

Focus on biodiversity

A series of articles addressing the importance of biodiversity in agriculture. Farming for a better future.



Biodiversity compliance and productivity

Productive, compliant farming go hand-in-hand

Productive farming is essential to feed our growing global population. Billions of people around the world rely on farmers for nutritious and affordable food. Yet farmers are more than just food producers. They are also the stewards of our land, who play a central role in preserving the biological variety of life on earth. Understanding biodiversity can help farmers apply sustainable practices that lead to more resilient agricultural ecosystems.

Compliance with national and international biodiversity guidelines is required to support land conservation, global food security and sustainable supply chains. But biodiversity is more than an obligation. It is also essential to maintain and increase the productivity of arable farms. Farmers who embrace biodiverse agriculture can provide us with safe, sustainable, nutritious and affordable food while generating the income they need for profitable farming and ongoing development. Productive, compliant farming go hand-in-hand.



Biodiversity and national law compliance

European farmers are an essential part of the European Union (EU). They are the social and economic hub of many communities. And today, Europe is not only home to a large farming sector. It is also a huge market for agricultural products. Billions of euros of vegetables, foodstuffs and animal products from other parts of the world are imported into the EU each year. In 2021, Brazil was the primary supplier of agri-food imports into the EU, delivering some €13.5 billion worth of goods. Compliance with European guidelines is essential for both European farmers and for farmers in other parts of the world who export their products to Europe.

In 2019, the EU introduced its Green New Deal, a sweeping initiative that aims to reconcile the economy with our planet. As a central component of the program, the European

Commission aims to ensure that agriculture makes a strong contribution to the EU's biodiversity strategy for 2030.

The biodiversity strategy sets out key agricultural targets. For example, EU guidelines require that 10% of agricultural area is comprised of high-diversity landscape such as buffer strips, rotational or non-rotational fallow land, and non-productive trees. The guidelines also mandate that 25% of agricultural land be organically farmed.

The EU's agricultural guidelines ensure biodiversity for European farmers, who will profit from the ecological resilience and economic advantages of biodiversity. Farmers around the world who apply these same standards can benefit from the same advantages.

¹[Information from: The EU maintained its position of top trader in agri-food products in 2021.](#)

Biodiversity increases crop and livestock productivity

Higher plant diversity improves the soil productivity of an ecosystem. It increases the complexity of soil structures and substrates, positively impacting the diversity of soil organisms. Roots from trees that are not part of the crop reduce the compactness of soil and support water retention. Flora biodiversity improves soil conditions by improving nutrient storage and release, drainage and aeration. This increases the total available resource pool in the soil, promotes crop growth and improves the farmer's productivity.

Higher plant diversity also increases crop and livestock productivity for farmers. Plant diseases are almost always species-specific. They are much less likely to spread from plant

Series on biodiversity

This article is part of a series on biodiversity that addresses the following topics:

- A general introduction to biodiversity for productive, sustainable, resilient farming
- Biodiversity compliance and productive farming go hand-in-hand
- How farmers can improve the biodiversity in their production systems
- Measuring biodiversity in production systems

to plant in a herbal ley with high diversity. Plant diversity also increases livestock performance. Trials show that animals can self-select the most nutritious diet when offered a varied platter. They know what diet is best for them, and choose accordingly, which increases the farm's output.



Biodiverse soil requires fewer pesticides and fertilizers

Soil organisms are essential for farming productivity. They support the decomposition of organic matter and the cycle of essential nutrients such as nitrogen and potassium. Quite simply, no decomposition means no nitrogen in the soil. If there is no nitrogen, plants do not grow, which means low or no plant diversity. Low plant diversity means more diseases, which means lower farming productivity.

Chemicals such as pesticides and fertilizers have a negative effect on the natural processes that support plant diversity. Chemicals kill diseases and insects, but they also kill naturally occurring organic organisms. This affects the soil's tools to produce nutrients naturally, which makes the soil increasingly dependent on fertilizers. Once the ground has lost its natural capacities to carry out functions such as nutrient cycling, carbon sequestration or water retention, its productivity decreases as does its ability to generate benefits for producers.

Biodiversity reduces the need for pesticides. Diseases easily spread within a monocrop. But a farm with multi-species plant diversity slows the spread as diseases do not move easily from one plant to another. For instance, diseases can quickly spread over a farm that grows only coffee. But when the coffee plantation is next to a banana plantation, the spread of the disease is stopped.

Biodiversity also reduces the need for fertilizer, which is not only costly but is also less effective than natural, organic biodiverse processes. With fertilizers, significant amounts of naturally generated nutrients are lost. In the first year of application, nutrient use efficiency can be 40% to 65% less for nitrogen, 15% to 25% less for phosphorus and 30% to 50% less for potassium. Compared to pesticide, herbicide and fertilizer use, biodiversity is the effective path to economic and ecologically resilient farming.

Recommended Reading:

Saving the earth: a sustainable future for soils and water, World Wide Fund for Nature - UK (WWF), 2018.
Farm of the future: journey to net zero, Royal Agricultural Society of England, 2022.