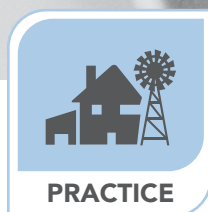
TRADITIONAL FOOD AND HERITAGE CONSERVATION: The initiative 'Paradigma' has the goal to engage people in organic production within green houses and to transmit traditional Montenegrin values to future generations.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE:

The organisation is currently financially reliant on the US Embassy in Montenegro. The NGO must find other funding sources to carry out different actions and make the NGO economically viable.



PRACTICE



EDUCATION



LIVING LAB



SCIENCE



MOVEMENT

INITIATIVE N°2 – SELJAK.ME


seljak.me

<https://seljak.me>
Facebook/Instagram: @seljak.me

SELJAK.ME

Seljak.me is an agricultural corporation founded in Podgorica operating as an online platform that aims to promote local products and improve agriculture in Montenegro. The principles of agroecology found in this initiative are the promotion and support of local small-scale production, the support they lend local farms and to the successful cooperation between different regions of Montenegro, and to the co-creation of knowledge.

There are three major parts of the platform:

- i) selling the products of farmers and supporting local and small-scale production,
- ii) connecting farmers, and
- iii) education.

The platform offers not only food (produce and animal products) but also services (for example tillage services) for farmers such as animal feed, biofertiliser, and mechanisation tools needed in agriculture and various consultant services.

The online tool also harbours a solid and wide database of farmers in Montenegro, enabling farmers to cooperate with one another. It is important to mention that advertising products from rural households on the platform is free.

In regards to education, Seljak.me organises various seminars for farmers on how to run their business, organic fertilisation, crop choices and improved tillage.

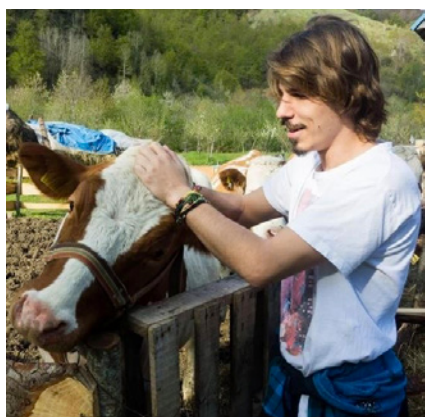
This initiative currently has three full-time employees and eight to ten people part-time associates. The organisation receives funds to support their projects from the Ministry of Agriculture of Montenegro and from other international donors.

WHAT CAN WE LEARN?

This is a unique platform fulfilling a need in Montenegro: it allows farmers to connect with one another and sell their products online. The products sold through the organisation are from local rural households and are high quality, some of which are even certified organic, which provides added value.

KEY FEATURES

- **Agroecological practices concerned:** organic production, reduction of tillage, digital technology for sustainability
- **Founded in:** 2017
- **Farming sector concerned:** livestock
- **Lead organisation:** Seljak.me
- **Scale of the organisation:** national



Picture 3: Founder of the initiative Seljak.me - Marko Maraš. Source: <https://serbiantimes.info/prvi-digitalni-seljak-u-crnoj-gori-gradski-momak-postao-je-seljak-me>

POSITIVE IMPACTS



COOPERATION: This initiative connects agricultural producers in Montenegro which creates an exchange of knowledge and experience. They also provide an exchange of products.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Successful promotion of local products via short market chains.



EDUCATION: Ongoing seminars that advise agricultural producers on organic farming and organic fertilisation. They also provide consulting services.

LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR ECONOMICS: The initiative's intention is to promote agriculture in Montenegro yet all of the funding that sustains this initiative is from personal income and investment. Other funds are needed for further expansion and actions.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: The products that are promoted on this website are not in high demand and only a low number of consumers buy them. Further, the products are from small-scale production which is often more costly to produce and thus sold at higher prices.



PRACTICE



EDUCATION



LIVING LAB



SCIENCE



MOVEMENT

INITIATIVE N°3 – FARMA MAGARACA - MARTINIĆI



Facebook: @farmamagaracacg

FARMA MAGARACA - MARTINIĆI

Farma Magaraca Martinici is a mixed crop-livestock farm founded in 2015 with a special focus on donkeys. It is situated in the Danilovgrad municipality, about 17 km north-east from the capital of Podgorica.

The principal goal of the farm since its foundation is to care for and protect donkeys from extinction in Montenegro. Moreover, different crops (such as grapes and other fruits) are cultivated and grasslands is managed for livestock feed. The majority of income from the farm comes from selling donkey milk to a local market and from rural tourism. The farm is also involved in various social and educational activities, as well as the promotion of Montenegro as a tourist destination.

Currently, the Martinici farm is the only one of its kind in the country. They provide shelter for 40 donkeys, which are traditional animals in Montenegro, who have been formerly abandoned and later bought again. On their farm, they are able to walk freely and without heavy loads.

The Martinici farm is built around the concept of self-sufficiency, where the landowner and family members practice environmentally-friendly activities in its maintenance and production cycles. The donkeys are fed with grass or hay gathered from their own farm and surrounding farms in the Martinici region. Furthermore, tours tickets are paid for through food, for example 1 kg of carrots or apples, which are used for donkey feed. Donkey droppings are also composted and used for the fertilisation of grapes on the farm that later are turned into organic wine and rakija (local spirit). Almost all materials used for any constructions on the farm come from repurposed materials and maintenance materials are later recycled.

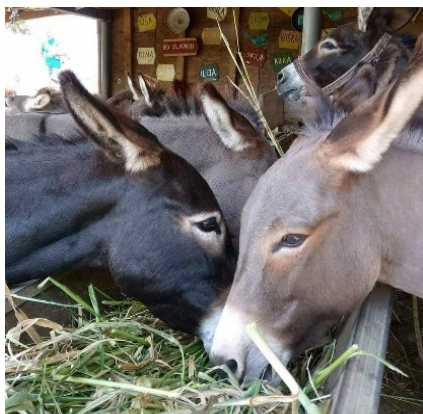
The main principles of agroecology implemented on the farm are the recycling of nutrients and biomass, and the use of fertilisers of animal origin to develop mixed farming livestock systems. This also includes agroforestry systems with various fruit trees.

The farm also possesses accommodation capacities and is successfully engaged in rural tourism. It is one of the most popular tourist destinations in the Danilovgrad municipality, and in the whole of Montenegro. The tourists are often involved in shared labour practices such as feeding and milking the donkeys, and crop cultivation on the property.

Apart from agricultural production, the farm conducts educational campaigns and workshops that are organised on a weekly basis, mainly at the farm itself. During the work week, tours are organised for kindergarteners to visit the farm to learn about life in the countryside and environmental protection. Further, the farm is helping to build environmental awareness by investing 5% of the profits from the milk they sell to reforest various areas in Montenegro. The farm is very active on social media networks, with all events and campaigns supported by more than 20,000 followers on Facebook.

KEY FEATURES

- **Agroecological practices concerned:** use of fertilisers of animal origin, recycling of nutrients and biomass
- **Founded in:** 2015
- **Farming sectors concerned:** livestock management, agroforestry, mixed farming systems
- **Leading organisation:** Farma Magaraca - Martinici
- **Scale of the initiative:** national



Picture 4: Founder of the initiative Farma Magaraca Martinići - Darko Saveljić.
Source: <https://www.facebook.com/farmamagaracacg>

WHAT CAN WE LEARN?

This initiative proves that with strong commitment and active education campaigns it is possible to create innovative businesses based on principles of agroecology, even in areas with low consciousness on the topic. What started as a donkey shelter, grew in just 5 years into a commercially successful farm which is visited and recognised even outside of Montenegro. Farm Martinići has managed to save donkeys from extinction, while at the same time creating a strong brand based on these animals. They are able to reach out to a big base of fans and visitors that are being actively educated on ecological and environmentally-friendly practices.

POSITIVE IMPACTS



ENERGY AND WASTE MANAGEMENT: The farm is engaged in organic waste management by composting and re-utilising animal's dropping for the fertilisation of crops. It also reduces construction and maintenance waste by recycling and re-utilising materials. They have an on-going project that installs solar panels on farm in order for the to take advantage of their own renewable energy.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: The farm manages to protect donkeys from extinction which are important traditional Montenegrin animals. They also help to raise awareness of their importance in the preservation of cultural and natural heritage.



EDUCATION: The farm raises awareness and shares knowledge on sustainable agriculture in Montenegro through various educational campaigns, workshops, events and promotions.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Commercialisation is local, fair and/or collective: This farm is continuously working on local commercialisation however, there is a low level of conscience on organic products in the country and lack of trust among consumers for this type of production. Donkey milk, due to the slow production process, is priced highly and many consumers find it too expensive.



SCIENCE



EDUCATION



LIVING LAB



PRACTICE



MOVEMENT

INITIATIVE N°4 – FOODHUB – CENTRE OF EXCELLENCE

**FoodHub**Centre of Excellence
University of Donja Gorica<https://foodhub.udg.edu.me>

Facebook: @foodhub.me

Instagram: @foodhub.me

FOODHUB – CENTRE OF EXCELLENCE

The FoodHub – Centre of Excellence was founded in 2020 at the University of Donja Gorica (UDG) in Podgorica, Montenegro. This initiative uses the premises of UDG and is part of the University. This research centre is made up of 12 partners from Montenegro and abroad (i.e. Serbia, Germany, and China), including scientific institutions, laboratories, and Montenegrin governmental offices. The initial funds for developing the Centre were obtained from the Montenegrin Ministry of Science, while further resources were obtained from EU funds, mostly Horizon 2020 projects. Besides this, there are bilateral projects with other countries such as Germany.

This organisation deals with the entire food production chain. One of their main objectives is to develop a system of scientifically based risk assessments on food consumption for the population of Montenegro. To achieve this, the FoodHub is developing a software that will enable combining data from Montenegro with data that currently exists at the EU level and globally. Based on this, recommendations are made for the activities of the Food Safety Authority, in order for them to better manage risks in production chains, mainly targeting microbial contamination in food.

Another objective of the FoodHub is the development of biosensors that will help producers and all other participants in the food production chain to quickly and efficiently identify in real time the occurrence of certain pathogens and risks in the food production chain. The Centre is also working on the affirmation and valorisation of traditional food products in Montenegro by promoting traceability, and applying block-chain technologies. They have done this by developing an application that connects farmers with consumers by providing them information on what techniques and technologies were used in the production of the product and the nutritional characteristics of the product itself. The implementation of digital technologies is one of the most important activities in this initiative. This project joined a team led by the BioSens Institute from Novi Sad (Serbia).

The FoodHub contributes to the development and promotion of agroecology in Montenegro by connecting the Center for Climate Change, Natural Resources and Energy in Montenegro.

The FoodHub engages in transdisciplinary research and employs scientists from the fields of agriculture, ecology, microbiology, food technology economics, finance and business.

KEY FEATURES

- **Main goal:** food sovereignty, food safety, and traceability of food products
- **Founded in:** 2020
- **Main topics:** food safety risk assessment area
- **Leading organisation:** University of Donja Gorica (UDG)
- **Type of actors involved:** scientific institutions around the world
- **Funded by:** Ministry of Science in Montenegro



Picture 5: Researchers at FoodHub, Centre of Excellence.
Source: Private gallery of an interviewee.

WHAT CAN WE LEARN?

A consortium of 12 institutions led by University of Donja Gorica (UDG) formed the Centre of Excellence to create microbial food safety risk assessment and quality parameters for accurate food authenticity certification (FoodHub). They hope this will build up the necessary capacities to boost the development of Food Safety Risk Assessment. Moreover, the Centre is working on the affirmation and valorisation of traditional food products in Montenegro by promoting traceability through the development of an application that connects farmers with consumers by providing information on the production and nutritional characteristics of the products.

5. CONCLUSION AND FUTURE PERSPECTIVE

Agroecology seems to still be at the infancy stage in Montenegro, with the existing initiatives representing only partially the elements and approaches of agroecology. Due to the favorable bio-physical conditions (such as agricultural lands not experiencing negative impacts from air, water, and soil pollution), Montenegro, especially the northern part, appears to have a good basis to develop agroecology and organic food production much further. However, there is a low level of awareness and knowledge about agroecology thus far, in particular when it comes to the knowledge and education of consumers about organic food and its production.

Given the small size of the country and the land fragmentation found within it (small parcels with many different owners), larger scale production seems difficult to achieve. Currently, this small-scale production reality provides a very small agricultural output for the country.

Montenegrin products are currently not very competitive against imported products from other countries within the EU because of the high costs of production for domestic products and the favouring by different stakeholders of imported products, often from large scale production. However, domestic products could become rather competitive if they were shown to be higher in quality. The development of eco-tourism and rural tourism provide alternative channels and financial motivation to the farmers for the cultivation of high-quality products, including local and organic ones. These may be opportunities for institutions to reach external markets which have a stable demand for organic products. Institutions could even raise awareness and knowledge about agroecology, organic and environmentally friendly agricultural production, and orient future funding in this direction in order to support farmers, projects, research and education. Although Montenegro has great potential and resources for the development of agroecology, more funds and support for developing organic production will be needed, as well as more universities providing agroecology courses. Montenegro's membership in the European Union could also help in this regard (Seremesic et al., 2021). The government could even tailor agrarian policies to the real needs of farmers, in particular the small-scale producers that are supporting the tradition and local specificity of Montenegrin agroecosystems and Montenegro's status as an 'ecological country'.

Currently, there are state programmes in Montenegro which provide funds and investment to producers in order to support them in establishing higher productive orchards that could benefit from modern agricultural techniques which could make them more profitable (Seremesic et al., 2021). Regular, stable, and high-quality yields will, in the long run, increase the volume and range of products, which will achieve a favorable export structure and a higher level of competitiveness¹⁸⁴.

¹⁸⁴ <https://www.gov.me/dokumenta/b0c64d6f-3b24-4e7c-a65a-7556cceed1fc>

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MAPPING AGROECOLOGY IN NORTH MACEDONIA

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NORTH MACEDONIA

EXECUTIVE SUMMARY

This report aims to give an overview of the current state of agroecology in the Republic of North Macedonia (NMK). Interviews with key informants and initiatives, accompanied by literature revision have provided information regarding the five activity categories defined by the methodology of the H2020 project Agroecology for Europe (AE4EU) Education and Training, Living Lab, Movements, Practice, and Science.

The socio-political and economic development of the country have severely impacted the general knowledge, recognition and practical implementation of the concepts and principles of agroecology. Subsequently, this has contributed to the lack of use of the term, or it's substituted with more recognisable terms (e.g., organic agriculture, sustainable practices, rural development, etc.) making it difficult to track and characterise initiatives whose work is closely associated with agroecology.

To the best of our knowledge, this is the first report that is focused on agroecology in NMK, its development, recognition, and practical use. The initiatives included in this report present a limited mapping effort, and further development of the methodology that is contextually appropriate for the case of the NMK could enable the provision of more inclusive data. Mapping efforts of this kind provide the basis for future, more elaborate joint projects, and initiatives, that would target particular aspects of agroecology, especially important for the context of NMK, as a country dependent on and suited for agriculture.

NORTH MACEDONIA

EXECUTIVE SUMMARY (MACEDONIAN)

Овој извештај има за цел да даде преглед на моменталната состојба на агроекологијата во Република Северна Македонија (NMK). Интервјуата со клучните информатори и агроеколошките иницијативи, заедно со преглед на литературата, обезбедија информации од аспект на петте столба дефинирани во методологијата на H2020 проектот Agroecology for Europe (AE4EU) – Агроекологија за Европа: Образование и тренинг, Живи лабораторија Движења, Пракса, и Наука.












Социо-политичкиот и економскиот развој на земјата значајно влијаеле на генералното познавање, препознавање и практична имплементација на концептите и принципите на агроекологија. Последователно, ова придонесува за недоволно користење на терминот „агроекологија“, или негова замена во препознатливи термини (пр. органско земјоделие, одржливи практики, рурален развој, итн.) што го отежнува следењето и карактеризацијата на иницијативите чија работа е поврзана со агроекологијата.

Според нашите сознанија, ова е прв извештај фокусиран на агроекологија во NMK, нејзиниот развој, препознатливост и практична примена. Иницијативите кои се дел од овој извештај се резултат на ограничени напори за мапирање, и дополнителен развој на методологија, соодветна за системските карактеристики на NMK, би овозможил инклузивен пристап и вклучување на повеќе информации. Овие напори за мапирање даваат основа за идни, покомплексни заеднички проекти и иницијативи, кои би имале за цел да се фокусираат на одредени аспекти од агроекологијата, посебно значајни во контекстот на NMK како земја зависна од и соодветна за земјоделството.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in North Macedonia are summarised in Table 1.

Table 1: List of key informants in North Macedonia.

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED			
1	Research centre	Environment				
2	University	Agroecology				
3	University	Genetics and conservation of plant biodiversity				

2. CONTEXT

The Republic of North Macedonia (NMK) is a small landlocked country in the South-Eastern part of Europe, on the Balkan peninsula. The country is characterised with heterogeneous landscapes, dominated by mountainous and hilly regions, located in three main climatic zones (moderate continental, mountainous and temperate Mediterranean) (Ivanovska and Andonov 2018), although specific micro-climates are also characteristic for some parts of the countries. In 1991, NMK separated from former Yugoslavia, and during the past 30 years it has undergone several economic and political reforms. One of the focuses of the country is the European Union (EU) membership, and since December 2005 its candidature has been presented¹⁸⁵.

Around half of the total surface area of NMK is considered as agricultural land (arable land and permanent pastures), with the agriculture and food sector as one of the main contributors to the national economy, up to 14% in the GDP (Ivanovska and Andonov 2018). The importance of the sector in NMK is visible as its GDP is higher in comparison with other EU countries (Volk et al. 2014). One of the main focuses in agriculture has been preparing for transition towards the EU's Common Agricultural Policy (CAP), with the National Strategy for Agriculture and Rural Development in the period 2007-2013 focused on defining and implementing various measures and instruments in line with CAP¹⁸⁶. Additionally, there are the Macedonian IPARD (Instrument for Pre-Accession Assistance for Rural Development) programmes, through which EU funding supports a large part of the rural development projects (Dimitrievski et al. 2014). In NMK over 58 percent of agricultural holdings still utilise less than 1 ha and only about 1% of farms operate on agricultural areas larger than 10ha (Dimitrievski et al. 2014, Volk et al. 2014). Currently, small-scale farming is the main type of agricultural production (MKD-KI-1, Table 1), same as before the privatisation that started in the 1990s. Both crop production and livestock contribute to agriculture production, with 75% and 25%, respectively (Volk et al. 2014).

¹⁸⁵ EU Commission, 2021. North Macedonia 2021 Report (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021SC0294>)

¹⁸⁶ MAFWE, 2021. Национална стратегија за земјоделството и руралниот развој за периодот 2014-2020. <http://ipard.gov.mk/wp-content/uploads/2021/02/Национална-стратегија-за-земјоделство-и-рурален-развој-2021-2027.pdf>

Important regional differences exist regarding the agricultural sector. The north-west part is known for mainly livestock production, while the east, south-west and south-east are mainly focused on various types of crops depending on the climate and the tradition (MKD-KI-1, Table 1). Most of the land for crop production is used for cereals as the main crop, followed by vegetable crops, industrial crops as tobacco, forage crops, vineyards, and fruit trees (Dimitrievski et al. 2014, Ivanovska and Andonov 2018). Livestock is a stable part of food production, however, crop yields and livestock production levels are much lower than the averages in EU countries, due to the quality of the reproductive material (breeding structures) and the working practices and conditions (e.g. extensive transhumant way of sheep breeding, fragmentation of parcels, long periods without investments, inadequate agro-technical production practices) (Dimitrievski et al. 2014).

Most agricultural practices are considered as part of the 'conventional agriculture' approach (notably, on much lower scale regarding other countries due to the mountainous character of the land with subsequent land fragmentation), characterised with intensive practices, high input, and strong market-orientation (Ivanovska and Andonov 2018). However, Ivanovska and Andonov (2018) provide an interesting observation that most of the producers which have larger fields used for commercial production, as well as smaller plots near their residence where they maintain the diversity of local populations and landraces, for personal use or direct sell on local markets. The authors attribute this practice to the particularities of the taste, the tradition of production, higher pest and disease resistance, better adaptation to microclimate and the need for low input agricultural practices (MKD-KI-1 & MKD-KI-3, Table 1).

Since the early 2000s, organic agriculture has been receiving an increasing interest in NMK. The initiatives from the producers were met by governmental regulations following the EU trends, and some type of infrastructure (laws and regulations, certification bodies, subsidies) and training have been set up. Currently, it can be claimed that the term 'organic agriculture' is recognisable among the general population, whereas this is not the case for agroecology. The concept and the terminology of agroecology is not widely recognised in NMK (MKD-KI-1, MKD-KI-2 & MKD-KI-3, Table 1). And when known, agroecology is mainly referred to in the context of on-field practices rather than values or principles. This makes it difficult to define the starting point of agroecology in the country, as it is also regarded as similar to 'traditional agriculture', practised mainly on smaller plots using labour-intensive means of production in comparison with conventional agriculture (MKD-KI-1 & MKD-KI-3, Table 1). Various projects were/are aimed towards development and diversification of rural activities, modernisation of agriculture and food production, preservation of agrobiodiversity (e.g. through preserving rural areas and their traditional characteristic, and genetic diversity of autochthonous crops and livestock breeds), activities closely aligned with the agroecological principles and practices (Ivanovska and Andonov 2018). However, as all key informants report (KI1, KI2 & KI3, Table 1), as well as found in the initiatives investigated, agroecology is present only as part of projects, which with limited duration and budget, make it unsustainable in the long run.

Lack of clear definition of agroecology is also an obstacle regarding policies, monitoring, and outcome (MKD-KI-2, Table 1). In the governmental bodies, mainly the Ministry of Agriculture, Forestry and Water Economy (MAFWE) which is the main regulating body, agroecology is associated with organic agriculture. MAFWE along with accompanying institutions (i.e., Agency for Financial Support of Agriculture and Rural Development – AFSARD, National Extension Agency–NEA and Public Enterprise for Pastures), are involved mainly in the legislation, which not often corresponds with the on-field demands of farmers (MKD-KI-1, MKD-KI-2, MKD-KI-3,

Table 1). In NMK, an additional issue is the low levels of actual realisation of strategy plans, spotted as the weakest link in agricultural policy by foreign evaluators (Erjavec et al. 2014). In this regard, the key informants also emphasise that there is no existing mapping of agroecological practices and initiatives, methodology for measurement and monitoring of agroecological indicators, as well as official studies and reports to compare the past and the present state of the country, thus making it impossible to assess the actual 'level' of agroecology in the country (MKD-KI-2 & MKD-KI-3, Table 1).

In the past 20 years, a number of non-governmental organisations (NGOs), farmers' organisations, and associations have been involved in various projects that are in line with the agroecological principles (MKD-KI-2, Table 1), although they have rarely been promoted as such. These projects are most often collaborations between the NGO sector and farmers, and focused mainly on organic production, cultivation and spread of autochthonous crop species, integrated pest management, and raising the general awareness of the need for more sustainable food production and consumption, both of the producers and the consumers (MKD-KI-1, MKD-KI-2 and MKD-KI-3, Table 1). Several factors impact the currently low levels of practising agroecology, especially considering the traditional practices, which are very in line with the agroecological principles, but whose potential is poorly used both in NMK and the rest of the countries in the region (Volk et al. 2014). In the case of NMK, the lack of institutional support and of cooperation between the sectors involved in agriculture, along with absence of a system for observation and measurement of the actual on-field practices, are seen as the main causes for the current low status of agroecology in the country (MKD-KI-1 & MKD-KI-2, Table 1).

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



Education and training activities in NMK regarding agroecology have to be considered from two aspects, formal and non-formal. The formal education is conducted at two of the public universities, the Faculty of Agricultural Sciences and Food (Ss. Cyril and Methodius University, Skopje)¹⁸⁷ and the Faculty of Agriculture (Goce Delcev University, Shtip)¹⁸⁸, although an official Department of Agroecology does not exist (MKD-KI-2, Table 1).

The Institute of Natural Resources Management and Environment Protection in Agriculture is part of the Faculty of Agricultural Sciences and Food, which offers a bachelor study programme of 4 years in "Eco-Agriculture". It is described as "a study programme specialised in agroecology and sustainable food systems, proper management of land, water and other natural resources, environment protection, and the legal framework". The same programme also offers more specialised studies on Master and PhD level, for management of natural resources and environment protection in agriculture. At the Faculty of Agriculture in Shtip, there are more general classes in the Bachelor studies that touch upon the topic of agroecology, and a Master and PhD programme that go more into depth on the topic of agroecology (MKD-KI-2, Table 1). These programmes are more holistic in the sense that they emphasise that agroecology is a complex topic that requires advanced knowledge on various subjects (biology, plant physiology, plant-environment interactions, social and economic aspects of food production) (MKD-KI-2, Table 1). In general, formal education on agroecology in NMK is more focused on

¹⁸⁷ <http://www.fzh.ukim.edu.mk/>

¹⁸⁸ <https://zf.ugd.edu.mk/index.php/mk/>

the theoretical approach and in certain aspects limited to the university experience and the students (MKD-KI-1 & MKD-KI-2, Table 1). As a part of the Faculty of Agriculture, Goce Delcev University in Shtip there was an office for rural development that provided training for farmers and was involved in bridging the gaps between the academia and the farmers (2008-2012), but after internal reorganisation it stopped working (MKD-KI-2, Table 1).

On the other hand, non-formal education is present throughout the country with various types of activities and with various target groups. NMK has been a part of the IPARD (EU4RuralAreas)¹⁸⁹ programs supervised by a special department from the MAFWE, AFSARD and NEA since 2006, and it was active for two periods, 2007-2013 and 2014-2020. The IPARD program is aimed both at the farmers and regulatory bodies in order to establish, support and implement agricultural standards aligned with the EU regulations. During this period, various workshops and practical educational seminars had taken place, predominantly focusing on how farmers can best move towards more sustainable production. Apart from that, the National Federation of Farmers¹⁹⁰ has been regularly organising seminars, webinars and workshops targeted mainly farmers, both in terms of production and especially soft skills development; however, none of them are defined as 'agroecology', even though some aspects of the agroecological principles are covered. Ruralna Koalicija ('The Rural Coalition') is particularly active in training programmes that are focused on women and youth as marginal groups in agriculture. Farmahem as a coordinating body with Meden istok (Honey East)¹⁹¹, and Swiss Agency for Development and Collaboration (SDC), providing annual four-months-long training programmes for beginner beekeepers, with theoretical and practical approach, and the successful 'graduates' receive bee colonies to start with practical work and honey production (MKD-KI-1, Table 1).

Various NGOs have organised different educational events, focused mostly on young farmers, rural youth, and consumers (MKD-KI-1, Table 1). However, these events are rarely focused primarily on agroecology and usually combine it with other topics, such as environmental protection, civil movement, and support of rural areas. Even in the case when the educators are from universities, the events are not consistent or follow a particular preset schedule that repeats on monthly or annual level, rather they are part of a bigger projects mainly funded by various EU projects and Embassies projects (MKD-KI-2 & MKD-KI-3, Table 1). An example of an NGO providing these services is the Institute of Communication Studies, which has a dedicated website called Doma¹⁹², providing information for the citizens on the topics of the environment and biodiversity (MKD-KI-1, Table 1). Supported by the British Embassy in Skopje, they are producing a range of short documentaries on topics and case studies from across the country, focused on environmental issues. The Ecological Society Planetum (supported by Civica Mobilitas) has different educational and training projects on topics such as waste management, alternative renewable sources of heating greenhouses, eco-tourism (MKD-KI-1, Table 1), targeting both farmers and the general public, depending on the scope of the programmes.

3.2. LIVING LAB



Living lab as a term is not yet broadly used in NMK (MKD-KI-2, Table 1). It is challenging to understand what it stands for, and depending on personal interpretation, some ongoing projects can be seen as living labs, mainly projects that have been carried out in collaborations with experts from the agricultural faculties, involved usually as consultants or coordinators (MKD-KI-1, MKD-KI-2, Table 1). This was the case of the initiative 'From seed to seed', in the southeast part of NMK. The main motivation of the initiators was to find an alternative way to establish a stable network of

¹⁸⁹ <https://ipard.gov.mk/mk/za-ipard/> - ¹⁹⁰ <https://www.nff.org.mk>

¹⁹¹ <https://medenistok.mk> - ¹⁹² <https://doma.edu.mk>

producers and institutions that would prioritise the use and conservation of traditional varieties, and work on bringing them to the market. Started in 2018, it was coordinated by the NGO Fabia CSB, and in collaboration with the Faculty of Agriculture, Goce Delcev University in Shtip it managed to provide a successful example for involving students and producers in practical work in terms of establishing a small seed bank, both in-situ and ex-situ, of autochthonous varieties (mainly of beans and vegetable crops). However, the initiative was never classified officially as a living lab, again due to the lack of recognition of the term (MKD-KI-2, Table 1). Some other projects that are planned to start in the near future can be considered as living labs, but the lack of infrastructure and previous experience with this type of work in NMK might be a limitation (MKD-KI-2, Table 1).

3.3. MOVEMENT



The movement activity category seems to be the most developed and active one in NMK on the topic of agroecology, especially through different non-formal education and training programs, events, and working groups. Different movements focus on different target groups, e.g., farmers, consumers, potential producers, depending on their philosophy and the projects they are involved in. These projects are funded by bigger EU projects, national programmes or international organisations (usually Balkan collaborations), or through different embassies as part of their work in NMK. However, a movement defined as explicitly agroecological does not exist, although the actions of some NGOs are more closely related to it than others (MKD-KI-1 & 2, Table 1).

The Slow Food Movement¹⁹³ is present in NMK since 2008 and to this day is one of the most recognisable groups in terms of food sovereignty acting strongly in terms of promotion of local and regional crops and food traditions. Zelenata Arka (Green Ark)¹⁹⁴ is an NGO working mainly in Skopje that is responsible of the first urban garden in NMK, 'Bostanie', where enthusiasts can be involved in the care and production of food for personal consumption, along with other events aimed towards 'social change towards building regenerative and holistic bonds between people and nature. Another national NGO, Kolektiv Z¹⁹⁵, is a feminist-led youth collective focused on climate and social justice, and along with other likeminded NGOs, has formed a participatory platform focused on the National Green Deal and Balkan Green Deal. The platform provides opportunity for participation and emphasises concerns in line with the upcoming Green Deal on EU level, as well as education on the topic of climate change and climate responsibility. Nacionalna mreza za agrobiodiverzitet (National Network for Agrobiodiversity) is a recently established (spring 2021) non-formal unregistered network with the main aim to encourage discussion for plant biodiversity, and establish a collaborative network of people who can work on diverse issues, and understand which are the neglected aspects of agroecology as focus for future projects (MKD-KI-2, Table 1). The key informants emphasise that the activities from the NGOs are rarely recognised, and even more rarely supported by the government. Additionally, these activities that are linked to agroecology are very dependent on external funding, and lack of coordination, collaboration, and monitoring, meaning that there is often repetition of the themes and activities or focus on less important aspects in the wider context of agroecology (MKD-KI-2, Table 1).

From organisational aspects, agricultural cooperatives, which are commonly associated with agroecology, are not well known, or established in NMK (MKD-KI-2, Table 1). The concept of cooperatives has been strongly damaged and weakened during the socialist period (Erjavec

¹⁹³ <https://slowfood.mk>

¹⁹⁴ <https://www.facebook.com/zelenataarka/>, <http://zelenataarka.tk/>

¹⁹⁵ <https://www.facebook.com/KolektivZ>, <https://www.kolektivz.mk/>

et al. 2014). Additionally, stronger producers secure their production and collaboration with consumers or processors, usually because they are recognizable and associated with certain tradition and quality and have no interest in joining a cooperative or producer groups (Erjavec et al. 2014). With this in mind, many movements are focused on the smaller producers, which are also the ones more commonly practising agroecological principles. Dobra zemja (Good Earth)¹⁹⁶ is the first Macedonian Organic Food cooperative that provides a direct connection between the consumers and the smaller producers of organic produce, for whom it is difficult to be competitive on the market, due to the way and scope of their production. The cooperative provides a subscription to weekly fruit and vegetable baskets (this was the first organisation that provided this model in NMK), along with a shop in the capital Skopje, and participation in various events that support local, organic, and sustainable food production.

3.4. PRACTICE



The politics of NMK is strongly directed towards EU accession, which affects NMK's strategies, policies and legislation in terms of sustainable management of natural resources and agricultural practices (Ivanovska and Andonov 2018). Regarding agroecology in practice, the general information availability and emphasis on the positive aspects of organic food, has led to an increase in the demand, while the production is still dominated by the conventional mass food production concept (K-1, Table 1). On the one hand, conventional products from NMK cannot be competitive on the market, both at national scale or abroad, as the size of the production is very small, especially in comparison to major producers from the vicinity, such as Greece and Turkey (MKD-KI-1, Table 1). On the other hand, the main ways of support (i.e. through subsidies based mainly of cultivated area and production capacity) do not fully encourage smaller farmers and producers to transition towards agroecological production, which limits and reduced the production capacity and availability of organic, biodynamic, or similar products (MKD-KI-1, Table 1). Therefore, the market is mainly dominated by large producers, while smaller producers that for various reasons practise agroecology are forced to look for alternative markets (e.g. fairs, online sells mainly through social media, events) which although help for their recognition, are limited and require much greater effort.

In the National Strategy for Nature Conservation 2017 – 2027 document (MOEPP, 2018) a whole chapter is dedicated to practices aligned with agroecology and agrobiodiversity conservation, yet these programs remain only theoretical, same as some sectors in the governing bodies, which have no on-field projects and activities (MKD-KI-1, Table 1). These bodies are seen as 'financing bodies' from which the farmers only receive subsidies, rather than receiving continuous support and guidance (MKD-KI-1, Table 1). Most of the governmental subsidies are direct producer support (commodity-linked payments per area or per animal), and a considerably small part of the subsidies are directed towards structural rural development and agriculture advancement (Volk et al. 2014). Additionally, these are market-oriented sector-based policies, focused on boosting production without consideration of structural and technological deficits, rural poverty, and small farm areas (Erjavec et al. 2014).

Farmers are officially required to follow a number of regulations depending on the scope of their production in line with the regulative for 'Dobri Zemjodelski Praktiki' (Good Agricultural Practices) established in 2007, and Common Agricultural Practices (Dimitroevski et al. 2014), which are in line with agroecological practices, if they want to be considered eligible for different

¹⁹⁶ <https://www.facebook.com/dobrazemja>, <https://dobrazemja.mk>

subsidies (MKD-KI-2, Table 1). However, these regulations exist on paper only and there is no methodology or protocols set to measure what is actually happening on the field (MKD-KI-1, MKD-KI-2, Table 1). Agroecology is rarely practised on a larger scale, and the large producers are continuing with many unsustainable practices (MKD-KI-1, Table 1).

Subsidies are provided for organic production, which can be considered as stimulation for agroecological production, but this is always more focused on larger areas of organic production rather than on autochthonous and less common crop varieties or agroecological practices (MKD-KI-2, Table 1). In theory, organic producers are obliged to use certified organic seeds, and are especially encouraged to use locally-adapted varieties, manure, beneficial insects, border flower strips (MKD-KI-2, Table 1). However, the infrastructure to help this transition towards organic is not fully in place. Although conventional agriculture is still dominating, some of the organic agroecological practices have also been implemented with conventional growers, i.e., use of beneficial insects instead of hormones in tomato greenhouses as a method of pollination or pest control alternatives (MKD-KI-2, Table 1). Despite the above, there is not enough promotion and knowledge exchange regarding the benefits of these methods across the country and among the producers (MKD-KI-2, Table 1).

A positive example is a project for the protection of the autochthonous Macedonian bee that started 15 years ago. Even though the project was receiving a lot of doubt from the beginning, both from experts and the general public, continuous efforts showed the genetic particularities of this bee, and lot of subsequent projects focused on its protection and management by sustainable agricultural practices followed (MKD-KI-1, Table 1). One of the main ones is the 'Meden Istok', group of beekeepers that provide educational workshops for young beekeepers for sustainable practices, along with an online platform and certification of sustainable bee products.

Additionally, there seems to be a 'new wave' of food producers who, driven by their moral and ethical beliefs, work in line with the agroecological principles and want to produce healthier food or see the potential of food of higher quality from local origin (MKD-KI-1, Table 1). These products are becoming more competitive on the market (MKD-KI-1, Table 1), but they are somewhat limited, in terms of accessibility and prices, as they are often targeting people living in the capital and with a higher living standard.

3.5. SCIENCE



The lack of definition of agroecology is also evident in the case of science and research infrastructure. The key informants pointed to two faculties, whose departments have done research on topics related with agroecology, the Faculty of Agricultural Sciences and Food (Ss. Cyril and Methodius University, Skopje) and the Faculty of Agriculture (Goce Delcev University, Shtip). Biodiversity conservation is an important topic in NMK, and the Faculty of Mathematics and Natural Sciences (Ss. Cyril and Methodius University, Skopje) is also involved in research projects in this regard, but always from the ecological perspective (MKD-KI-1, Table 1). Funding for research and scientific projects is a major issue as the funding coming from the government is scarce and often too complex or limiting (MKD-KI-2 & MKD-KI-3, Table 1). Financial support from

the government directed towards research, development, advisory and expert services on the topic of agriculture is around 1% out of the total subsidies given to agriculture (Volk et al. 2014). Individual university members can search for additional funding through other projects, but additional resources are required, while lack of staff and administrative issues are quite common (MKD-KI-2 & MKD-KI-3, Table 1). Research projects have also been developed by certain governmental sectors, but they are often done as a desk-research without reporting what is happening on the field and are not well promoted (MKD-KI-1, Table 1).

The Macedonian Ecological Society has some projects that can be correlated with agroecology or implementation of agroecological practices, but a formal working group does not exist, and individual projects are a part of other working groups in collaboration with different experts (MKD-KI-2, Table 1). In collaboration with the German Society for International Cooperation (GIZ) it has supported various scientific publications such as a book on autochthonous bean species, (MKD-KI-3, Table 1). The Rice Institute in Kocani (east NMK) has worked with autochthonous rice varieties to produce more resistant hybrid varieties (MKD-KI-1, Table 1), but no scientific publications are available. Key informants especially emphasised the lack of support from the government to the specialised departments of the universities to conduct more serious scientific research, although various publications regarding agroecological practices have been published, e.g. on pesticide calculators, soil pollution, value of biodiversity, trends in agriculture.



4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 2: An overview about initiatives, cases and examples described and analysed.

INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Filip's Garden <i>Gradinata na Filip</i>	Local/ National	Informal structure	Informal education via various media and raising awareness					
2	From seed to seed <i>Od seme do seme</i>	Regional/ National	Association	Conservation of autochthonous varieties and their reintroduction on the market					
3	Rural Coalition <i>Ruralna Koalicija</i>	National	Civil society	Improvement of life standards and opportunities in rural areas					
4	Slow Food Macedonia	National	Civil society	Enable access and platform to all interested parties in food sovereignty					

Table 3: Additional initiatives, cases and examples in the country - not included in this report.

INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
				EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
GEF-PMG Macedonia	National	National steering committee (team of experts)	Support of small, locally developed projects.					
The Green Ark <i>Zelenata arka</i>	Local	NGO	Permaculture, urban gardening, food sovereignty.					
Honey East <i>Meden Istok</i>	Regional	Organisation supported by the SDC	Sustainable use of resources and biotechnical methods for bee products.					
Our Good Earth - First Macedonian Organic Food Cooperative <i>Dobra Zemja</i>	Local/ National	Cooperative	Cooperative working only with organic products with member-based participation in its management.					
Nature Conservation Program in North Macedonia	National	Farmahem and Helvetas Swiss Inter-cooperation	Swiss Agency for Development and Cooperation Project for assisting the country in resource conservation and sustainable management.					
Centre for development of the eastern region	Regional	Formal organisation	Planning and implementation of strategies for preservation of the characteristics of the region from various aspects.					
Macedonian Ecological Association	National	NGO	Various activities out of which some are indirectly related to agroecology.					
Collective Z <i>Kolektiv Z</i>	National	NGO	Climate and social justice.					



EDUCATION



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE

INITIATIVE N°1 – GRADINATA NA FILIP

GRADINATA NA FILIP – FILIP'S GARDEN

Facebook: @Gradinatafilip

Gradinata na Filip is an umbrella for several different types of non-formal education activities, all developed with the aim to provide channels of information and education on the topic of sustainable food productions and ecology for children and youth, in a more practical and useful manner. Gradinata na Filip is led by an individual who is an agronomist, but different activities are carried out in collaboration with other entities and are focused on different target groups.

In collaboration with Slow Food Macedonia, this initiative is working on the Project 'School gardens in North Macedonia – Green polygon for education'¹⁹⁷ since 2018. This project is closely collaborating with 10 public schools across the country in order to help them learn about sustainable food production, establish a garden, and make sure the garden stays an accompanying part of the formal education as much as possible. The children as well as the teachers receive structured informal education via workshops or webinars, and are afterwards assisted in the creation and management of the garden. In addition, the lead person of the organisation is also the main editor of the children's magazine 'Полжавче' (Little Snail), where various educational information is presented in an informal manner to make them more understandable for children and also contribute to the national newspaper 'Nova Makedonija', in the children's addition 'Kolibri' where they contribute with materials on the topic of ecology, healthy food in the education, countrywide ecological initiatives etc.

In collaboration with the Radio Pela, the organisation has also developed a radio show and a YouTube channel (since August 2021), which offer a platform for informal education on agroecological food production from the own experiences of the initiative (as the lead person is also a producer of both fresh and traditionally processed food), and through interviews with different initiatives from NMK.

The concept of agroecology is closely related with all the different activities that are part of Gradinata na Filip with ecological food production and healthy foods as particular points of interest. However, the term 'agroecology' is not consistently used as such, mainly due to the lack of recognition by the public, as mentioned earlier. The collaboration with various non-governmental (Slow Food Macedonia, Radio Pela), and public and governmental organisations (public school) provides a wide network through which the informal education methods can reach a bigger audience at a crucial age (children and young adults). Future projects entail preparation of official educational material aimed both for children and their teachers, focused on all the aspects of food growth and production that follow the agroecological principles, as well as continuing the current projects of non-formal education through social and online media.

KEY FEATURES

- **Type of education and training:** workshops, practical activities, and non-formal education on agroecology
- **Main topics:** agroecological practices and sustainable food systems
- **Type of legal entity:** non-formal
- **Accessible to:** interested public school and individuals

¹⁹⁷ <https://www.facebook.com/slowfoodgradini.mk/>

WHAT CAN WE LEARN?

Gradinata na Filip is a novel initiative in the sense that it approaches education on the topic of agroecology from modern and informal aspects. The practical experience, the educational qualifications, and the enthusiasm of the members of the organisation, are crucial in the work done, and of special significance due to the collaboration with public schools, which is not so common in NMK. This manner of education and raising awareness is especially focused on the youth, as an active step to increase their involvement and motivate them to return/stay in the rural areas, and practice agriculture aligned with the agroecological principles.





LIVING LAB



PRACTICE



EDUCATION



SCIENCE



MOVEMENT

INITIATIVE N°2 – FROM SEED TO SEED

Од семе до семе

FROM SEED TO SEED

From seed to seed is an initiative focused on establishment of a community seed bank to conserve traditional autochthonous varieties (mainly beans, other legumes, and vegetables), and make the genetic material available for anyone interested to grow them, both as a marketable product and for personal use. The participants in the initiative also contribute towards conservation and circulating of seeds. This is the first project of this type, as in NMK seed conservation is done *ex situ* in several different agricultural institutions in the country, while the priority of the initiative is to extend and focus on *in situ* conservation.

The initiative started in 2018 and was established by the NGO Fabia CSB (Bogdanci), as part of a 4-year project supported by the Swiss Foundation Pro Specie rara. The association, acting as a project leader, involved the Faculty of Agriculture, Goce Delcev University in Shtip, local and national NGOs and producers in different project activities. Important to note is the collaboration with the Faculty of Agriculture, where students took active part in the activities along with producers, various NGOs, and interested individuals. The students were tasked to do “seed to seed” reproduction and short description of autochthonous varieties, while the results were presented to the producers and they were encouraged to use the autochthonous varieties as well as provide material for the community seedbank that could be used by other producers. The idea for establishment of a community seed bank was also presented to the producers and the NGOs, and steps for its establishment were taken. The main motivation of the initiators was to provide a stable network of producers and institutions that would prioritise the use and conservation of traditional varieties, and further work on their commercialisation and secure their market position. This would contribute to raising the awareness towards the traditional varieties, improvement of their consumption and production habits, aligned with some agroecological principles. The collaboration with students has focused on strategies for involving the youth in seed saving and showing them practically the potential of these types of crops.

The scope of this initiative is completely aligned with the agroecological concept, as it aims to provide support and an example for obtaining a stable economic income by the implementation of agroecological practices because all production is organic and especially focused on reducing the use of natural resources or using inputs from sustainable origin. It is an innovative living lab, which takes on an interdisciplinary approach, and tries to include different target groups. This living lab also became part of a recently established Network for agrobiodiversity (Мрежа за агробiodиверзитет), a group of experts, practitioners and enthusiast who share information and knowledge through social media.

In the future, the initiative, along with other similar ones from neighbouring countries, plans to establish a Balkan network for biodiversity, as well as continues to find different ways to include more producers and retailers, as well as universities and research institutions, NGOs, and enthusiasts.

KEY FEATURES

- **Main topics:** agroecological practice and production and raising awareness
- **Founded in:** 2018
- **Type of organisation supporting the living lab:** NGO
- **Type of actor involved:** farmers, students and individuals
- **Scale of the living lab:** regional

WHAT CAN WE LEARN?

The initiative shows an interesting example of how living labs could have their place in NMK. The success is mainly due to a lot of personal involvement or the leaders, who have indeed managed to link different actors (faculty, practitioners, NGOs), but have also faced many rejections. Located in one region of the country, it is a good example that regional networking is important for better success and closer collaboration. An interesting observation is that this project, which could be seen as a living lab, indeed requires a good coordinating body, since the different actors have different needs and responsibilities that need to be well synchronised.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: They are especially aware and dedicated to support and promote only organic production with reduced inputs from unsustainable sources.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: The main focus is conservation of traditional foods, and especially conservation of reproductive material to be able to grow a diversity of crops.



EDUCATION: The project has established collaboration with a faculty, and it provides practical knowledge for the students.

LIMITATIONS & CHALLENGES



COOPERATION: Cooperation and support from governmental institutions is crucial for ensuring proper establishment and sustainability of the living labs. However, they reported to have faced numerous limitations in that sense, suggesting that this has largely impacted their work in a negative manner.



GOVERNANCE: Living labs are demanding as they involve different actors with different responsibilities. Thus, involvement of more people in the internal governance is needed to ensure better coordination and reach a larger audience that could contribute to the success.



MOVEMENT



EDUCATION



SCIENCE



LIVING LAB



PRACTICE

INITIATIVE N°3 – RURAL COALITION



РУРАЛНА КОАЛИЦИЈА

KOALICIONI RURAL

<https://rural.mk>

RURAL COALITION

Ruralna Koalicija was established in 2011. Their work is focused on the development and improvement of the living conditions in rural areas around the country. Initially, they recognized the need to develop capacities of smaller farmer organisations, and 10 years later farmers remain their main focus group, but they have extended their collaboration with organisations working on ecology and agrotourism. Since 2017, one of their main aims is also to provide various types of support for women in the rural areas as a marginalised group, and they especially work on empowering women, both as producers and active members in the community.

KEY FEATURES

- **Main goal:** rural development
- **Founded in:** 2011
- **Type of organisation:** civil society organisation
- **Farming sectors:** all
- **Scale of the organisation:** national

Ruralna Koalicija is a registered formal association, with a managing committee, and around 50 smaller local farmer's associations and organisations as members. This enables them to work on national level, but with specificity on regional and local level, depending on the issues and needs vocalised by the members. Farmers and producers are their main target group and through different projects they are involved in different aspects of the farming sectors. 'Ruralna Koalicija' rely on funding from projects, and so far they have taken part in projects on national level (public or private projects), and international collaborative projects.

Ruralna Koalicija is a crucial member of the governmental council for cooperation between the Government and the civil society ("Совет за соработка меѓу Владата и граѓанското општество"), along with various working groups, where they are offered an official platform to voice the needs and concerns of the members of their association. Although the term, 'agroecology' is non consistently used, due to the lack of its general recognition as mentioned earlier, their activities align with the concept in terms of encouragement by practical show of the possibilities to use agroecological practices and education. They have been largely involved in monitoring of the on-field development in the context of farmers' implementation of the recommended Good Agricultural Practices and have reported the urgent need for monitoring in order to ensure that these practices are enforced properly. Their large network has enabled them to organise non-formal educational and hands-on training events, of which especially important are the ones where farmers who have implemented agroecological practices show other farmers how beneficial they can be. From the social aspect, their projects with women and young people as marginalised groups in rural areas are quite important in the context of ensuring qualified and numerous human capital involved in, and familiar with the concepts of organic farming and green economy.

Ruralna Koalicija is not a part of a larger network, but they actively collaborate with other organisations from the Balkan region. In NMK, they collaborate with other organisations as well as experts from different fields mainly through projects. The 'Ruralno Zensko Lobi' (The Rural Female/Women's Lobby), an informal working group in their organisation, has been one of their priorities in the past few years. They have seen a lot of interest in these projects and are exploring different possibilities in the future (more training both on practical and soft skills for women, establishing an online 'farmers' market' for women, where they can sell their produce country-wide).



Picture 1: (Left) Distribution of material regarding gender equality in the rural regions. (Right): Rural coalition stand during an open air event in Skopje. Source: Rural Coalition.

WHAT CAN WE LEARN?

Ruralna Koalicija is an interesting example of a civil society organisation focused mainly on rural areas in NMK, which is not often the case for other NGOs, mainly due to infrastructural limitations, and a lack of direct contact with the locals. The strength of 'Ruralna Koalicija' is exactly this, working with a wide network of local producers with whom personal contact and trust has been established. Additionally, they are a rare example of an organisation that has been actively involved in decision making bodies where they directly voice the needs of the farmers and the on-field situation, something that has been emphasised as one of the main constraints of agroecological development of the country.

POSITIVE IMPACTS



COOPERATION: An extensive network of collaborators that allows them to be active in various projects and on various issues.



GOVERNANCE: Ruralna Koalicija is a positive example of how a non-formal organisation can take part and actively try to participate in creating policies on issues they work with.



SOCIETY AND EQUITY: Gender equality and increasing the awareness among women in rural areas regarding their rights and opportunities has been one of their main activities in the past years.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: Although the initiative is working on establishing a fair market for the local producers, their power is limited as reaching a bigger market which is stable, well-known, and more accessible, needs direct governmental support and strategy.



MOVEMENT



EDUCATION



PRACTICE



LIVING LAB



SCIENCE

INITIATIVE N°4 – SLOW FOOD MACEDONIA



Slow Food®
Macedonia

<https://slowfood.mk>

SLOW FOOD MACEDONIA

As a part of the international Slow Food movement, Slow Food Macedonia aims to ensure access to everyone to good, clean, and fair food. The main focus of Slow Food Macedonia is the protection of local food biodiversity and gastronomic traditions, as well as education through various events, where both producers and consumers can become part of the movement. Slow Food Macedonia is a two-level structure, comprising 10 regional 'conviviums', branches active in different regions around the country, which are coordinated by the national committee.

In NMK, Slow Food was established in 2008, although it took 10 additional years for the formal establishment of Slow Food Macedonia as such. It is a formal private organisation, belonging to its members who can take on a different role within the organisation depending on their experience, interests, and active involvement. Any individual (producers, culinary experts, consumers, educators) whose personal values regarding food accessibility and manners of production align with the philosophy of the movements can become a member and participate in the organisation of activities.

The Slow Food Movement communicates the concept of agroecology and in line with this Slow Food Macedonia also implements the concept of agroecology on three aspects, ecological, economic, and social, along with the concepts of food sovereignty, organic production, biodiversity conservation, and local development. However, the extent of the use of agroecology is limited due to the recognition of the term and often organic production is used as replacement. They have organised a number of projects and events, with notable examples of mapping of local biodiversity (in the context of food production), and traditional culinary practices. The 'Ark of flavours' is a project focused on mapping and informing about particular local products and gastronomic traditions that are at risk of disappearing. Along with this is the promotion of agri tourists capacities in more and less popular parts of NMK, and making them more visible for the public. On their social media, Slow Food also does informative segments about small local businesses that are not always well-known across the county, and the more conventional supermarkets. Various events (Craft beer salons, wine degustation, small dinners for national and international guests as part of other cultural events etc.) are also part of their promotion activities.

As an organisation, they are recognized for the open-air events, which they organise across the country, with a focus on particular crop/product when they are in season. Smaller producers can exhibit their produce and have face-to-face conversations with the consumers to explain better how they work, and what are the benefits of supporting them. Thus, consumers can first experience a product, learn about and try the products and be more motivated to support the local producers. Mainly through social media or as part of these events they also carry out various campaigns that inform and voice the benefits of reducing food waste, the benefits of organic production, the dangers of pesticides and GM crops. Being an officially recognized part of Slow Food International, the North Macedonian branch is considered as one of the backbones of Slow Food Balkan and Europe, and has been involved in numerous collaborations, on national and international level. In the future, Slow Food Macedonia plans to continue with its activities to promote, support, and encourage local and sustainable food systems in the country, and food sovereignty.

KEY FEATURES

- **Main goal:** food sovereignty
- **Founded in:** 2008
- **Type of organisation:** formal NGO
- **Farming sector:** all
- **Scale of the organisation:** national



Picture 2: Slow Food open taste event for promotion of traditional food (left); Cover page of the first issue of Polzavce (right). Source: SlowFoodMacedonia.

WHAT CAN WE LEARN?

Slow Food Macedonia is part of a bigger international network, an important strength that allows for adopting practices and methodology of management that have proven to be successful. It is a recognised organisation, both among producers and consumers, national and international, which helps in the acceptance of their values and philosophy. Its active participation in various projects has inspired many other organisations, and can be considered one of the leading parties in the movement for increasing awareness for local and sustainable food production and consumption.

POSITIVE IMPACTS



COOPERATION: Cooperation and forming a stable network of people that take an active stance is at the core of their philosophy. They are very much active in terms of involving different actors that take part in the food system.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Conservation of traditional food and culinary practices are their main topic of interest, and they are active in terms of finding new creative and impactful ways to promote it.



EDUCATION: They aim to find suitable ways for educating different target groups such as producers, consumers (both adults and youth), as well as other interested parties in sustainable food.

LIMITATIONS & CHALLENGES



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

Although their values and practices are aligned with management and preservation of natural resources, they still need to be in line with the official legislation which is not fully supportive in this context. Current legislations do not differentiate between autochthonous or traditional varieties nor there are no programmes and subsidies that encourage producers to cultivate them, thus the main motivator for the producer are usually personal beliefs or legacy.



ENERGY AND WASTE MANAGEMENT:

They try to raise awareness about the importance of waste management, however, in NMK there are unclear regulations and very limited infrastructure that can enable this. The discussion of waste separation is most often in the context of household waste.

5. CONCLUSION AND FUTURE PERSPECTIVE

Considering the history of North Macedonia, and especially bearing in mind the limitations from economic, political, and infrastructural aspects, it is understandable why the recognition and practice of agroecology in the country is strongly limited. However, the size, along with the characteristics of the country, provide a unique set of opportunities for implementation of practices aligned with the agroecological principles that can lead to a real change in the food system.

The key informants emphasised on this potential, but also the urgency in terms of defining agroecology, along with standards for measuring and understanding its current state in the country, and efficient ways to bring it closer to all various groups, i.e., farmers, producers, consumers, students, governmental, and non-governmental bodies. Although the agroecological community is relatively small, it is indeed active and diverse, composed mainly of enthusiasts who have their own vision for the agroecological development of NMK. The lack of governmental bodies' involvement is the constraint that key informants as well as initiative representatives underlined many times. Farmers, as well as other interested parties, often find more support in coalitions and NGOs, than in regulatory bodies, which poses the need for an open dialogue among all interested groups. The NGO sector currently carries out most of the agroecology related activities, but they are rarely recognised, supported, or initiated by governmental bodies. Additionally, their role is to provide novel ideas whose beneficial aspects would be further implemented and regulated by governmental bodies in order to ensure proper execution and sustainability. Currently, the two sectors seemingly function separately, one establishing regulations and legislation focused on agriculture and rural development, and the other developing various activities, inspired by current projects of interest that can be financed, or are of intra-organisational interest. Long term, these two sides must discuss and find ways to implement agroecological measures and practices in different legislation documents and develop supportive policies for their implementation.

Agroecology is indeed the sum of its parts, as its principles lay in the ecological, economic, and social aspects, yet in the case of North Macedonia there is not a clear and stable approach and methodology of how this can be put to good use in practice. This often makes agroecology a keyword on paper that never get put into practice. Another key aspect is the trend of reduced interest among the younger generations in rural life and farmer lifestyle, and NMK is not an exception. The issue is pertinent not only from the aspect of rural development and food production, but also considering the pressure in urban areas, and the need for alternative projects for food production and distribution. Agroecology can help in this regard, however the education sector holds a key position in this, as both the formal and non-formal education can contribute in terms of developing the consciousness regarding the value and opportunities of agroecology in both rural and urban areas.

ABBREVIATION

NMK: Republic of North Macedonia
 SDC: Swiss Agency for Development and Cooperation
 NGO: Non-governmental organisation
 IPARD: Instrument for Pre-Accession Assistance-Rural Development
 MAFWE: Ministry of Agriculture, Forestry and Water Economy
 MOEPP: Ministry of Environment and Physical Planning
 AFSARD: Agency for financial support of agriculture and rural development
 NEA: National Extension Agency
 GIZ: Deutsche Gesellschaft für Internationale Zusammenarbeit

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- Info materials of projects

MAPPING AGROECOLOGY IN ROMANIA

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ROMANIA

EXECUTIVE SUMMARY

The current report provides an overview on the development and current state of agroecology in Romania, as a part of the H2020 project Agroecology for Europe (AE4EU). It also showcases 12 representative initiatives for agroecology, without pretending to be exhaustive, and resulted from interviews conducted with relevant stakeholders and secondary research. The content of this report is systematised according to five activity categories: Education and Training, Living labs, Movements, Practice, and Science.

Although a broadly unknown term at the society level and only very recently used and approached by various stakeholders, agroecology has a long history of practice in Romania due to its high number of rural population engaged in small-scale agriculture. Agroecology has been practiced mainly under the name of peasant or traditional agriculture throughout decades. Numerous practices are existing in present days and the knowledge has been passed through generations while witnessing an emerging tendency of development with new entrants in agriculture under the names of permaculture, natural agriculture and environmental-friendly agriculture. Agroecology is mainly understood as a practice of working with the nature and not against it, and in most cases is recognised as organic agriculture. However, a more holistic understanding of a practical, social, educational and political concept exists too and the term itself is developing with the global trend.

The lack of recognition of the historical practitioners of agroecology by authorities, the lack of a unified accepted definition of agroecology and awareness in society and various stakeholders, together with the lack of vision and financial support from the public authorities are the major obstacles in front of the up-scale and development of agroecology. Still, many opportunities reside in the numerous small-scale farmers practicing agroecology and continuing a traditional knowledge, as well as in the increasing number of young people entering agriculture and the emergence of new innovative initiatives.

The initiatives presented in this report include several aspects of agroecology and show a variety of approaches that reflect the current status and the evolution of agroecology in Romania. They include civil associations, universities, farmers, producer associations, researchers and enterprises aiming at better promoting, raising awareness and developing agroecology, supporting and up-scaling the existing practitioners and initiatives, increasing cooperation and co-creation between multiple stakeholders, and produce change in the legislative framework to better and adequate the support for the future of agroecology.

ROMANIA

EXECUTIVE SUMMARY (IN ROMANIAN)

Raportul prezent oferă o perspectivă asupra evoluției și stadiului actual al agroecologiei în România, ca parte a proiectului Orizont 2020 Agroecologie pentru Europa (AE4EU). Ilustrează, de asemenea, un număr de 12 inițiative reprezentative, fără pretenția de a fi exhaustive și care au fost identificate pe parcursul interviurilor conduse cu reprezentanți relevanți în domeniu (denumiți informatori cheie) și cercetare secundară. Conținutul raportului este prezentat urmărind cinci piloni: Educație și Training, Laboratoare Vii, Mișcări, Practică și Știință.

Deși necunoscut pe scară largă la nivelul societății și doar recent utilizat și abordat de diferiți actori, agroecologia are o istorie lungă de practică în România, datorită populației sale rurale numeroase implicate în agricultură. Agroecologia a fost practică cu precădere drept agricultură țărănească de-a lungul timpului, numeroase practici existând și astăzi, precum și o cunoaștere transferată de-a lungul generațiilor, în prezent fiind martoră la o tendință emergentă, o dată cu noi intrați în agricultură și practică sub termenii de permacultură, agricultură naturală sau prietenoasă cu mediul.

Agroecologia este cu precădere înțeleasă ca practica lucrului cu natura și nu împotriva ei, iar în cele mai multe cazuri este recunoscută drept agricultură ecologică, deși se regăsesc și înțelegeri mai cuprinzătoare de concept practic, social, educațional și politic, care se dezvoltă odată cu tendințele globale.














Lipsa recunoașterii practicanților istorici ai agroecologiei de către autorități, lipsa unei definiții unificatoare a agroecologiei, alături de lipsa unei viziuni și a unui sprijin financiar din partea autorităților reprezintă principalele obstacole în fața dezvoltării agroecologiei. Cu toate acestea, nenumărate oportunități rezidă în numărul mare de mici agricultori din România și continuitatea cunoașterii tradiționale, precum și numărul în creștere al tinerilor care intră în agricultură și apariția de noi inițiative inovatoare.

Inițiativele prezentate în acest raport includ numeroase aspecte ale agroecologiei și oferă o varietate de abordări, care reflectă situația actuală și evoluția agroecologiei. Acestea include asociații, universități, agricultori, asociații de producători, cercetători și întreprinderi care urmăresc o mai bună conștientizare, promovare și dezvoltare a agroecologiei, sprijinul eforturilor existente, creșterea cooperării și a procesului de co-creare între mulți actori și schimbarea cadrului legislativ în vederea unui sprijin mai bun și adecvat pentru viitorul agroecologiei.

1. METHODOLOGICAL CONSIDERATIONS

The information regarding key informants in Romania are summarised in Table 1.

Table 1: List of key informants in Romania.

Key informant n°	Type of organisation	Main sector of involvement	ACTIVITY CATEGORY CONCERNED	
1	Farmers organisation	Small-scale agroecological agriculture, family farming, lobby and advocacy		
2	NGO	Agroecological agriculture, community supported agriculture		
3	Research-University	Food science and technology education, organic agriculture		 
4	NGO	Interdisciplinary research, rural socioeconomics, organic agriculture		
5	NGO	Nature conservation, rural development		
6	Private sector	Consultancy and policy analysis, social sciences research, rural development and networking,		
7	Research-University	Economic sciences, agricultural sciences, organic agriculture		

2. CONTEXT

With almost half of its population living in rural area and with a total area of 12.5 million ha of utilised agricultural area, Romania is accounted for one third of EU's farms¹⁹⁸. It comprises almost 3.4 million individual farms with most of the utilised agricultural area is arable (8.3 million ha), followed by pastures, hay fields and permanent crops (4.8 million ha), and family gardens (0.2 million ha)¹⁹⁹.

Following the fall of the communist regime in 1989, the beginning of the current agricultural system can be traced. Using mainly the former regime's agricultural structure, privatising the state farms and consolidating the gap between large and small-scale farms, Romania oriented towards industrial agriculture with the new large farms' average area of 2.491 ha based on direct public support and subventions (Knight, 2010).

According to the Romanian National Institute of Statistics²⁰⁰, in 2020, the average area of a peasant household (individual farm) was 3.6 ha, lower than the European average. Meanwhile, the "medium-sized European farm" around 16.6 ha (Alexandri and Luca, 2019, p.12) is missing in the polarised Romanian farm structure, based on a dual market of small holders and a few large landholders (Szocs et al., 2015). In part, these numbers represent the inheritance from the land devolution reform in 1990, after the long period of communist land collectivisation (Szocs et al., 2015).

The number of small farms is in continuous decline, while the share of land controlled by large farms is growing. The process of speculation and the massive investments targeting natural resources across the whole country – including the land owned by small-scale farmers, has and is still having far-reaching effects of "weakening rural economies and hampering the development of a dynamic rural sector" (Szocs et al., 2015, p.4). Market economies have not replaced subsistence agriculture yet, since the production per ha of Romanian small farms being a lot larger than of the bigger farms: on 12.1% of the land, farms under 2 ha produce 25.1% over the agricultural productivity (Miron and Lup, 2013; Varga, 2020, Korthals Altes et al., 2020).

With the adherence to the European Union in 2007, Romania started benefiting from the direct payments of the Common Agricultural Policy hence, subsidies being very attractive for large farms. Following the reform of CAP 2014-2020, the amount of direct payments for agricultural farms in Romania has highly increased (Szocs et al., 2015). Currently, agriculture is highly subsidised with CAP grants representing 40% of farm income (Alexandri and Luca, 2019). As CAP decoupled payments are area based, large farms owned by legal persons get a very large share of the CAP-grants. Alexandri and Luca (2019) estimate that 97% of farms receive only 40% of the total amount of direct payments, and the remaining 3% getting 60% of the subsidies.

Perceived and used as ecological and/or organic agriculture by part of the key informants (ROU-KI-3, ROU-KI-4, ROU-KI-6, Table 1), agroecology is identified and recognised to have a long and diverse history in Romania (ROU-KI-1, ROU-KI-3 and ROU-KI-7, Table 1), though the term itself has only recently been used by more stakeholders.

The use of the term "agroecology" in Romania is linked to those of 'ecological' or 'organic agriculture', treated and promoted in specialty literature since the beginning of 1980s, while being nationally officially recognised in 2000 through an emergency decree, being followed by specific regulations (Toncea et al., 2016).

¹⁹⁸ [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Table_2_-_Number_of_farms_by_type_of_farm_labour_2016_\(thousands\).png](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Table_2_-_Number_of_farms_by_type_of_farm_labour_2016_(thousands).png)

¹⁹⁹ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Farms_and_farmland_in_the_European_Union_-_statistics#Farmland_in_2016

²⁰⁰ <https://insse.ro/cms/en/content/rga-2020>

The development of the concept of agroecology is related to the emergence and development of ecological agriculture since late 1970s, when the first publications and papers had been published by the teacher's team from the Agronomy Institute of Cluj-Napoca and later on at other Romanian agricultural centres (Moudry et al., 2018a) for example in Bucharest and Timișoara. Pioneer scientific work on the organic agriculture concept can be traced back to 1981 with the first Romanian scientific paper called "Biological Agriculture"²⁰¹ and the promotion and support of the agroecosystem concept (Toncea et al., 2016a). The total area under organic farming continues to increase, with 2.9% of organic area out of the total utilised agricultural area²⁰².

According to all key informant interviews, agroecology is mainly understood as a holistic and integratory concept larger than, and eventually comprising, ecological agriculture, having at the centre "working with nature, and not against it" philosophy and practice (ROU-KI-1, ROU-KI-4, ROU-KI-5, Table 1). Another part of key informants (ROU-KI-1, ROU-KI-5, Table 1) define agroecology according to three activity categories (practice, science, and social and political movement) and one introducing the term of "peasant agroecology" as distinct of the sole use and understanding of "agroecology" (ROU-KI-1, Table 1).

As all key informants declared, in Romania there is no specific legal framework on agroecology. Moreover, the existing regulations and measures that might contribute to the development of certain elements of agroecology are in fact European, namely the Common Agricultural Policy and its eco-schemes measures, with almost no national adaptation to better support agroecology. A lack of vision and appetite towards agroecology by the central relevant public Romanian institutions (ROU-KI-1 and ROU-KI-7, Table 1), a general void of institutional support (ROU-KI-6, Table 1), as well as an agro-industrial orientation (ROU-KI-1, Table 1) has been reported, impeding the development and up-scaling of the existing opportunity and potential that Romania has in the high numbers of small-scale farm households (ROU-KI-1, ROU-KI-3, ROU-KI-4 and ROU-KI-6, Table 1) and long history in practicing agroecology (ROU-KI-1 and ROU-KI-6, Table 1).

Even if agroecology is being considered as an abstract concept and difficult to put in simple words (ROU-KI-5 and ROU-KI-7, Table 1) and at the level of society in general there is either no or only slightly awareness of it (ROU-KI-1, ROU-KI-2, ROU-KI-4, and ROU-KI-7, Table 1), there are efforts carried out to promote it (ROU-KI-1, Table 1). There is an increasing tendency among new-entrants in agriculture or remigration (ROU-KI-1 and ROU-KI-3, Table 1), and many existing networks and stakeholders of civil society to put in the practices, and to study and advocate agroecology (ROU-KI-2, ROU-KI-3, ROU-KI-6 and ROU-KI-7, Table 1) through education and trainings, projects, cooperative production and short-supply food distribution, policy briefs and recommendation.

Agroecology finds its chance to develop and upscale in the formal recognition and to support of those who are already practicing it (ROU-KI-1, ROU-KI-6, Table 1) or the existing practices and networks (ROU-KI-5, Table 1) through investments and adaptation of school curricula's to better reflect the current reality and future solutions (ROU-KI-4, Table 1) in the European strategies and regulations, and, in general, in the large dissemination of it as a concept and examples among public at large (ROU-KI-6, Table 1).

²⁰¹ PAPACOSTEA, Petre P. (1981), *Agricultura Biologică*, Editura Ceres

²⁰² https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Organic_farming_statistics

3. CURRENT SITUATION OF AGROECOLOGY

3.1. EDUCATION AND TRAINING



With the development of organic agriculture in the 1990s and 2000s globally, the initiation of Bachelor and Master programmes and curricula on issues such as organic farming, sustainable agriculture and development, and food science and technology are following. Mainly, these curricula are developed by the universities of agricultural sciences and veterinary medicine established in the major cities in Romania with branches open or presence in other cities and towns. However, until today there has been no development of an agroecology curriculum.

The main universities to offer educational programs - BSc, MSc, PhD on organic agriculture and respective applied technologies are located in main cities, such as the University of Agricultural Sciences and Veterinary Medicine in Bucharest²⁰³, the University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca²⁰⁴, the University of Agricultural Sciences and Veterinary Medicine Ion Ionescu de la Brad²⁰⁵, and the Banat University of Agricultural Sciences and Veterinary Medicine of Timișoara²⁰⁶. In the recent decades, the number of agricultural high school units has decreased with the years²⁰⁷, with only 57 units in the whole country at present time, facing financial cuts²⁰⁸.

Education on organic agriculture has been in parallel provided by civil associations and informal groups, as well as vocational adult training and learning programmes courses recognised by the Ministry of Education and provided by training enterprises or NGOs. More and more examples in the last decade include individuals and informal groups or recent established non-profit associations that offer a variety of workshops and courses on permaculture, natural agriculture, soil fertility, and resources management (ROU-KI-1, ROU-KI-2 & ROU-KI-6, Table 1) which dedicated to a diverse public, from children, to urban gardeners, or to new entrants in agriculture. Often, they develop with own or few human and financial resources (ROU-KI-2, Table 1) and involve experiential education, such as long term internships, on-field workshops, and courses which are presented as initiatives below. Major opportunity and need outlined here are the education for very young generations (ROU-KI-6 & ROU-KI-4, Table 1) and combining theoretical education with experiential learning.

An often underappreciated educational aspect since decades is the informal education realised in rural areas and at the farm level where generational transfer of agroecological knowledge and practice is taking place in informal and creative way (ROU-KI-1, Table 1). Unrecognised at the society level, its up-scale suffered (ROU-KI-1 & ROU-KI-6, Table 1) with almost unknown examples of long time internships resulted as a cooperation between universities and farms (ROU-KI-1 & ROU-KI-4, Table 1).

Still, informal education provided on the farm is increasing through international programmes such as World Wide Opportunities on Organic Farms (WWOOF)²⁰⁹ or initiated in a direct manner by farmers (ROU-KI-1, Table 1) with longer-term experiential and learning-by-doing activities, workshops and courses. Peasant to peasant education through workshops, study visits, webinars and manuals provided around the themes of peasant agroecology, agroecological practices, and soil fertility are being provided and developed within the peasant association "Eco Ruralis", as well as by individual farms (ROU-KI-1, Table 1).

²⁰³ <https://www.usamv.ro/index.php/en/> - ²⁰⁴ <https://www.usamvcluj.ro/> - ²⁰⁵ <https://www.uaiasi.ro/>

²⁰⁶ <https://www.usab-tm.ro/en> - ²⁰⁷ <https://www.crpe.ro/agricultura-educatie-pentru-agricultura>

²⁰⁸ <https://worldvision.ro/2021/03/16/world-vision-romania-liceele-agricole-taiate-din-lista-prioritatilor-educatiei-o-decizie-care-anticipeaza-ca-romanii-vor-manca-din-exporturi-si-in-anii-care-vin/>

²⁰⁹ <https://www.wwoof.ro/>

3.2. LIVING LAB



The concept of living labs is in most part not familiar to stakeholders, with the exception of certain academic members or civil organisations involved in EU-level projects (ROU-KI-4 & ROU-KI-5, Table 1). Even though the term of living lab is not used as such, some identified initiatives may fall under the description of living lab, involving the co-creation of knowledge and research, transdisciplinary activities, applied research with concrete results, and cooperation of multiple stakeholders. One of the identified initiatives and potential living lab is Agronomia Agro Food Innovation from the city of Cluj-Napoca (see details in part 4).

3.3. MOVEMENT



According to the key informants, there are many organisations, informal groups, and also individuals, mainly in the sectors of food and agriculture and environmental protection, that are recognised through their work for promoting or putting agroecology in practice. The majority of them refer to organic farming and high nature value farming or environmental-friendly agriculture, while the concept of agroecology is rarely used (ROU-KI-1 & ROU-KI-5, Table 1) and only one reference is affiliated to a corresponding international movement of La Via Campesina.

The beginnings of agroecological civil associative sector in Romania are related with the establishment of four organisations in late 1990s: the Organic Farmers Association of Romania (BIOTERRA)²¹⁰, the Romanian Association for Sustainable Agriculture (ARAD)²¹¹, the Agroecology Association (Agroecologia), and the National Federation of Ecological Agriculture (FNAE)²¹² who are working towards promoting ecological agriculture and the development of agroecosystems (Moudry et al., 2018). Their activity marks the cooperation and involvement of numerous stakeholders such as farmers and agricultural enterprises, academics and universities, certification bodies, and public institutions, bringing contribution to set up the first regulations regarding ecological agriculture in Romania²¹³, as well as the implementation of recommendations and standards regarding ecological production and products. Early 2000s witnessed various conferences dedicated to ecological agriculture, trainings dedicated to farmers and support in obtaining certification, research and technological transfer projects, as well as demonstrative farms and plots, participation to international study visits and fairs, and the development of partnerships with numerous European similar organisations and with the International Federation of Organic Agriculture Movements (IFOAM).

The Eco Ruralis association is one example that evolved from its inception in 2009, currently building and putting in the centre of its mission and entire activity the concept of agroecology while developing programmes and activities on three major activity categories (see the initiative part - activity category movement). As some key informants declared (ROU-KI-6 & ROU-KI-7, Table 1), most of the actors in the civil movement are active on specific aspects of agroecology, and least are approaching in a holistic manner the concept of agroecology, that seems still unknown within the movement. Many other examples provided are related to extension services or agricultural development in relation with environmental protection such as Agricultural Development and Environmental Protection in Transylvania (ADEPT) Foundation²¹⁴ since 2004, WWF-Romania on high nature value farming since 2006, and more recently, Milvus Group Bird and Nature Protection since 2017, that created a local label to promote and support small-scale farmers active in the Nature 2000 site of Valea Nirajului-Târnava Mică.

²¹⁰ <https://www.bioterra.org.ro/> - ²¹¹ <http://agriculturadurabila.ro/> - ²¹² <http://fnae2000.weebly.com/>

²¹³ RO Emergency Decree, O.G. 34/2000. <https://legislatie.just.ro/Public/DetaliiDocument/21942>

²¹⁴ <https://fundatia-adept.org.ro/home/>

Since 2013, the Urban Centre of Good Initiatives (CUIB), located in the city of Iași eastern Romania and initiated by the Mai Bine association, is approaching multiple aspects of agroecology from sourcing local food for conscious consumption, food waste, and waste-management, in a holistic narrative advocated among many stakeholders (see the part 3).

The movement around agroecology is getting more populated with new actors, change according to key informants (ROU-KI-1 & ROU-KI-6, Table 1), organised in informal groups or acting as individuals hence agroecology and related concepts face either a revival and or a further development.

3.4. PRACTICE



Agroecological practices are considered to have existed in Romania since decades and still continuing to present day, due to the great rural population engaged in farming (ROU-KI-1, ROU-KI-5 and ROU-KI-6, Table 1), though confronted with numerous challenges. The use of heterogeneous traditional and local plant seed varieties and animal breeds, crop rotation, intercropping, the use of natural phytosanitary treatments, the use of green and animal manure, and the use of low-tech and hand tools are just a couple of the example practices provided by key informants (ROU-KI-1, ROU-KI-2, ROU-KI-4, ROU-KI-5 and ROU-KI-6, Table 1). Besides, agricultural practices are doubled by the existing of social and cultural practices that fall under the description of agroecology such as preservation of traditional heritage (e.g. like in food recipes and food processing), the collective work of lands and the use in common of public resources (ROU-KI-1, Table 1). Many of the existing small-scale farmers are practicing agroecology without knowing or naming it as such, either as a result of continuation of older generation's way of doing agriculture or of a personal conviction (ROU-KI-1 and ROU-KI-7, Table 1).

At the same time, the number of farmers engaged in certified organic agriculture has increased since the 1990s, especially due to subsidies and compensatory payments under the Common Agricultural Policy (ROU-KI-4 and ROU-KI-7, Table 1). Most of the key informants interviewed pointed out a distinction between small-scale subsistence and semi-subsistence farmers, and farmers more oriented towards the market, highlighting a diversity of practices in the first ones, with less consciousness over the concept of agroecology, while the second one with a clearer intent in adopting agroecological practices.

Since 5 to 10 years, as well as a consequence of the 2020 pandemic of Covid-19, a new group is emerging, of young urban citizens accessing rural land to practice natural agriculture, and mostly permaculture or organic agriculture with high potential impact for the future of agroecology and development of rural areas²¹⁵ (ROU-KI-1 and ROU-KI-6, Table 1).

With an increased consciousness among consumers and producers regarding environmental-friendly agriculture and short-supply food chains in the last decade, many practical initiatives have been established facilitating a direct relationship between the two (see Asociația pentru Susținerea Agriculturii Țărănești and Cutia Țăranului, two examples of community supported agriculture in the initiative part under the practice activity category) or creating food hubs to increase access to market and to local products for various local producers stakeholders, such as Nod Verde in the city of Cluj-Napoca, North-West of Romania or Cumsecade in Odorheiu Secuiesc, located in center of the country, and many others.

²¹⁵ <https://www.zf.ro/profesii/romanii-pleaca-mars-oras-tara-2020-s-dublat-fluxul-positiv-catre-20205699>

3.5. SCIENCE



Formal research on agroecology is rather limited and at the beginning in Romania (ROU-KI-6 and ROU-KI-5, Table 1), developed mostly within EU-level projects, involving civil associations, universities and national institutes. The concept of agroecology in the research domain is still new in Romania, often under various and conflicting understandings (ROU-KI-1, Table 1) or remain unknown (ROU-KI-6, Table 1).

The foundation of agroecology in Romanian science resides in the work of the teacher team from the Agronomy Institute of Cluj-Napoca in the late 1970s and represented by the publication of numerous courses, papers, and books and later on in the activity of other Romanian agricultural centres from Timișoara, Bucharest or others (Moudry et al., 2018b). Agroecology had been defined through the lens of ecology and the first scientific paper to address ecological agriculture appeared in 1981 (Papacostea, P., Biological agriculture), in parallel with the scientific promotion of the agroecosystem concept by D. Teaci, I. Puia and V. Soran (Toncea et al., 2016b).

Currently, at the level of academic and research sector, there is a variety of bachelor and master curricula on ecology, organic agriculture, sustainable agriculture and development, though none officially on agroecology. According to key informants, research related to agroecology is insufficiently carried out, due to recent emergence of this term (ROU-KI-5 and ROU-KI-6, Table 1), as well as a lack of public support for its development (ROU-KI-7, table 1).

Organic agriculture and practices, and sustainable development are rather the issues around which research is mostly developed by research institutes and universities (ROU-KI-3 and ROU-KI-7, Table 1). Chronically underfinanced in general, research faces also a challenge in approaching agroecology (KI-KI_7, Table 1).

Besides formal research, there are the empirical science, produced since generations by peasants and farmers in the fields (ROU-KI-1, Table 1), and the innovation based on their individual and collective observations, trial and error approaches, and transmission of the newly produced knowledge to the next generation through informal ways (word of mouth or by practice). This way of long historical research is mostly not recognised and valued within the general society and often also among other stakeholders (ROU-KI-1, Table 1), with few civic organisations supporting and promoting it.

Additionally, participatory research on subjects that may fall under the definition of agroecology though encountered (ROU-KI-1 & ROU-KI-3, Table 1), rarely implies a democratic participation of both the farmers and the academic researchers in the conducted research (ROU-KI-1, Table 1).

4. AGROECOLOGY INITIATIVES, CASES AND EXAMPLES

Table 2: An overview about initiatives, cases and examples described and analysed.

































INITIATIVE N°	INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
					EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
1	Provision Transylvania	Local	Association and farm	Offering experiential learning at the farm, workshops and courses on agroecological practices					
2	IncrEdule Forest Resources	National	Enterprise, NGO	Developing wide-range of practical and online courses and workshops about nature and resilience					
3	PermaFLORA	Local	Association	Experiential education for children, urban gardening projects and curricula in kindergartens and schools					
4	Agronomia Agro Food Innovation	Regional	Enterprise, University	Valorising research and knowledge in university and creating access to market for local products					
5	CUIB	Local	Enterprise, Association	Offering alternative ways of responsible and environmental-friendly life style					
6	Hosman Durabil	Local	Association	Contributing to a more sustainable and tolerant future through local agricultural and cultural initiatives					
7	Eco Ruralis	National	Association	Promoting peasant agroecological agriculture, peasants rights and food sovereignty					
8	Rural Being Association – The peasant box <i>Asociația Ființa Rurală – Cutia Țăranului</i>	National	Association	Facilitating direct short-distribution food chain through regular food box deliveries					
9	Living seeds <i>Semițe Vii</i>	Local	Enterprise	Traditional and peasant plant varieties production					
10	Nature 2000 product from Niraj and Târnavă Mică Valley <i>Produs Natura 2000 din Valea Nirajului și Târnavei Mici</i>	Local	Association	Label to support local farmers with contribution to the conservation of natural resources.					
11	The Barn with Goodies <i>Șura cu Bunătăți</i>	Local	Enterprise	Producing traditional food products from foraged wild plants and local ingredients					
12	Association for Support of Peasant Agriculture <i>Asociația pentru Susținerea Agriculturii Țărănești</i>	National	Association	Facilitating direct and in solidarity CSA partnerships					

Table 3: Additional initiatives, cases and examples in the country

INITIATIVE NAME	SCALE	TYPE OF STRUCTURE	AIM	ACTIVITY CATEGORIES				
				EDUCATION & RESEARCH	LIVING LAB	MOVEMENT	PRACTICE	SCIENCE
The taste of Iași <i>Gustul Iașiului</i>	Regional	Project, digital marketing platform	Facilitating the direct access of consumers to local and regional food products.					
SolBun Cooperative <i>Cooperativa Sol Bun</i>	Local	Cooperative	Agricultural cooperative of organic, high nature value and mountainous based producers.					
Fundulea National Agricultural Research and Development Institute <i>Institutul de Cercetare și Dezvoltare Națională Fundulea</i>	National	Public institute	Public research unit and development field regarding the cereals, industrial and forage crops, and agroforestry.					
Green Hub <i>Nod Verde</i>	Local	Food hub	Food hub aggregating local products, consumers and HoReCa.					



EDUCATION



PRACTICE



SCIENCE



MOVEMENT



LIVING LAB

INITIATIVE N°1 – PROVISION



<https://provisiontransylvania.com>
Facebook: @Provision-Transylvania

PROVISION

Provision is a learning centre for regenerative living and non-violence based at an educational and family farm in the Transylvanian village of Alunişu (North-Western Romania), and initiated by the Provision Transylvania non-profit association. Its aims are promoting the use of agroecology non-violence and creative arts, supporting life-enriching systems, and supporting the expansion of people's ideas and visions towards natural ecological systems and human cultural heritage.

Provision farm is a small family farm operated by a family of three people, and organised around the vision and principles of regenerative and peasant agroecology. Relying mostly on work done by hand and horsepower, Provision is situated on little less than 2 hectares of land, including orchards, vegetable gardens and fields for grains and also 10 milking goats, chickens, ducks and horses, providing around 80% of all the food consumed by the everyone living and staying on the farm and at the centre. Since 2012, Provision offers an educational programme tailored to people's needs, from experiential learning at the farm to particular one day up to one-week workshops and courses, in a holistic and playful way and it's open and dedicated to any interested individual person or groups.

The experiential learning involves a minimum short term of 2 weeks up to long-term periods of 2 months or longer, after completion of the two weeks at the Provision farm. It consists in learning offered by real life examples, hands-on practices and, nature and farm exposure. Combining on-site knowledge, skill-sharing of the 2 persons running the farm, and learning-by-doing, the main aspects that this module approaches are: working on the farm (daily tasks such as animal care, cheese making; seasonal work such as planting, growing, harvesting, preserving and more particular projects such as natural building and infrastructure improvement) and working with the village community (partaking in the work of the villagers, learning skills first-hand and have cultural exchanges). All the activities take place on the 2 ha of land that belong to the Provision farm, including orchards, vegetable gardens and fields, and also animals from chickens, ducks and goats.

Besides experiential learning, every year Provision offers courses and a range of workshops in the fields of agroecology and nonviolence, focusing on self-sufficient living, non-violent communication and their interrelation. The courses are offered by teachers, local and international, including the peasant community from the village and the two persons running the farm. They may vary from one day up to one week and approach a variety of subjects such as basic skills in peasant lifestyle, natural and traditional building,

KEY FEATURES

- **Type of education and training:** experiential learning, workshops and classes
- **Main topics:** agroecology practices, transition towards agroecology, sustainable food systems
- **Training duration:** 1 day up to 2 months
- **Course language:** Romanian and English
- **Founded in:** 2012
- **Accessible to:** individuals/groups

¹⁶⁰ Howard Gardner's theories challenged the traditional notion that there is one single type of intelligence that only focuses on cognitive abilities. To broaden this notion of intelligence, Gardner introduced eight different types of intelligences consisting of: Linguistic, Logical/Mathematical, Spiritual, Bodily-Kinesthetic, Musical, Interpersonal, Intrapersonal and Naturalist.

soil management and organic gardening, animal care and husbandry, and fiber arts. A combination of classroom theory and hands-on farm experience is foreseen to maximise learning and enjoyment.

Provision learning centre works with and involves in the educational programme for a diversity of people, from local peasants who engaged in peasant-to-(future)-peasant knowledge and skill sharing, or experts of specific issues such as members of international movements and organisations.

The development and continuity of the programme are ensured through the fees offered on a sliding scale (a basic fee, a balanced fee, and a community fee) for each course, according to students' financial possibilities, while covering the organisational costs.

Agroecology, self-sufficiency and non-violence are placed at the heart of both the educational programme and the Provision Transylvania's mission and activities, that seek getting (re)acquainted with and putting in practice old, lost or new practices and skills towards more autonomy, creativity and sustainability in agroecological living. Provision states non-violent and agroecological life style as its core values, for example self-sufficient living skills, agroecological practices, permaculture, and non-violent communication. Through its educational programme it hopes to bring people's learning to a path of learning circles: first in a class, then in a farm-experience and after that, back in the life situation of each student.



Picture 1: Provision Transylvania (left); photo from 'The solution are in the Soil' workshop (right), 2019, July. Source: Provision Transylvania.

WHAT CAN WE LEARN?

Provision learning centre and farm for agroecology and nonviolence has developed a space for experiential learning and for peasant-to-peasant knowledge and skill sharing in an informal and complex approach, while offering short-term courses on specific issues in regards to agroecology and self-sufficiency, and facilitating insight into the complex nature and life of ecological and human systems. Provision is bringing people on wider circles: first in a class, then in a farm-experience and after that, back in the life situation of each student.



EDUCATION



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE

INITIATIVE N°2 – INCREDIBLE FOREST RESOURCES


<https://incredibleromania.com>
<https://ecosistemica.org>
<http://aulamicosfera.com>

INCREDIBLE FOREST RESOURCES

IncrEdible Forest Resources is an educational movement in Romania with double role of building a more autonomous life with responsibility towards the environment and a small enterprise offering a wide-range of courses about nature and resilience, more precisely on organic agriculture, natural medicine and cosmetics, wild food, and natural art.

Started in 2016 as an informal group with two founders, it grew up to the present day into the enterprise IncrEdible Forest Resources, involving six employees and many other short and long term collaborators, offering a variety of paid courses and educational programmes.

IncrEdible Forest Resources provides in-person and online courses with the aim to give people the occasion of finding out how they can enjoy the resources to be found in nature through understanding it and developing a mutual beneficial interaction between the two. Reproducing old knowledge and latest scientific findings, IncrEdible courses approach a wide array of subjects such as: organic gardening, food forest, medicinal and aromatic plants, tinctures and ointments, foraging wild mushrooms and wild plants, canning and preservation, and dyeing with natural plant pigments.

The courses are envisioned in both structure and time length to provide gradually information up to a medium level of complexity, enough for the students to have a deep understanding of the topic and be able to further self-educate and continue discovering. In this regard, most of the courses are organised with a two-part structure: a theoretical one, consisting in pre-recorded sessions and self-evaluations, and a practical one, on the site, farm or forest. The time-length of each course vary and can go up to 750 hours, with a 6-months access to the platform to learn in a personal pace. Up to present time, approximately 500 people attended the courses and workshops provided.

Since 2019, as a result of an international cooperation, IncrEdible started managing an online platform called Micosfera, including in their offer mycology related courses, developed in Spanish language, besides all the above mentioned courses which are in Romanian.

IncrEdible works closely with the EnCaRe association, aiming at providing free workshops and courses on self-sustainability, foraging and the school of nature. These courses take from three days up to one week and are targeted rural communities (neo-rurals and older locals), professors and educators, parents, and employees from various public institutions (especially with relevance to the food, agriculture, health

KEY FEATURES

- **Type of education and training:** physical and online short and long term workshops and courses
- **Main topics:** organic agriculture, wild food, natural medicine and cosmetics, natural art
- **Training duration:** 3 days up to 6 months
- **Course language:** Romanian and fewer in Spanish
- **Founded in:** 2016
- **Accessible to:** adults, children & public institutions

¹⁶¹ Genuino Clandestino was founded in 2010 as a communication campaign to denounce a set of unfair rules that, by equating processed peasant foods with those of large food industries, has made them illegal. For this reason, since its inception, it claims the free transformation of peasant foods. <https://genuinoclandestino.it/chisiamo/>

and nature sectors). Part of the workshops and courses are delivered in person, mainly those in rural communities on subjects such as canning and preserving, labelling and marketing, edible wild mushrooms and plants, and living as a neo-rural in a rural community, while others are envisioned as online courses to be attended at each one's pace.

All workshops and courses are designed, provided and held by the team of IncredEdible and several other professional and self-taught experts in the various topics approached.

Many elements of agroecology are found at the basis of both structures and their activities with the respect for the environment as the main driver and principle, while aiming at an increased resilience and autonomy in humans relations to nature. Their vision unfolds in several direction covering organic agriculture, wild food and plants, and rural life, addressing individuals, communities, and public institutions.



Picture 2: Wild Mushrooms Foraging while on the site and morphology (left); taxonomy analysing after samples collection (right), 2019. Sources: <https://www.facebook.com/IncrEdibleResources/photos/1112098969317007> and <https://www.facebook.com/IncrEdibleResources/photos/688010108392564>.

WHAT CAN WE LEARN?

IncredEdible Forest Resources came up and developed a wide-range of almost unique courses based on the holistic vision that humans are part of nature and a mutual beneficial interaction between them can be learned and further cultivated for the future to come. The courses answer the increasing appetite and needs of people to become more autonomous in food production and foraging, while also adapted to the pace of the students. One strength is derived from the close connection with EnCaRe association, ensuring accessibility to knowledge to a variety of groups in society.



EDUCATION



MOVEMENT



PRACTICE



LIVING LAB



SCIENCE

INITIATIVE N°3 – PERMAFLORA

Urban Health
by Claire Association

<https://claudiaranja.wixsite.com/traicublandete>
Facebook: @Permaflora

PERMAFLORA

PermaFLORA – “everything is gardening” consists a series of gardens in Mureş county (centre-North of Romania), aiming at creating spaces where food is grown in a clean way and where a sense of wellness, fulfilment and (re)connection with the daily food and nature can be cultivated by city dwellers and children, mostly, through experiential education.

PermaFLORA was founded in 2018 in the city of Târgu Mureş as an informal initiative by a small team of two and later it was included as a project of the Urban Health by Claire (non-profit association), thus enabling the team to receive financial support from a wider range of sources. PermaFLORA runs an urban garden in the proximity of residential areas and a 0.5 ha countryside plot in a village, 20 kilometres away from the city of Târgu Mureş.

Since its inception, education is the central for the life of the initiative with learning by doing, learning from and with nature and its complexity, and children, as the next generation in full development, as their main interests. Through PermaFLORA urban children have the occasion to be reconnected with gardening and nature and educated about agroecological ways of growing food, by getting involved in short-stay camps or in urban gardens on their kindergartens.

PermaFLORA cooperates with city local kindergartens, as well as some primary and secondary schools, to introduce gardening into their curricula. They support teachers in building schoolyard gardens and distribute heirloom seeds, coaching for teachers, and providing materials that can be used in class. Due to a lack of flexibility of kindergarten and schools curricula or institutional support for teachers, only a few kids gardens were developed. The development is also due to the teachers' enthusiasm and tenacity.

In 2019, the countryside garden had been the site of a five-days long pilot summer camp dedicated to "children from the city" of all ages, with a focus on children coming from marginal groups. During the week, the teams consist of in people with various experience and formation (pedagogical, gardening etc.) prepared a series of activities based on observation, experimenting practices of growing food and composting, cooking, discussions and reflections, and visits in the surroundings around topics such as food, water, forest, pollinators, social relations and principles.

So far, PermaFLORA grew with the support of many individuals through their involvement, their knowledge or specific resources needed for planned activities, as well as private donations. As networking and community are among the essential principles of PermaFLORA, cooperation with local farmers and producers, other local and international associations (e.g. Slow Food International), experts, and local institutions brought also financed projects for example a relevant one with Slow Food concerning distribution of seeds and training manuals on the role of pollinators to 25 school teachers.

KEY FEATURES

- **Type of education and training:** experiential learning, reflection focus & knowledge focus
- **Main topics:** food and farming education, permaculture, healthy, slow and responsible lifestyle
- **Training duration:** 5 days up to one school year
- **Course language:** Romanian
- **Founded in:** 2018
- **Accessible to:** children & kindergartens

While the initiative does not explicitly use the concept of agroecology, related concepts are at its heart, among them are permaculture, organic gardening, food education, cooperation, community-building, degrowth, slow food and life, diversity, and reconnection with nature.

The team is currently developing a manual consisting 20 gardening activities, four for each season, dedicated to kindergarten teachers to be used in the class. Each activity will also include simple and seasonal vegetarian recipes. In doing this, they are collaborating with two teachers to better align the activities with curricula and teachers' needs. The launch of the guide is aimed to involve local stakeholders including the local town hall, Forest District, and other supporters of sustainability and green spaces, in order to further stir up cooperation and a better inclusion of gardening in children's' life. Their goal is to make the manual free and accessible for any teacher to use.



Picture 3: Pictures from SnailKids Camp, July 2021. Sources: <https://www.facebook.com/slowfoodmures/photos/pcb.854464375178524/854457415179220/> and <https://www.facebook.com/slowfoodmures/photos/pcb.855163075108654/855157125109249>.

WHAT CAN WE LEARN?

PermaFLORA highlights the importance of education in agroecology and food systems. One insight is in collaborating directly with schools and teachers for developing "children from the city" interest in how food is grown, increasing awareness of topics such as the importance of organic farming and seasonality in produce. The initiative also illustrates the value of teaching by example through live garden demonstrations and reconnecting children with nature.



LIVING LAB



EDUCATION



PRACTICE



SCIENCE



MOVEMENT

INITIATIVE N°4 – AGRONOMIA AGRO FOOD INNOVATION


<https://gourmeticus.ro>

AGRONOMIA AGRO FOOD INNOVATION

Agronomia Agro Food Innovation is a spin-off developed by five faculties of the University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca with the aim to capitalise on the scientific knowledge and research resulted within the university, and commercialise agri-food products produced at its farms and research stations, as well as other quality local products from the region. Established in 2016 as an enterprise with limited responsibility with the University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca (USAMV) as sole shareholders, currently Agronomia Agro Food Innovation involves 15 employees, daily workers in certain periods, and students carrying out their university practice or internships. Besides, it cooperates with agricultural high-schools offering post-graduate practice, as well as with various stakeholders (e.g. Local Action Groups, NGOs) for specific objectives and projects.

Ingredients used by Agronomia Agro Food Innovation to produce food are taken from the Experimental Educational Station of USAMV called the Cojocna Farm, a 667 ha ecologically certified farm producing crops and raising animals (300 cows, 250 pigs, 800 sheep, 12000 hen) which are processed in the 6 production spaces of the university. Since 2020, Cojocna Farm obtained organic certification for its dairy products (milk, cheese, fermented milk products) produced in their own milk processing factory.

Besides, the online platform serves as an aggregator of local products from a 70 km radius produced by other local producers (some former students) who can ensure quality products, organic or agroecological, or at least processed as possible. Due to CAP cooperation measures and developed projects in cooperation with NGOs and Local Action Groups, new producers have been identified and the platform had been promoted in the region.

Agronomia Agro Food Innovation works based on a close cooperation between the Faculty of Veterinary Medicine, the Faculty of Agriculture, the Faculty of Horticulture, the Faculty of Zooculture and Biotechnologies and the Faculty of Food Science and Technology, each of them running activity in its sector (e.g. research, crop cultivation, animal raising, etc.). The Faculty of Food Science and Technology is responsible with processing the raw ingredients and producing dairy, meat and pastry products to be commercialised in their own stores and on the online platform.

KEY FEATURES

- **Main topics:** development and marketing of local products, food processing, research
- **Founded in:** 2016
- **Type of organisation supporting the living lab:** enterprise
- **Type of actor involved:** agricultural enterprise, scientists, students, food hubs, farmers, NGOs, local action groups etc.
- **Scale of the living lab:** regional

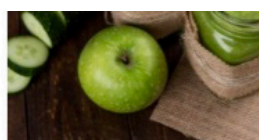
Although not naming itself a living lab, all these processes are connected, and meant to engage multiple actors from students and post-graduates to farmers, Local Action Groups and NGOs, as well as private firms (eg. Marketing companies, Romanian EIT Food Hub, Nod Verde Food Hub etc.) to produce and test new research and studies, new food recipes, new varieties, new ways of cooperation and innovations, etc. It holds also competitions dedicated to students with ideas for innovative agri-food services or products, with the possibility to be tested and commercialised through the platform, as well as be trained and coached by mentors around the initiative. Out of the research within the university and involving students or farmers, new food recipes emerged out of which Agronomia Agro Food Innovation grew their own line of products named Gourmeticus Academicum, a brand standing for the Farm to Fork concept and at the intersection between premium quality products and local primary ingredients.

Since its inception, the initiative had to pass several stages: acquiring the necessary authorisations for processing activity and marketing of products, re-purposing the existing production pilot stations of the university from educational to larger scale production, launching a physical shop and a coffee house in the university campus available to all citizens and an online marketing platform.

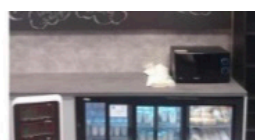
Agronomia Agro Food Innovation is financially supported through its own commercialisation activity, as well as through cooperation projects financed by the National Rural Development Plan. In the future, there are plans for Agronomia Agro Food Innovation to be an active part of a bigger living lab initiated by USAMV, Biodiversity Campus Park and Farm in the city of Cluj-Napoca, consisting of an apiary, a tech pavilion, greenhouses, spaces for animals a biogas station and aiming at increasing research, conserving animal breeds through innovation and cooperation with various stakeholders and opened to the large public.



Băcănie (47)



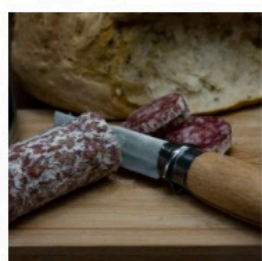
Băuturi răcoritoare (7)



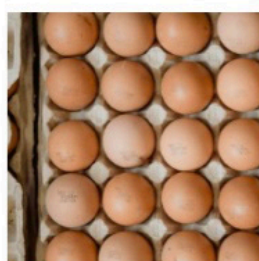
Gourmeticus 100% (23)



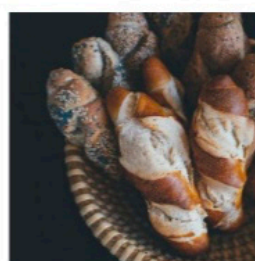
Lactate (14)



Mezeluri (20)



Oua proaspete (3)



Patiserie și Panificație (5)



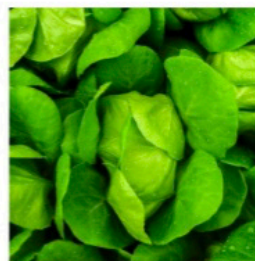
Plante decorative (4)



Produse BIO (10)



Uleiuri (3)



Verdeturi de sezon (5)

Picture 4: Caption of the online platform. Source: <https://gourmeticus.ro/magazin/>.

WHAT CAN WE LEARN?

Agronomia Agro Food Innovation is looking to enhance cooperation between several stakeholders and produce new ways of cooperation and stir-up innovation in agri-food production, processing and marketing. Complementary to the on-going development of the sites under the administration of the university, it fosters linking academia with civil society, keeping up with the most recent approaches, such as farm to fork.

POSITIVE IMPACTS



COOPERATION: Agronomia Agro Food Innovation is looking to enhance cooperation between several stakeholders and produce new ways of cooperation and stir-up innovation in agri-food production, processing, and marketing.



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE: One of its main aims is the commercialisation and promotion of local products from a 70 km radius, at a fair price to ensure quality for consumers and decent income for producers.

LIMITATIONS & CHALLENGES



GOVERNANCE: In many instances, the legal form of an enterprise with limited responsibility is restrictive for certain grants or projects according to the existing law, thus become a challenge in contracting financial support.





MOVEMENT



PRACTICE



EDUCATION



LIVING LAB



SCIENCE

INITIATIVE N°5 – CUIB


<https://incuib.ro>

CUIB – URBAN CENTRE OF GOOD INITIATIVES

CUIB (Central Urban de Inițative Bune) is a social enterprise and bistro for responsible consumption located in Iași (Eastern Romania). Its aim is to offer alternative ways of consumption following a holistic approach, where the ecological, social, and economic dimensions of production, sourcing, consumption, and waste are actively considered and improved. CUIB was founded in 2013 by the Mai Bine association, who is working towards sustainable development and resilience in the areas of ecology and environmental protection, education, social economy, and civic responsibility.

As an acronym for “Urban Center for Good Initiatives,” CUIB serves as a bistro, a hub for local and solidarity products, and a space to host workshops and events. The CUIB bistro offers a seasonal menu of vegetarian meals, aimed at reducing emissions and promoting environmental-friendly alternative ways to consumption.

Within this, 80-90% of the ingredients are locally sourced, and products like coffee and tea that must be imported are Fair Trade certified. CUIB promotes a ‘water without plastic’ approach that sees water as a human right, opting to not sell bottled water. They also limit their waste by using reusable materials and composting organic waste at their urban garden. In the space, they also bring together and sell products from Romanian social enterprises.

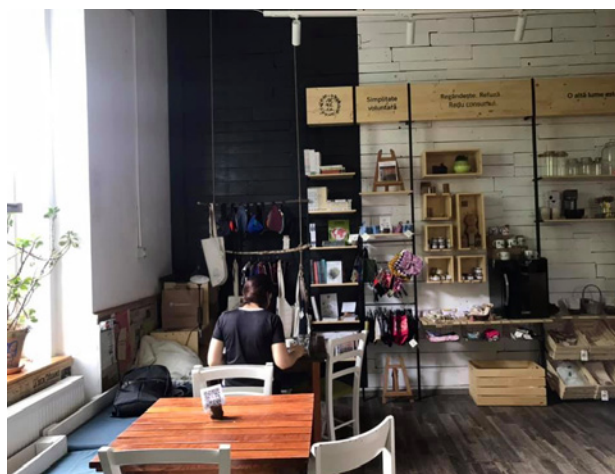
Since 2017, after a couple of years having been certified as an activity of social economy of the Mai Bine Association, CUIB started operating as a private enterprise with limited responsibility whose only shareholder is Mai Bine and, currently, engaging a team of approximately twenty people, from employees to volunteers. This split was made deliberately to allow CUIB to have an independent financial strategy while still benefiting from the ideas and vision of Mai Bine. In the past, the project has benefited from small local public funding schemes applied through the ‘Mai Bine’ association, while throughout the time its funding sources diversified, part of the projects also contributing to the aim and development of CUIB. CUIB is deliberately local in its scope as it collaborates with producers from the city of Iași and the surrounding region, including vegetable cooperatives, bakers, beekeepers, and breweries to source its ingredients. In this spirit, one of its goals is to reduce its food miles to a minimum by sourcing 90% of its ingredients from a radius of up to 100 km.

While CUIB does not specifically make use of the term agroecology, the initiative supports many related concepts including sourcing locally, circularity in the food supply chain, social economy, fair trade, supporting small producers, and reducing waste and emissions.

KEY FEATURES

- **Main goals:** promoting a resilient and environmental-friendly lifestyle and alternative ways for responsible consumption
- **Founded in:** 2013
- **Type of organisation:** social enterprise
- **Farming sector:** multiple
- **Scale of the organisation:** local, with regional links

CUIB hopes to become the first 'Zero Waste' certified space in Romania by 2023, to reduce at best the distance between farm to fork, to establish the first food bank and to put the basis of a circular-economy model in Romanian HORECA. Through Mai Bine, the team is currently piloting a small closed-loop production model, composting organic waste from the bistro in a recently established urban garden where herbs and other vegetables are going to be grown and used at the bistro. They also plan to further reduce their food waste and emissions, the later with the help of two electric cargo bikes.



Picture 5: The CUIB Bistro. Source: <https://incuib.ro/>.

WHAT CAN WE LEARN?

CUIB's holistic approach highlights the importance of the environmental-socio-economic dimensions of agroecology. By prioritising small producers and Romanian social enterprises, it contributes to local resilience to support the incomes of those engaged in ecological, small-scale, and often traditional ways of growing and producing.

POSITIVE IMPACTS



ENERGY AND WASTE MANAGEMENT:

CUIB has reduced its carbon footprint compared to other communal commercial/social spaces by 10 times, avoiding 11.000 packages to reach the landfill and recuperating approximately the same amount, saving at least 23 million of litres of water.



EDUCATION: As a pioneer of holistic approaches to sustainable consumption in Iași and one of the few at national level, CUIB has contributed to facilitating a gradual change for the better in public consciousness around resilient lifestyle and responsible consumption.



SUSTAINABLE AND FAIR ECONOMICS:

With a vision of social entrepreneurship and circular economy, CUIB is sourcing its products and ingredients from local producers in Iași and the surrounding region, including vegetable cooperatives, bakeries, beekeepers, and breweries.

LIMITATIONS & CHALLENGES



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE:

Financial sustainability is sometimes a challenge for CUIB due to high rental costs, as well as lower profit margins that come with their practices at the heart of the initiative, such as not selling water and overpricing Fair Trade coffee and tea as on the market.



GOVERNANCE: The lack of political long-term view on agroecology and current rigid regulations are not well-adapted to capture and address the concepts with which Mai Bine works, impeding or leaving little room to innovate in this direction, forcing initiatives to struggle in a grey area in certain aspects, at the limit of legality (e.g. reducing food waste and receiving remaining or unused products from supermarkets as ingredients in their menu).



MOVEMENT



PRACTICE



EDUCATION



LIVING LAB



SCIENCE

INITIATIVE N°6 – HOSMAN DURABIL

HOSMAN DURABIL ASSOCIATION


<https://www.moara-veche.ro>

Hosman Durabil is an association based in Sibiu county, aiming at contributing to a more sustainable and tolerant future through local agricultural and cultural initiatives. Their areas of intervention are in preserving cultural heritage, including bringing community values and traditions into modern life, and promoting a viable vision of Romanian rural life.

The association was founded in 2005 by two families, and currently, the team is an international and multicultural with eight members, who are foremost artisans, farmers and local activists who show that a life in the countryside is possible. The initiative started in response to calls to form a tourism initiative in the region, idea that was shaped in favour of an initiative that would benefit the local economy more sustainably.

KEY FEATURES

- **Main goal:** contributing to a more sustainable and tolerant future through local agricultural and cultural initiatives
- **Founded in:** 2005
- **Type of organisation:** non-profit association
- **Farming sectors:** multiple
- **Scale of the organisation:** local, with regional

The association houses a number of projects. Comprising of a refurbished mill and a renovated barn, the centre hosts cultural events such as theatre and concerts, as well as other initiatives such as a local bakery and a newly founded Women's Digital Center. Some illustration of the project host:

- **Moara Veche - The Old Mill:** an alternative a collective cultural centre, representing the main activity of the association. They acquired the mill in 2004 in a state of ruin. After the restoration and up until 2016, the milling of the grains into flour was taking place; due to the decline of the local economy, a few locals still use the mill.
- **Șura Culturală - The Cultural Barn:** had been an old barn renovated in 2017 to create space for lodging and use year-round for various events or use it through paid dinners and village tours.
- **Brutăria Luijza - Luijza's Bakery:** In 2010, one of the first small bakeries with direct sale in Romania was opened inside the old mill. Through freshly baked bread using a traditional fire oven, it serves to diversify the economic and cultural life in the village.
- **Din Hârtibaciu, cu drag - From Hârtibaciu, with love:** is a local label initiated by Hosman Durabil to further contribute to the development of the region by labelling products coming from the wider southern Transylvania region, Hârtibaciu valley. Small and medium-sized producers from the region can use the brand for free as long as they respect certain regulations such as following traditional techniques, sourcing raw materials locally from their communities, and treating all employees equally. The brand covers producers of vegetables and fruits, meat and dairy, honey, bread, jams, cereals, and other artisanal non-food items.

Hosman Durabil recognises their own growth as linked to the growth of Romanian civil society and wanted to create spaces where those with a common vision could come together. Since 2010, they hold two yearly fairs: The Fair of Possibilities and the Day of the Mill fair. Their aim is to create a space where producers can meet, exchange and circulate ideas too – not just products. They have also developed

a catalogue for small craftsmen in the region in order to facilitate their exchange and collaboration. Since then, they have also engaged in dialogues with local political actors on issues of land grabbing and other threats faced by local communities.

The association supports itself and develops projects and initiatives in the village or the region through generating funds associated with the use of the Cultural Barn by other groups, community dinners, gastronomic events or village tours, as well as through other various source such as private foundation, European funds, transnational cooperation funds.

Though not explicitly using the term agroecology, related concepts represent the base of their mission and activity, such as rural solidarity, rural economy and development, collective work, community, anti-racism and diversity.

Hosman Durabil is a member of Longo Mai Co-operatives, an international network of agricultural cooperatives, as well as of the national peasant association Eco Ruralis. Always looking for new possibilities to build up sustainability in the village, for the future, Hosman Durabil is planning to open an officially recognised local gastronomic point, opening new financial opportunities to offer constantly prepared food to individuals and groups using local products.

WHAT CAN WE LEARN?

The projects supported by Hosman Durabil illustrate the value of working to serve and integrating with local communities rather than creating isolated initiatives. They show this through taking steps like rehabilitating old properties and building upon, and thereby helping save the traditional products and practices that are at risk in rural areas, while finding new ways and ideas to contribute to a diverse and more sustainable rural place.

POSITIVE IMPACTS



COOPERATION: The brand From Hârtibaciu, cu drag gathers currently 28 small and medium-sized producers local producers and craftsmen, aiming at bringing together producers alike. Besides, in many of their initiatives, Hosman Durabil cooperates with other associations, local facilitators and communities to complement their competences or resources in the area.



TRADITIONAL FOOD AND HERITAGE CONSERVATION: Their projects and efforts are in good proportion oriented towards restoring old buildings and putting them again in the social circuit, as well as the promotion of local food, seeds and nature.

LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR ECONOMICS: Through the lifetime of the association, they have been facing challenging financial periods, with a small team and limited capacity to contracting sustainable grants.



MOVEMENT



EDUCATION



PRACTICE



SCIENCE



LIVING LAB

INITIATIVE N°7 – ECO RURALIS ASSOCIATION

ECO RURALIS ASSOCIATION



Asociația tărănilor și tărăncilor
din România

<https://www.ecoruralis.ro>

Eco Ruralis is a national association of peasants and small-scale food and agricultural producers promoting peasant agroecology and representing peasants' rights, needs and interests.

With 17.000 members across the entire country up to present day, Eco Ruralis was created in 2009 by a couple of peasant families, aiming at representing their own rights, including the right to use and sell seeds, the right to land and access to market and the right to take part in the decision-making process of public policies regarding food and agriculture.

Eco Ruralis is working towards strengthening the peasant movement, promoting food sovereignty and peasant agroecology as path and principles and at the heart of the society, having recognised and implemented peasants' rights at all levels in public policies regarding food and agriculture, facilitating peasant to peasant knowledge and practice transfer and education in general. The association also foster local, national, and international alliances and cooperation's of food sovereignty and human rights implementation in rural areas.

The activity of the organisation is overseen by a Coordination Committee consisting in 5 peasant members, a secretariat of two and three major working groups run by members on the issues of the Right to Seeds and to Land as well as Peasant Agroecology and Rural Youth.

Up to now, Eco Ruralis has been developing on-going programmes and actions on the following issues: the right to seeds, the right to land, access to the market, peasant agroecology and rural youth, rural women, national public policies and sectorial production, peasants' rights, rural migrants, and cooperation in Eastern Europe.

Agroecology and more specifically, peasant agroecology is put at the centre of the association's vision, and work - promoted on the three activity categories of social and political movement, practice and peasant science and innovation. In this sense, Eco Ruralis has been facilitated, supported and developed long-term activities on both practical level, as well as at public policies level.

- **Practice:** Since 2011, Eco Ruralis is organising annually a national seed distribution, offering a small quantity of traditional and peasant plant seed varieties alongside with information regarding

KEY FEATURES

- **Main goal:** promoting small-scale peasant agroecology, representing peasants' rights
- **Founded in:** 2009
- **Type of organisation:** non profit association
- **Farming sectors:** multiple
- **Scale of the organisation:** national with international links

agroecological phytosanitary, allelopathy and practices solutions to be implemented by peasants for free, while encouraging their autonomy regarding seed. The hundreds of vegetables, medicinal and aromatic plant varieties are saved, multiplied and produced by members of the association and organised in a collective and participatory way within Eco Ruralis Seed Working Group and resulting in an annual Catalogue of Peasant Seeds.

- **Education:** Supporting peasant-to-peasant knowledge and practice sharing and generational transfer, Eco Ruralis is annually facilitating and organising interchange visits, workshops, trainings, webinars of a variety of topics related to food production, seed saving, soil fertility, agroecology, and decision-making processes between farmer. At the same time, the association is managing and developing the 'World Wide Opportunities on Organic Farms (WWOOF), an international programme that offers people the chance to be host farmers and volunteers who work together and have knowledge exchanges on organic farms.
- **Science and innovation:** Peasant innovation as an individual and collective way of bringing evolution in all aspects of rural life from production to culture, economy and society is of great priority in the association's work, as well as the members locally adapted practices of food production, the seed and animal breeding, building and adapting tools for small-scale agriculture, and to putting in practice an own process to articulate a common vision for thousands of farmers across the country.



Picture 6: Eco Ruralis Seed Working Group meeting, July 2021 (above). Source: <https://www.facebook.com/ecoruralis/photos/4292405637473060>. Peasant to peasant education, July 2021 (bottom). Source: <https://photos.app.goo.gl/u9Yor-JZ4wYooPjB27>.

Social and political movement: One of the main aims of Eco Ruralis is having peasants at the centre of the decision-making processes regarding food and agriculture at all levels, thus all the running programmes on the issues above mentioned consists in a major work on influencing public policies and implementing peasant rights as according to the United Nations Declaration of Peasants and other People Working in Rural Areas (UNDROP) in the national legislation.

The activity of Eco Ruralis are funded through individual donations, European grants and independent foundations grants, with a clear stand against funding from corporate companies and companies that violate human rights and produce environmental destruction, and political parties.

Eco Ruralis is a nation-wide organisation, with members in all counties, thus its activity is unfolding in several places across the country. Since 2011, it is a member of the European Coordination of Via Campesina and La Via Campesina, the largest grassroots international peasant movement, and bringing contribution on the right to seeds, land grabbing, agroecology or access to land practical and political work.

WHAT CAN WE LEARN?

Eco Ruralis is promoting peasant agroecology as a solution for the future of food and agriculture on all activity categories and at all levels through a diversity of activities addressing multiple stakeholders such as peasant-to-peasant workshops and skill-shares, collective seed production and distribution, and cooperation with researchers.

POSITIVE IMPACTS



COOPERATION: Eco Ruralis is a member-based association and its entire work consist of cooperation of peasants in working groups, in peer-to-peer exchanges or collective seed multiplying. Besides, Eco Ruralis is part of several local, national, European, and regional alliances, project consortiums, and networks aiming at promoting agroecology.



EDUCATION: Through its workshops, trainings, webinars, info kits or reports, Eco Ruralis has managed to contribute to the promotion of the concept of agroecology, as well as change widen people's knowledge (peasants and public at large) about peasant practices in agriculture, agro-biodiversity, access to land and to raise consciousness around peasants' rights.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Through its annual seed distribution, thousands of packages of traditional and peasant seeds are cultivated by small-scale producers enriching and maintaining biodiversity, while adapting seeds to local environmental conditions, strengthening their traits to resist to climate change and with no chemical inputs needed.

LIMITATIONS & CHALLENGES



GOVERNANCE: In many aspects of its activity, Eco Ruralis is challenged by national or European frameworks that are not adapted to agroecology or do not allow peasant rights to be exerted. At the same time, they are often confronted with numerous changes at the central government, and with visions more inclined towards industrial agriculture, posing more obstacles in developing agroecology.



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE



EDUCATION

INITIATIVE N°8 – RURAL BEING ASSOCIATION



**Cutia
Țăranului**

<https://cutiataranului.ro>

RURAL BEING ASSOCIATION

Cutia Țăranului is an association working to revive and support the relationship between the Romanian small-scale producer and the city population. The initiative facilitates the connection and helps arrange regular food box deliveries from producers directly to consumer members.

Cutia Țăranului started in 2012 in the city of Cluj-Napoca (North-Eastern of Romania) as an informal initiative. As it developed, it was moved under the umbrella and coordination of the Ființa Rurală (Rural Being) association in order to gain legal status.

The primary aim is to facilitate a direct relationship between small producers and consumers and thus promote a shorter food chain. Their website serves as a platform that connects producers to member consumers. Producers build an online profile containing information about what they offer, variation, frequency of delivery, and establish a price based on the products to be included in the box (e.g. vegetable, dairy, meat) and the size of the box. Once the connection is made, producers deliver food boxes on a regular basis directly to the door, giving consumer members a chance to interact with the producer to find out more about where and how the products were grown and consolidate their relationship in time. Currently, Cutia Țăranului engages 20 family and group producers covering nine cities in Romania and delivering food boxes to consumers engaged on long-term in the partnership and depending on the regularity of the specific box (weekly for the vegetables or less frequent for dairy and meat boxes).

As a secondary aim, as well as a natural and essential part of the process unfolding, the association is pursuing educating producers on topics like sustainability, long-term solutions, and the importance of the social dimension of their relationship to their consumer members, organising once in a while meeting sessions with the interested producers. As such, the project does not exclude producers based on their current agricultural practices, but rather includes those who are open to learning different, more environmental-friendly approaches (e.g. less synthetic inputs, more plant treatments and fertilisers, diversified species and varieties) and those practicing small-scale agriculture. Cutia Țăranului also encourage producers to diversify their production and cover more of consumer members' food needs to prepare several almost integral meals from the received products, underlining equality, paying the respect and attention to one's own efforts and potential overwork in the agricultural activity.

KEY FEATURES

- **Agroecological practices concerned:** small-scale environmental-friendly agriculture, crop rotation, animal welfare, short-supply chains, direct marketing
- **Founded in:** 2012
- **Farming sectors concerned:** horticulture-vegetables, livestock, permanent crops
- **Lead organisation:** Rural Being non-profit association
- **Types of stakeholders involved:** producers, consumers
- **Scale of the initiative:** national



Eniko si Istvan Butyka

Cutia cu legume

Cutie cu legume si zarzavaturi livrata saptamanal. Pentru o familie de 2 persoane. Contine legume si zarzavaturi proaspete si diverse in functie de anotimp.

ULTIMELE LOCURI DISPONIBILE



SĂPTĂMĂNAL



LEGUME SI ZARZAVATURI



Laszlo si Iutka Gyurka

Cutia cu legume

Livrata saptamanal. Pentru o familie de 2 persoane. Contine legume si zarzavaturi proaspete culese cu grija, in functie de anotimp.

Picture 7: A couple of producers of weekly vegetable boxes. Source: <https://cutiataranului.ro/destinatie/cluj-napoca/>.

On the side of consumer members, the association emphasises responsibility about what it means to buy local food and becoming conscious about the long-term impact of purchasing choices. Naming and considering them as members of the initiative is a step forward, more afar from the relationship of seller-buyer, but to create a community that seeks, finds and develops value beyond consumption.

Cutia Țăranului is not affiliated with any source of institutional funding. In 2017, they received a small financial contribution from the French embassy in Bucharest, which develops with internal resources.

Most producers and consumer members are located around the city Cluj-Napoca, where it also started. However, the project is active across Romania including Bucharest, Timișoara, Brașov, Sibiu, and Arad. Their target is producers who live and produce relatively close to cities in order to facilitate a short supply chain and enable that close and direct relationship between the urban consumer and the rural producer. As such, producers also need to be able to deliver goods regularly and personally, as the boxes are delivered directly at the homes or working places of the consumers, based on a prior understanding. Cutia Țăranului also seeks producers who take care of what they do and how they produce, and wish to valorise their labour in a different way, rather than relying on extensive marketing.

Though not explicitly referencing agroecology as a concept, Cutia Țăranului refers to related concepts such as producing seasonally, locally in a small-scale and environmental-aware agriculture, autonomy through financial sustainability, and producers' relationship with their land, among others and with their consumer members.

The project was inspired through collaborations with Eco Ruralis, an association promoting peasant agriculture and food sovereignty in Romania. They are not members of any other regional networks outside of that.

WHAT CAN WE LEARN?

What makes Cutia Țăranului stand out from similar initiatives in Romania is their prioritisation of producer-consumer relationships and producer well-being. When consumer members commit to order a food box, they agree to enter in a long-term personal relationship with the producer that is built on openness and mutual benefit. Behind the scenes, the team also accompanies producers to open up about their experiences, struggles, and relationships with members. As a result, the project has also had to let some producers go when it was not a right fit, both in terms of the project values and the relationship with consumers, despite the quality of their products.

POSITIVE IMPACTS



COMMERCIALISATION IS LOCAL, FAIR AND/OR COLLECTIVE:

Cutia Țăranului has offered producers financial sustainability and the ability to valorise their produce and labour in a more holistic and fair way. Many producers have gained access to a different market segment, lessening their dependency on traditional market sales and creating more autonomy on the long-term.



EDUCATION: The initiative pursues educating producers on topics like sustainability, long-term solutions, and the importance of the social dimension of their relationship to their consumer members. At the same time, emphasises the responsible consumption of local produce and long-term impacts among consumer members present at environmental fairs where they sell their products and promote organic agriculture.

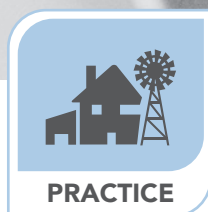
LIMITATIONS & CHALLENGES



SUSTAINABLE AND FAIR ECONOMICS:

The producers have difficulty in fully valorising their own labour and in a traditional and historical fashion, many small-scale producers are not accustomed to ask for an equitable price according to their practices and amount of work, therefore seldom there is hesitance in raising the prices of their food boxes.





PRACTICE



EDUCATION



LIVING LAB



SCIENCE



MOVEMENT

INITIATIVE N°9 – SEMINȚE VII



<http://seminte-vii.ro>
Facebook: @Semintevii

SEMINȚE VII

Semințe Vii is a small-scale initiative of traditional and peasant seed producers from the village of Dâmbroca, in south-eastern Romania. Established in 2015 by a peasant, it grew involving 4 women and their families, putting peasant agroecology at the heart of the agricultural seed production. Formally organised as a small enterprise, **Semințe Vii** offers through their online platform a great diversity of traditional and peasant plant seed varieties (vegetables, aromatic, medicinal and accompanying plants) to customers. The way of organising through cooperation between the four families of the **Semințe Vii** group, they continue the long tradition of the peasant living, incorporating local practices and knowledge, social relations and organisation, transfer of knowledge to newer generations and building networks with other peasants in other regions.

Semințe Vii was born out of the desire to revive old plant varieties from the region and not only offer the possibility for peasant and gardeners to have access to diverse, nutritious and healthy seeds, but also as an alternative to the industrial seeds on the market.

They are continuing a long history and tradition of the peasant way of living and transfer of knowledge from one generation to another, as thus involving in the seed production three generations within the same family (grandparents, parents and nephews).

The seed production is organised on several gardens and small-plots plots of land belonging to the extended family, and according to practices of crop rotation, plant allopathy, and only after the soil has been prepared in advance with manure, ash and other natural soil fertilisers. Following local knowledge and practices, plant health is ensured by preparing and utilising artisanal natural phytosanitary solutions (e.g. mixed-plant decoction, maceration extract).

Throughout time, the seed stock evolved from a handful of old plant varieties from the family's heritage or collected from the village to hundreds of peasant heterogeneous varieties, from seed exchanges and through cooperation with the national peasant association *Eco Ruralis*. Currently, **Semințe Vii** manages a collection of 600 hundreds of plant varieties, entering a rotational process of renewal each couple of years. A secondary aim of **Semințe Vii** is the sharing of the peasant knowledge, therefore accompanying the seed envelopes with basic essential information for cultivation and often offering online advice to new-entrants in agriculture in regards to seeds cultivation.

The group is also a member of the national peasant association *Eco Ruralis*. As a member of the Seed Working group of the association, **Semințe Vii** is producing seeds and contributing to its annual free seed distribution organised at national level and in Republic of Moldova.

KEY FEATURES

- **Agroecological practices concerned:** crop rotation, plant allelopathy, natural fertilisers, heterogeneous plant varieties cultivation
- **Founded in:** 2015
- **Farming sectors concerned:** horticulture-vegetables, permanent crops
- **Lead organisation:** **Semințe Vii** enterprise
- **Types of stakeholders involved:** farmers
- **Scale of the initiative:** national

Since 2018, Semințe Vii put the basis of a peasant seed house in cooperation with Eco Ruralis, aiming at storing seeds produced by the members of the seed working group, hosting a space for meetings and workshops for peasants, and be the centre of the annual distribution. The stored seeds are organised through an own system of labelling and description developed within Eco Ruralis since 2012. The seed house and main garden are often open to visitors (individual persons, groups, researchers, institutions) interested in witnessing this initiative and offered space for peasant-to-peasant skill-sharing about seed sowing, harvesting, desiccating, and storing.

Peasant agroecology has always been at the heart of Semințe Vii, though not since the beginning as a term, but as a knowledge and practice that has been passed on from one generation to another, incorporating new ideas as it continues to develop.

WHAT CAN WE LEARN?

Semințe Vii is an initiative that answer to both needs of peasants to be able producing and sharing their own farm-saved seeds and the needs of other peasants, gardeners and new-entrants in agriculture to have access to diverse, nutritious, healthy and reproducible seeds. Throughout the time, Semințe Vii has put seeds in the hands of dozens of thousands of people.

POSITIVE IMPACTS



COOPERATION: Semințe Vii group bases its activity on cooperation between the four families to organise the seed production, and contributes to increasing cooperation between peasants as a member of the seed working group of Eco Ruralis and of the collective annual national seed distribution.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT:

Semințe Vii produces heterogeneous plant varieties, saved and multiplied through decades, and then adapts them to the various local weather conditions and through peasant breeding methods, build their resilience to climate change through continuous interactions in the environment to maintain agro-biodiversity. Using plant allopathy, the group enhances plant cooperation and therefore reducing needs of other inputs.



TRADITIONAL FOOD AND HERITAGE

CONSERVATION: With traditional and peasant seeds varieties production, selling and distribution, side by side with the knowledge and practices applied and transferred, Semințe Vii is contributing to maintain the cultural identity of rural communities and the traditional peasant way of living.

LIMITATIONS & CHALLENGES



GOVERNANCE: Current European and national laws and regulations impede the full realisation of the rights of peasants to use, multiply and mainly sell their farm-saved and peasant plant varieties, thus Semințe Vii is restricted to fully legal develop its activity, occupying a vulnerable place on the market.



PRACTICE



EDUCATION



SCIENCE



LIVING LAB



MOVEMENT

INITIATIVE N°10 – NATURE 2000


<https://milvus.ro/en/>

FROM THE NIRAJ – TÂRNAVA MICĂ VALLEY

The **Nature 2000 product from Niraj - Târnavă Mică Valley** is a local label developed by the Milvus Group Bird and Nature Association in the Natura 2000 site of Niraj Târnavă Mică Valley, with the aim to support local farmers who through their activities contribute to the conservation of natural resources.

Along with Milvus Group becoming in 2005 custodian of the Niraj Târnavă Mică Valley Nature 2000 site and hence numerous actions to ensure the protection of local nature, the idea of developing a local label to counter-balance the conservation restrictions and highlight the benefits of living and working in a protected area appeared.

In 2019, the label became functional after a European funded project, aiming at mapping and evaluating the ecosystem services in the governed Nature 2000 site and their contribution to the main economic sectors (mainly agriculture, forestry, tourism, fishing and hunting).

Utilisation of the label is available under no cost for a wide-variety of products such as agricultural products, plants/produce collected from the nature, animals and products derived from their husbandry and from beekeeping, products resulted from collected plants or cultivated crops and artisanal products (e.g. soap, wooden sculptures, textiles), and is addressing all persons, legal or natural, who live or develop an activity in any of the localities comprised by the Nature 2000 site.

At the same time, utilisation of the local label is conditioned by a set of criteria to be met by the applicants, in order to guarantee the products that have been produced, handcrafted or prepared in the region and did not harm the nature:

- Not using forbidden substances and/or GMOs, hormones and other industrial animal fodder and be in accordance with the existing laws and regulations;
- Declaring the produced quantity;
- Responsibility towards the produced goods;
- If cultivating a plot larger than 20 ha, to having submitted and receive eco-schemes payments;
- Using 100% natural materials in case of crafts;
- Peregrination in the Niraj Târnavă Mică Valley, if other, to be stated as such.

KEY FEATURES

- **Agroecological practices concerned:** small-scale traditional crop cultivation, foraging, extensive animal raising
- **Founded in:** 2019
- **Farming sectors concerned:** all sectors
- **Lead organisation:** non-profit association
- **Types of stakeholders involved:** farmers, beekeepers, craftsmen
- **Scale of the initiative:** local

These criteria have to be accompanied by a contract and other documents that certify the producer, depending on the case and type of activity, before submission to Milvus Group. The mark is officially registered at the State Office for Inventions and Trademarks and the local producers are fully able to commercialise their products by using the label.

Many aspects of agroecology are building the local label of “Nature 2000 site Niraj and Târnava Mică Valley”, but not using the term as such. Conserving natural values while encouraging healthy local food and crafts production and social welfare represent the basis around which the label wraps, contributing to a good governance of the land in respect to the existing flora and fauna.



Picture 8: Products under the label of Natura 200 Nirajului and Târnava Mică Valley.
Source: <https://milvus.ro/un-nou-brand-produs-natura-2000-din-valea-nirajului-tarnavei-mici/>.

WHAT CAN WE LEARN?

Milvus Group’s initiative to create the local brand “Nature 2000 site Niraj and Târnava Mică Valley” emphasises an agroecological vision and practice of having both conservation of natural areas and also local populations not feeling disadvantaged because their work in an area is submitted to certain regulations. The local brand created on the local market adds an extra value for the products with a sense of community. Through the criteria and conditions of using the label, it fosters a good governance over the land, and interaction and understanding of people of the values a Nature 2000 sites conservation. It is at the same time a good practice example that can inspire other initiatives in Romania, and not only covering Natura 2000 sites, but guaranteeing eco-friendly and healthy products in various regions.

POSITIVE IMPACTS



EDUCATION: The existence of the local label draws attention towards the mutual benefits that arise from co-existence with a nature conservation area and through promotion activities that Milvus Group had organised, consumers are more aware of their contribution when buying a labelled product.



NATURAL RESOURCES AND BIODIVERSITY MANAGEMENT: Through creating and promoting the label, Milvus Group encourages farmers in the region of Niraj Târnava Mică Valley Nature 2000 site to adopt environmentally friendly practices, conserve and enrich existing biodiversity, ensuring the protection of big mammals and endangered bird species.

LIMITATIONS & CHALLENGES



GOVERNANCE: Due to changes in the national law, all NGOs had been removed as custodians of natural protected areas, including Milvus Group, impeding thus the development of the local brand in relation with an active management system of the Niraj Târnava Mică Valley Nature 2000 site, as it has been undertaken in the past.



PRACTICE



MOVEMENT



LIVING LAB



SCIENCE



EDUCATION

INITIATIVE N°11 – THE BARN WITH GOODIES



Facebook: @SuracuBunatati

THE BARN WITH GOODIES

Șura cu Bunătăți - The Barn with Goodies - is a small social enterprise from the village of Copalnic, northern Romania offering a diversity of artisanal food products, mainly produced from foraged wild mushrooms, plants and fruits from the surrounding meadows and forest.

The enterprise produces syrups from foraged wild plants and jams from fruits and foraged wild fruits, ointments, vegetable spreads and other preserves, prepared in a slow manner and for some products, following the tradition of using wooden fire.

For a couple of years, it functioned as a link between the northern village of Copalnic, where the production was taking place and the city of Cluj-Napoca, where they were sold directly through a network of consumers, until 2018 it fully relocated in the village, while expanding the direct distribution to other proximity localities.

The idea behind the initiative is mainly to make use of what the nature, especially the forest, has to offer and promote wild plants and their medicinal and therapeutic characteristics; all these are foraged by the two founders, while other ingredients are being taken from local producers in the villages or nearby, with the aim to valorise local production, and supporting the small-scale producers or from the old, traditional orchard that the family owns.

Since the beginning, the distribution is based on online or phone pre-orders, and currently, even more as a consequence of the Covid-19 pandemic, when dozens of social media groups have emerged in search for more local, diverse and healthy food. Orders are being distributed on a regular basis, once a week in the proximity localities and once a month in the city of Cluj-Napoca (100 km away).

Up to recently, The Barn with Goodies run their business without any funding and being registered as a simple producer. In 2021, they established a social enterprise and contracted a grant, to further develop employing four women and one man from the village with full benefits, and continue valorising ingredients from other villagers. With the received funds, a small production factory is in process of being established. The Barn with Goodies is affiliated to the national peasant association Eco Ruralis.

WHAT CAN WE LEARN?

The Barn with Goodies is a good practice example of living with and in proximity of the common lands and making use of it in an agroecological way. As they declare, in their activity they are not forcing anything, and assume that the list and quantity of products vary due to the seasonal changes and productions in the nature.

KEY FEATURES

- **Agroecological practices concerned:** foraging
- **Founded in:** 2016
- **Lead organisation:** social enterprise
- **Types of stakeholders involved:** farmers
- **Scale of the initiative:** local



Picture 9: Preserved products like jam and vegetable spreads (left). Source: <https://www.facebook.com/SuraCuBunatati/photos/2990234931228064>; Mushrooms at dehydration and the traditional pot under the wooden fire for cooking several recipes (right). Source: <https://www.facebook.com/SuraCuBunatati/photos/2921303551454536>.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY

MANAGEMENT: Supplying their ingredients from small-scale farming, foraging and from the old, traditional orchard the family owns, The Barn with Goodies supports an agricultural system that maintains and contributes to agrobiodiversity, also to the realisation that not.



TRADITIONAL FOOD AND HERITAGE

CONSERVATION: Many of the products offered by The Barn with Goodies are based on traditional ways of preparation and cooking and continue, after a generational gap in history, the relying on the forest and surroundings to provide part of the food that we consume.

LIMITATIONS & CHALLENGES



COOPERATION: Seldom, the team behind the business find it challenging to meet with other producers who think alike and be open about foraging and the produce of forest, and also trust is not every time given for a cooperation to thrive. The business advanced slowly, relying on the existing available human resources.



PRACTICE



EDUCATION



LIVING LAB



SCIENCE



MOVEMENT

INITIATIVE N°12 – ASAT ROMANIA


<https://asatromania.ro>

ASAT ROMANIA

The Association in Support of Peasant Agriculture (ASAT)

is representing a partnership model of community supported agriculture (CSA) in Romania. Initiated in 2008, the model has been inspired by the French AMAP ('Association pour le Maintien d'une Agriculture Paysanne'), aiming at creating a direct, at first hand and in solidarity partnership between urban consumers and small-scale food producers located in the proximity of that city. The partnership represents a mutual engagement, within which people are equally and integrally benefiting of the harvest resulted from the plot cultivated by a producer.

Started as a pilot initiative between consumers in the city of Timișoara and a village in Timiș county, western Romania, the model was extended in other cities across the country from 2010 to 2013. Currently, ASAT partnerships are active in 4 Romanian cities, being supported and overlooked by the ASAT association, protecting the brand and monitoring that principles in partnerships are respected. The ASAT association has a team of five volunteer members.

Since its inception, over 25 small-scale producers provided fresh products for more than 10.000 consumers and since then, ASAT has maintained with enthusiasm its initial founding core values and principles: production adapted to human-scale agriculture, respect for environment and animal care, local peasant agriculture, solidarity and active partnering, full transparency over production, processing and costs involved, proximity of producers, equitable prices for both producers and consumers, risk and benefits partaking, active participation of consumers, respectful social relationships at the farm and within the partnership, formalisation of partnership through contract. All these values and principles, as well as main aspects of developing a partnership are comprised in a charter.

The partnership regards mainly vegetable production and is created at the initiative of motivated consumers and formalised via a due diligence contract with the identified local producer, stipulating the common agreed way of organising the partnership and based on the ASAT charter.

The partnership is based on the active involvement of all partners, under the following process: the producer is expected to identify all costs, including processing, working the land, seedlings, day labourers, renting land, the producer's own labour, and contributions to social security and health, agree to do everything in their power, following the charter principles and given climatic conditions, to deliver certain quantities in seasons and maintain transparency throughout the whole partnership. The consumers commit to a yearly subscription that can be paid upfront as support for investments or in intervals, partake the benefits of high yields, as well as risks due to climate and other conditions, participate at least to one visit at the farm.

KEY FEATURES

- **Agroecological practices concerned:** production adapted to human-scale agriculture, respect for environment and animal care, local peasant agriculture, solidarity and active partnering, short-supply chains
- **Founded in:** 2008
- **Farming sectors concerned:** vegetable production
- **Lead organisation:** non-profit association
- **Types of stakeholders involved:** farmers, consumers
- **Scale of the initiative:** national

Sharing of the harvest takes place weekly at a common agreed space in the cities where the partnerships are active, where products are equally distributed on the spot, with the active participation of the consumers and producer. Food waste is a concern that is collectively discussed and decided, as for example in Timișoara, the surplus is shared to a kitchen at the delivery point.

During this entire process, the partnerships benefit the support of the ASAT team in better understanding by the producers of the budget entailed by a full year production and quantifying all costs (including income and social benefits) or in raising awareness among the consumers in regards to the particularities of peasant agriculture, and in organising local events to promote the ASAT model.

Since its inception, the project has evolved to specifically target producers that do not have access to land and support the installing of newcomers in agriculture, thus covering the costs of the land lease and other initial investments needed.

Agroecology is not representing a main term used in the ASAT partnerships or model, but is strongly reflected in all aspects of a partnership life, from the environmental elements (human-scale natural agriculture, no use of synthetic inputs, water and waste management, use of traditional plant varieties), economic elements (upfront investment, financial transparency, equitable prices), to social ones (solidarity, active involvement, understanding benefits and risk partaking, security for marginalised small-scale producers).

ASAT is autonomous and self-financed, benefiting from the support of the local institutions in specific occasions. It is also a member of the URGENCI international network, being also connected to the CRIES association in Romania, working towards promoting a social or solidarity economy. In the future, ASAT is looking more towards enhancing further the solidarity element, similar to a recent example of consumer's decision to cover part of the costs of a basket of produce for a disadvantaged family and have it at a lower price. They also want to create a participatory fund between different partnerships to be used for extreme situations, such as a producer that fits ASAT's principles but needs more capital to be able to meet their potential. The association also wishes to strengthen partnerships with other social enterprises in a time of new potential due to increased funding possibilities for those operating in rural spaces.

WHAT CAN WE LEARN?

ASAT is a model that differentiates itself from the typical CSA food distribution schemes by their commitment to their core principle: a direct and (economically) unmediated relationship between the producer and the consumer, with equal sharing of benefits and risks and a transparent budget.



Picture 10: (left) Visit by consumers to a their local producer. Source: <https://www.facebook.com/AsociatiaASAT/photos/4078689222141946>; Consumers involvement in sharing the produce at the distribution location (right). Source: <https://www.facebook.com/AsociatiaASAT/photos/4636108903066639>.

POSITIVE IMPACTS



NATURAL RESOURCES AND BIODIVERSITY

MANAGEMENT: Engagement in small-scale natural agriculture by producers is essential for an ASAT partnership, comprised in the own charter, including adaptation of plant varieties and animal breeds to local specifics, development of crop diversity, soil fertility, no use of chemical inputs, reasonable water governance, etc.



SOCIETY AND EQUITY: Among the main principles of the model are mutual respect, solidarity and direct unmediated relation, fostering a complex partnership, within which all partners have to be active to succeed. ASAT promotes a model of participatory and democratic model, deeply rooted in building trust and better understanding of inequalities in society in regards to access to land, market or to food.



SUSTAINABLE AND FAIR ECONOMICS: The ASAT model is based on full transparency of the costs entailed by all aspects of production, taking into consideration and equitable price for both producers and consumers, as well as the support for a producer to be able to start or develop the production, thus advance payment in the partnership is possible as an investment for the producer.

LIMITATIONS & CHALLENGES



SOCIETY AND EQUITY:

A challenge to the model's up-scaling is the general reluctance of consumers or producers to be committed to a long-term partnership, involving their active participation and a full transparency over production, thus generating unbalances between the members or continuation of the partnership outside ASAT by compromising one of these elements.

5. CONCLUSION AND FUTURE PERSPECTIVE

Many of the initiatives illustrated in this report include several aspects of agroecology. However, the concept and its activity categories, and the term itself is rather unknown or abstract among stakeholders or only very recently used by certain stakeholders (mainly researchers and civil associations).

Many other initiatives have emerged in the last years, from practitioners to initiatives focusing on education in permaculture, soil fertility, seeds saving and agrobiodiversity, plant nutrition and protection and to cooperations between different stakeholders to find innovative way of working together, accessing the market or increase research. However, a better dissemination and awareness among the consumers and farmers, as well as at the level of authorities is needed in the future through mass-media, direct communication and info materials in a localised and simple language.

With the increased interest of young generations into climate change, opportunities rely on focusing more on the pre-school curricula on agroecology, as well as adapting the existing educational curriculum for higher grades to include more theoretical information, but more practical activities, such as school gardens and farm visits.

As many key informants pointed out, financial support is an essential element for the up-scaling and development of existing and future agroecology, including a change in the European CAP and the national priorities in the Romanian strategic plan, as well as through creating public financed programs in food, agriculture, education and research. The need for a shift in the current vision oriented towards industrial agriculture and the formal recognition of the peasant profession would strengthen the livelihoods practitioners of agroecology, and would give a boost to the continuation of the good existing practices in Romania and transfer to newer generations, without needing to revive lost ones.

Romania might be on the brink, but the future looks promising with the green objectives set up at European level and experiencing an exuberance of initiatives, though small and local in their activity. With a consolidated networking and a concerted bottom-up effort a shift in vision and framework could be produced at higher, central levels.

ACKNOWLEDGEMENT

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GENERAL CONCLUSION

This first volume of the country reports series constitutes an important step for the documentation, analysis and development of agroecology, as well as its expansion in Europe. The 13 countries studied within this volume show contrasted situations regarding this development. While the concept, approach, and implementation of agroecology is still in its infancy in certain countries, there are many exiting initiatives with a direct or indirect link to agroecology and some of its principles. Further, clearly defined educational and training programmes are lacking in many countries despite many formal or informal initiatives in this area. Dedicated research units, as well as research programmes and projects, are very limited in most countries, thus knowledge generation and sharing remains limited.

This work has provided information about a unique number of initiatives linked to agroecology as an opportunity to illustrate what is already happening and what needs to happen for the development of agroecology in Europe. The current coexistence of different visions, definitions and use of the concept of agroecology (Gallardo-López et al., 2018) makes this opportunity to compare – to a certain extent – the development of agroecology very useful to enlarge its development.

More countries are currently being mapped, which will make up the following volumes of this series. This will allow a broader analysis and provide enhanced insight for the future development of agroecology in Europe.

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