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# 10 STEPS TO ACHIEVE THE EUROPEAN GREEN DEAL

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## Forward

The European Green Deal is a monumental step in achieving a greener and more sustainable Europe, filled with promising targets which aim to culminate in no net emissions of greenhouse gases by 2050 and economic growth decoupled from resource use. It establishes great potential for a fairer economy, the revitalisation of rural areas and sustainability. Yet, the roadmap on how to actualise such targets has yet to be realised.

This policy brief provides a roadmap, by giving recommendations for 10 concrete steps that can be taken to achieve the European Green Deal through agroecology, especially the Biodiversity and Farm to Fork Strategies. It will focus on many of the technical aspects, as well as on research, social responsibilities and responsible governance. Each step is to be considered as a whole, rather than individually, as many steps require the other in order to create true transformation.

Agroecology is a holistic concept that embraces a diversity of interpretations, intentions and realities, depending on the country and its context, history, stakeholders and socio-political environment. Its aim is to restructure the food system in a way that maximises ecological processes to attain sustainability – encompassing agricultural practices, science and social movements (Wezel et al., 2009). While it is dynamic and ever-changing, it holds at its heart sustainable agricultural practices that include: the use of local resources, enhancing soil health and life (improving organic matter and biological activity), increased use of legumes for nitrogen fixing qualities, agroecological infrastructures (habitats for biodiversity conservation and beneficial species for pest control), recycling biomass (optimising and closing nutrient cycles), reducing dependence on external synthetic inputs, enhancing diversity in crops and livestock, and increasing resilience against climate change. These all strengthen synergy between the various elements of the system that transform our local, regional, national and trans-national food systems on a large scale – economically, politically and socially.



## Strongly decrease synthetic pesticides and fertilisers

*Farm to Fork Target: Reduce by 50 % the use and risk of chemical pesticides by 2030.*

Agroecology uses natural cycles and ecological processes instead of relying on chemicals to achieve sustainable food. Rather than purchasing expensive inputs, it aims for a lower input agriculture that uses local resources, increases soil life and maintains nutrient flows at the farm and territorial level (e.g. through legumes and manure for nitrogen fixing qualities). By creating diverse and long crop rotations, intercropping, using a diversity of crops and keeping constant soil cover, it creates a synergetic system that halts the pest and weed reproduction cycles and makes pesticides (insecticides, herbicides, fungicides) obsolete. It simultaneously minimises resource losses (water, nutrients, biomass). The focus in such a system is transformed from maximum yields to optimum yields, while also diminishing dependence on global trade.

*Farm to Fork Target: Reduce fertiliser use by at least 20 % by 2030.*

The reduction of pesticides is often automatically linked with the reduction of synthetic fertiliser use since plant varieties whose great yield is only possible with growth regulators and pesticides are no longer used. This can be achieved through the fertilisation that occurs through symbiotic fixation from leguminous crops and through nitrogen transfers from livestock, especially ruminants. These two systems should not be seen individually but in symbiosis as both are important tools to ensure human and environmental health (e.g. eutrophication, emissions), and keeps us within planetary boundaries.

## Increase mixed crop-livestock systems

*Farm to Fork Target: Reduce nutrient losses by at least 50 % while ensuring no deterioration on soil fertility*

One of the most important components of agroecological transformation is returning fertility to soils and valuing the innumerable services of soil organisms. Within agroecology, animals are vital to soil fertility, especially when livestock and crop production is reconnected in mixed crop-livestock systems. Such integrated systems either grow animals and crops on a single farm, or cooperate amongst neighbouring farms for the exchange of hay, straw and manure, creating regional autonomy. This is optimal for the reduction of fertilisers and nutrient losses, as animal manure can increase soil fertility on the spot or through nitrogen transfers, which additionally reduces animal waste, transport emissions related to feed and imported deforestation (which hurts global biodiversity and increases GHG emissions). The integration of crops and animals on a single farm, while sharing space at the same time or in rotation, creates deep interactions which provide environmental services and social benefits (e.g. economic resilience). Further, a regional system founded on a mosaic of diverse landscape structures creates an equilibrium for both crops and livestock needs.

## Enhance animal health and extensively manage livestock

*Target: Reduce sales of antimicrobials for farmed animals and in aquaculture by 50 % by 2030.*

3 Within intensive conventional agriculture, animals are often kept indoors in conditions that not only increase diseases but cause severe animal welfare issues related to discomfort, pain, fear, distress, and abnormal behaviours. Extensively managed, grass-based livestock systems on the other hand, halt almost all of these concerns simply by animals living outside, giving them access to healthier feed provisioning and conditions. When a farmer includes rotational grazing and crop-livestock rotations, intestinal parasites can be managed through the disruption of the host-pathogen cycles and herbal leys can be incorporated to regulate animal health without veterinary drugs. This change would also revitalise and maintain grasslands, increase biodiversity within grasslands, and should include diverse animal breeds that easily digest woody fodder, are more suited to local realities (i.e. climate, terrain), and are 'dual purpose' for both meat and milk. Such systems would prioritise breeds for their performance criteria from quantity of milk or meat, to their ability to adapt to a changing climate. Further, the mineral makeup of milk and meat from such systems also changes to create healthier diets with Omega-3 content of milk doubled when animals are feeding on grass which is critical for cardiovascular health in humans (IDDRI, 2018). Lastly, extensively managed systems give priority to crops directly consumed by humans as they are no longer in competition with feed, which is often imported from great distances with high GHG emissions, creating a more autonomous Europe.

## Restore and enlarge permanent grasslands

4 *Biodiversity Strategy Target: Strictly protect at least a third of the EU's protected areas - representing 10% of the EU land and 10% of EU sea - including all remaining primary and old-growth forests as well as other carbon rich ecosystems, such as peatlands, grasslands, wetlands, mangroves and seagrass meadows.*

The restoration of Europe's grasslands is not only important for their immense carbon sink qualities (can store up to 30% of the world's carbon) but they are also the heart of European biodiversity (up to 79 species in just 1 m<sup>2</sup> in Europe)(IDDRI, 2018). Therefore, addressing biodiversity loss cannot be done without a focus on grasslands, which often include important agroecological infrastructure (hedges, wood clumps, grass strips, ponds, ditches) which provide food, shelter, and ecological and territorial connectivity. For biodiversity purposes it is important to focus on extensively managed permanent grassland to provide a continuity of landscape and habitats for reproduction, as tilled or fertilised grasslands lose species richness. Further, the conservation of diversified grasslands implies the support of the livestock systems which ensure their vitality, keeping traditional diets in a way that does not impact the planet.

## Return trees to agricultural landscapes

*Biodiversity Strategy Target: Plant 3 billion trees by 2030.*

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Increasing tree cover is important for many reasons, including to combat climate change, increase biodiversity and for animal welfare, but how and where those trees are planted is of utmost importance. If trees are planted in commercial monocultural forestry systems, the benefits derived from them, beyond carbon sequestration, are very limited. Similarly, large-scale tree planting in grassland areas where diversity is already very high would be counterproductive. Therefore, it is important that trees are planted to support and regenerate already functioning agroecosystems. The European Green Deal could use agroforestry to accomplish such a target, as agroforestry is a multifunctional land use approach that delivers environmental, social and economic benefits that can be used at any scale, by all farmers, including small-scale farmers. The benefits of agroecological agroforestry systems are many: they control pests; improve soil fertility, water quality, and biodiversity; reduce erosion; sequester carbon; capture excess nitrogen; create buffers in storms and droughts; ensure ecological corridors and generate diversified incomes. Most importantly, agroforestry provides both economic and environmental resilience where disturbances and extreme weather events will continue to cause instability in coming years.

## Diversify the types and number of crops grown on a single farm

*Green Deal Target: The EU's goals are to reduce the environmental and climate footprint of the EU food system and strengthen its resilience, ensure food security in the face of climate change and biodiversity loss and lead a global transition towards competitive sustainability from farm to fork and tapping into new opportunities.*

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Increasing the diversity and number of crops grown on a single farm is necessary in order to create environmental and economic resilience to a changing climate which incorporates the use of annual, perennial and permanent crops. This includes variety in space and time, using a mix of practices that include intercropping, diversified rotations, agroforestry, and crop diversification at the farm scale. Such complexities can be used to provide economic (e.g. multiple incomes in case of pest outbreaks) and environmental tools (e.g. drought resistant varieties, resilience to climate change). It can also support healthy, diverse and culturally appropriate diets which respect food traditions. New crops, rarely used crop species, and locally adapted breeds and crops are important pillars for climate adaptation. It is important to mention that this does not mean the production of genetically modified seeds which seek to create a single variety of each crop that relies on synthetic inputs, instead of increasing system diversity. Further, the ability to save a seed, which is not possible with GMO crops, creates not only autonomy for the farmer, it is also a vital tool for climate mitigation as season after season, specific attributes are bred into the seed naturally, with the needs of that particular region. The heart of crop diversity is also the ability for communities to engage in food sovereignty and seed exchange, which preserves intergenerational land practices and cultural meaning.

## Increase diversity of habitats

*Biodiversity Strategy Target: Bring back at least 10% of agricultural area under high diversity landscape features by 2030.*

Increased diversity in plant and animal species ensures the sustainability and well functioning of that particular ecosystem, including the pollinators agriculture and human diets strongly rely on. Yet diversity is not only important within fauna and flora, but also within habitats. Within agroecology, mosaics of different landscapes in different forms and sizes, that serve both humans and non-human members of the environment, are fundamental. This includes forests, arable land, and grassland with agroecological infrastructure of hedges, woody clumps, grass strips, ponds, and ditches all within close proximity. These habitats and their functional biodiversity regulate any insect or plant from becoming a pest, providing essential ecosystem services for agricultural production, as well as ecological corridors.

## Increase the adoption of organic farming

*Farm to Fork Target: Achieve 25 % of total farmland under organic farming by 2030.*

Organic farming, in its most rigorous form, includes many agroecological practices for closed loop, ecologically sound systems that provide dignified incomes for farmers, as well as the preservation of family farming, which is responsible for over half of all food production in Europe (Eurostat, 2020). Organic farming calls for alternatives to pesticides, veterinary products, non-synthetic crop fertilisers, as well as higher animal welfare. Although organic farming is not (yet) focused on the more social aspects that are demanded in agroecological food systems, it has a focus on environmental degradation and human health that can help preserve natural resources, encourage biodiversity both inside the farm and in surrounding areas, sequester carbon, ensure soil health and eliminate many of the emissions and toxic repercussions of synthetic pesticides and fertilisers.

## Increase regional research on best practices for all aspects of the food system including for climate, soil, land management, and crop and animal diversity

*Biodiversity Strategy Target: 10 billion euros under Horizon Europe [are] to be invested in R&I related to food, bioeconomy, natural resources, agriculture, fisheries, aquaculture and environment.*

Research and innovation are key drivers in the agroecological transition to sustainable and healthy food systems. In order to ensure resilience under a changing climate, and to become less dependent on fossil fuel based global trade, it is important to invest in research that can provide farmers with state of the art data that is specific to their climates, terrains and realities. One of agroecology's fundamental pillars is focusing on the local and regional scale, creating strategies that are diverse

in each farm and region, rather than a one-size-fits-all solution. Such research can go beyond the academic halls of Europe's universities and include the establishment of networks of living labs and EU partnerships that focus on agroecology, food and soil. An enabling framework to bring these ambitions to life will need to bridge many sectors such as finance, capacity, research, innovation and technology in order to provide systems-based research that moves away from quick fixes and silver-bullet solutions. Such research needs to be disseminated and paired with knowledge exchange and training that is farmer to farmer led. The AE4EU project has taken the first steps on many of these tasks, first by mapping agroecology across European countries to give an overview of the different realities of agroecology thus far, encompassing subjects such as living labs, science and research, education and training, social movements, as well as in practice. Through this initial mapping it was found that in order to improve the strength of the living lab concept, an important tool for agroecological transformation, it is important for each region to provide their own diffusion of the term and adjust it according to local realities. Next, the project will create a hub, a virtual space where individuals from all related professions can gather information and share knowledge, practices and experiences. The hub aims to be a space of connection for farmers, researchers, students, chefs, professors, citizens, social movements, NGO's and policy makers.

## Promote participatory and multi-stakeholder approaches in knowledge generation

*Green Deal Target: Reduce net emissions of greenhouse gases by at least 55% by 2030.*

The EU has pledged to reduce greenhouse gas emissions and become climate neutral by 2050. This requires research and innovation by a variety of stakeholders in a participatory and co-creative process that is people-led, inclusive, transdisciplinary and holistic. AE4EU is engaging in such a process through the creation of a network of networks that aims to complement, support and link existing groups, initiatives and programmes that are working towards the development of agroecology. This network is led by 30 different organisations, mostly outside of the Horizon 2020 project, and will continue to exist once the project has ended. By enabling participation across all sectors, innovative solutions can be created that are rooted in equality and a just transition. This includes relinquishing power imbalances in the food system by treating uniformly all diverse ways of knowing, including traditional knowledge, lived experience, case studies and observations, to complement scientific data (Global Alliance for the Future of Food, 2021). In order to achieve climate neutrality, it is important to redesign our food system completely in a way that goes beyond production and focuses on socio-economic aspects such as responsible governance and re-establishing connections between growers and those who eat. Further, it is vital that short and long term considerations are included in all future decision-making for thoughtful transformation which addresses systemic issues and creates system-wide benefits.

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## 10 Steps to Achieve the European Green Deal

1. Strongly decrease synthetic pesticides and fertilisers
2. Increase mixed crop-livestock systems
3. Enhance animal health and extensively manage livestock
4. Restore and enlarge permanent grasslands
5. Return trees to agricultural landscapes
6. Diversify the types and number of crops grown on a single farm.
7. Increase diversity of habitats
8. Increase the adoption of organic farming
9. Increase research on best practices at the local and regional scale for all aspects of the food system including for climate, soil, land management, and crop and animal diversity
10. Promote participatory and multi-stakeholder approaches in knowledge generation

## The way forward

The European Commission has done significant work to create strategies that will enable a just and sustainable transition for Europe through the Green Deal. Yet, the lack of frameworks to guide such a shift in agricultural production especially, has meant that the path has not yet gained critical momentum. AE4EU has created such a framework that although concrete, can be redefined to the local scale. This framework is characterised by a mosaic of different systems, landscapes and practices that are rooted in regionality and respect cultural traditions. Each member state can continue this work by creating their own policies tailored to their country's context and conditions which are guided by these 10 steps, while keeping in mind HLPE's 13 principles of agroecology, both in their state policies and through their CAP Strategic Plans, especially through the eco-schemes, which AE4EU has written another policy brief with even more specific guidance.





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## Images

Images 1 & 2 by Alfred Grand, Grand Farm, Austria

Image 3 by Ulrich Schmutz

Image 4 by Dr. Peter Lengyel

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