



Biotechnology and Biodiversity

EuropaBio position on the EU Biodiversity Strategy for 2030

June 2020

1. Why we support biodiversity and the Commission's intentions

The Earth is rapidly losing its biodiversity¹, as the Commission's Biodiversity Strategy correctly emphasises. In 2019, the World Biodiversity Council (IPBES)² published the global report on the state of biodiversity and ecosystem services, which stated that the state of nature deteriorates dramatically and that valuable ecosystems are increasingly damaged. Biodiversity is important for all biotechnology application areas.

EuropaBio fully supports the ambitions of the EU 2030 Biodiversity Strategy, which are to protect nature, restore damaged ecosystems and promote the sustainable use of forest, agriculture, marine, fresh water, and urban ecosystems in order to protect biodiversity.

EuropaBio equally supports the ambitions of the Convention on Biological Diversity (CBD), which are (1) the conservation of biological diversity, (2) the sustainable and safe use of its components, and (3) the fair and equitable sharing of benefits arising from such use³.

2. Why less productive agriculture actually risks harming biodiversity

EuropaBio fully supports sustainable agriculture.

The Global Assessment Report on Biodiversity and Ecosystem Services⁴ has ranked, for the first time at this scale, the five direct drivers of change in nature with the largest relative global impacts so far. "These culprits are, in descending order: (1) changes in land and sea use; (2) direct exploitation of organisms; (3) climate change; (4) pollution and (5) invasive alien species." In other words, an important way to help to save species from extinction is to limit our land (and sea) use. Given that most of the land used by humanity is used for agriculture, growing more food on less land is essential. Fortunately, plant science has shown that it can make a huge contribution, by increasing crop yields: since 1960, global crop production has tripled without equivalent increase in land use.

¹ Biodiversity is the diversity of life and an existential basis for human life. The diversity of life can be described on three levels: diversity of ecosystems (e.g. agricultural areas, water, forest, alpine areas), diversity of species (animals, plants, fungi, microorganisms) and diversity of genes (wild and domesticated species). A fourth level is understood as functional biodiversity, the variety of interrelationships within and between the three levels.

Biodiversity provides many services, including food, raw materials and medicines. A sustainable use of biodiversity may lead to the creation of new knowledge, technologies, products and services.

² <https://ipbes.net/>

³ <https://www.cbd.int/>

⁴ <https://ipbes.net/news/Media-Release-Global-Assessment>

Productivity increases will have to continue, as the UN Food and Agriculture Organisation (FAO) estimates that global food supply needs to increase by 70% by 2050⁵. In order to meet global food challenges, we will have to grow more with less: less land, less input, less water and less energy.

Instead, some of the Commission's targets to reducing the impact of agriculture would risk making European agriculture less productive. To meet increasing food demands, reduced production on the available agricultural land in the EU would have to be compensated by increasing the agricultural area at the expense of nature, whether this be within or – more likely – outside the EU.

3. Why innovation should be supported to make agriculture even eco-friendlier

The Commission's Biodiversity Strategy rightly points out that "industry and business (...) also produce the important innovations, partnerships and expertise that can help address biodiversity loss".

Fortunately, producing more with less is possible, if the EU allows an enabling toolbox of technologies and approaches to further improve agriculture.

Greenhouse gas emissions from the agricultural sector declined by 20 % between 1990 and 2015, according to Eurostat⁶, and in the same period EU agriculture increased its overall productivity by 25%, according to COPA-COGECA⁷.

This is partly due to innovative solutions and practices, including (but not limited to) eco-friendly practices, often pioneered by integrated crop or agriculture management, more efficient pesticides, and solutions enabled by biotechnology.

EuropaBio believes that, in the interest of making agriculture even more eco-friendly, the EU should be solution-oriented and encourage all these innovative solutions and practices. If facilitated with an enabling (regulatory) environment, biotechnology could contribute very significantly towards reducing pesticide use, without compromising productivity (see section 4). In addition, biotechnology extends the possibilities of contributing to sustainable agriculture by offering a variety of options for different farming systems.

Ensuring a proportionate and innovation-friendly regulatory approach to current and future biotechnology innovation would bring further benefits and solutions for sustainable agriculture and thus help realize ambitious Green Deal objectives in a more effective and timely manner.

4. The need for objective environmental footprint indicators for all farming models

EuropaBio underlines the importance of using meaningful and objective indicators (e.g. those of the EU Product Environmental Footprint (PEF) scheme⁸, the Livestock Environmental Assessment and Performance Partnership of the FAO⁹ and the US field to market programme¹⁰) to set sustainability objectives and measure progress.¹¹ Such indicators should include greenhouse gas emissions, (efficient) land use, soil conservation, and water and energy use, as well as acidification and eutrophication potential, regardless of the

⁵ [FAO report How to feed the world in 2050](#), 2009

⁶ <https://ec.europa.eu/eurostat/statistics-explained/pdfscache/16817.pdf>

⁷ [Copa-Cogeca Position on Climate Action](#)

⁸ https://ec.europa.eu/environment/eussd/smgp/ef_pilots.htm#pef

⁹ <http://www.fao.org/partnerships/leap/en/>

¹⁰ [Field to Market programme](#)

¹¹ There are also various different sustainability schemes relevant to the sustainability and biodiversity discussion, such as [ISCC PLUS](#), [RSB](#), etc

farming model.¹² Reduced productivity in Europe's agriculture with lower land use efficiency would risk harming biodiversity (and global food security), as outlined above (section 3). As regards greenhouse gas emissions, while less productive forms of agriculture might contribute to lower GHG emissions through decreased use of farm inputs and increased soil carbon sequestration, they might also in fact exacerbate emissions through greater food production elsewhere to make up for lower yields.¹³ Before focusing on a single model, we urge the Commission to follow an objective and science-based approach, taking all sustainability factors into account.

5. How biotechnology and the bio-based industries help preserve biodiversity

Reducing pollution

The EU has made an important commitment to make substantial progress towards the ambition of zero pollution, including from excess nutrients, to reduce the pressure from pollutants on ecosystem function and biodiversity. The bio-based industries can contribute to such ambitions, e.g. via reducing the amount of nitrogen and phosphorous burden of agriculture and water consumption in animal farming by using innovative feed additives such as amino acids and enzymes, contributing to less eutrophication of marine waters and to reduced GHG emissions.¹⁴

Sustainable soil management

EuropaBio welcomes the Biodiversity Strategy's intention to protect and restore soil ecosystems. Biostimulants can be applied to plants or soils to enhance plant nutrition and soil health. Biodegradable plastic for mulch films, or polymers for seed and fertilizer coatings, help to improve soil quality and agricultural productivity.¹⁵ No till and low till farming is one important way to protect soils. The EU is lagging behind in the adoption of no till and low till practices, for reasons including the EU's extremely restrictive stance on technologies which enable such practices (especially genetically modified crops).

Circular and sustainable bioeconomy

The Commission intends to promote a circular and sustainable bioeconomy through the implementation of its updated Bioeconomy Strategy. The use of sustainably sourced renewable materials in the bio-based industries will contribute not only to Europe's climate commitments but also to preserving biodiversity. In the EU, biomass is produced to the highest standards in the world, which farmers, forest owners and their cooperatives must respect. Consequently, it is important to take into account the multifunctional role of the agricultural and forest sectors and acknowledge the importance of availability of home-grown raw materials.¹⁶

Sustainable agriculture: striking the balance between the conservation of natural resources and the production of agricultural goods¹⁷

In addition to soil protection, bio-based innovation also helps to achieve:

- *Lower losses and higher yields:* Genetically modified crops can improve yields by 6%-30% on the same amount of land¹⁸, avoiding the need to use land that is currently a

¹² [EuropaBio comments Farm to Fork Roadmap, March 2020](#)

¹³ According to a recent article in Nature Communications a 100% shift to organic food production in England and Wales would cause major shortfalls in production of most agricultural products against a conventional baseline. It concluded that direct GHG emissions are reduced with organic farming, but when increased overseas land use to compensate for shortfalls in domestic supply are factored in, net emissions are greater. Enhanced soil carbon sequestration could offset only a small part of the higher overseas emissions. See: [Smith, L.G., Kirk, G.J.D., Jones, P.J. et al. The greenhouse gas impacts of converting food production in England and Wales to organic methods. Nat Commun 10, 4641 \(2019\).](#)

¹⁴ [Industrial Biotechnology Solutions for sustainable agriculture, EuropaBio, Jan. 2020](#)

¹⁵ [Industrial Biotechnology Solutions for sustainable agriculture, EuropaBio, Jan. 2020](#)

¹⁶ [European Bioeconomy Alliance position on the EU Green Deal, April 2020](#)

¹⁷ See also [GM Crops and policies in the EU](#), EuropaBio

¹⁸ [Brookes, G., Yu, T.H., Tokgoz, S., Elobeid, A., AgBioForum 2010 13\(1\) 25-52](#)

haven for biodiversity. In 2014, globally GMOs allowed farmers to use over 20 million less hectares of land to produce the same amount of agricultural goods.¹⁹

- *Reduced food loss and waste:* Bio-based innovation can help to reduce both food loss and waste at different parts of the value chain: in food production/manufacturing and by consumers, e.g. through bio-preservatives and antioxidants to improve shelf life.
- *Enhanced feed conversion rate:* Innovative feed solutions including feed additives produced using biotechnology, will enable livestock to retain more nutrients and nitrogen from less high-protein animal feed. This helps to increase the efficiency by which animals convert feed into protein and can contribute to reducing the EU's dependency on the import of soybean and soymeal high protein feedstocks.
- *Water protection:* Non-tilled soils trap moisture better, reducing run-off into streams and rivers and contributing to more efficient water use.
- *Reduced Spraying:* Crop biotechnology has reduced pesticide spraying (1996-2014) by 581,000 tonnes (-8.2%). This is equal to the total amount of pesticide active ingredient applied to crops in China for more than a year.²⁰ In the case of Spain, insect resistant GMO maize has enabled a 36% cumulative decrease of insecticide use on maize since 1998 (544 tons of insecticide active ingredient).²¹
- *Partially replacing pesticides:* microbials work as biological crop protection products or biocontrols that can help farmers to protect plants from pests and diseases, including weeds.²²

Thanks to technology and innovation, farmers can now use natural resources more efficiently. Sustainable land use and management enable both high yields and biodiversity. This reduces the pressure to convert more land to farming, helping to preserve natural habitats and their wildlife.

Marine biodiversity

Our ocean's resources are limited, and the world's growing population cannot continue to take fish from the seas indefinitely. Aquaculture, if done in a responsible, sustainable way, has a big role to play in providing a sustainable, healthy food source. One example is the production of omega-3 rich fish feed ingredients derived from marine microalgae, thereby reducing the depletion of small fish in the oceans.²³ Marine biodiversity is also important with a view to research in the field of pharmaceuticals and industrial biotechnology.

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¹⁹ [Brookes, G., Barfood, P., Farm income and production impacts of using GM crop technology 1996–2016](#)

²⁰ [PG Economics press release 31 May 2016](#)

²¹ [PG Economics press release 31 May 2016](#)

²² [Industrial Biotechnology Solutions for sustainable agriculture, EuropaBio, Jan. 2020](#)

²³ [EuropaBio #InspiredByLife to Reduce the depletion of small fish in our oceans, 2020](#)