



Biotechnology and Sustainable Food Systems

Position EuropaBio on the Farm to Fork Strategy

July 2020

- *EuropaBio welcomes the Commission's Farm to Fork Strategy published as part of the European Green Deal and fully supports the ambition to accelerate the transition towards a more sustainable food system.*
- *The EU should ensure a science-based, proportionate and predictable regulatory approach to biotechnology innovation, including new genomic techniques, that would also contribute to ensuring that the best tools are available to help effectively realize the ambitious Green Deal objectives.*
- *The EU should adopt concrete and pragmatic measures to support the uptake and use of bio-based alternatives for sustainable crop cultivation.*
- *It is important to use meaningful and objective environmental footprint indicators for all farming models.*

1. Introduction

EuropaBio welcomes the Commission's Farm to Fork Strategy published as part of the European Green Deal and fully supports the ambitions to accelerate the transition towards a more sustainable EU food system.

Biotechnology is a central pillar of innovation in Europe that can contribute to a more resource efficient, climate neutral and knowledge-based economy that improves the health and well-being of people and planet. The Farm to Fork Strategy rightly points out that “new innovative techniques, including biotechnology and the development of bio-based products, may play a role in increasing sustainability (...) while bringing benefits for society as a whole”.

By embracing innovation and technology and following a solution-oriented and science-based approach, Europe can achieve both reducing its environmental footprint while maintaining – or even improving – agricultural productivity. Biotechnology is a key part of tomorrow's agricultural and environmental landscape. By ensuring a science-based, proportionate, and predictable regulatory approach to biotechnology innovation, including new genomic techniques, the EU would also contribute to ensuring that the best tools are available to help effectively realize the ambitious Green Deal objectives.

2. Sustainable food production

With respect to the Commission's intention to make food production more sustainable, EuropaBio considers it important to encourage the use of bio-based alternatives for sustainable crop cultivation, as well as innovation in plant breeding.

Biotechnology supports sustainable crop cultivation through biostimulants and biocontrols that provide an alternative to fossil-fuel derived products. It can also provide the tools to create more sustainable food processing and more sustainable, safe, healthy and nutritional end products. The EU should adopt concrete and pragmatic measures to support the uptake and use of such bio-based products.

Innovation in plant breeding has the potential to bring several thousand new plant varieties to the market each year. Many of them are stronger and less dependent on inputs than older varieties and can increase yields, thereby ensuring efficient land use and carbon capture in soils. Likewise, climate change is starting to bring new pests and more extreme weather conditions, and new genomic techniques can provide much of the needed acceleration of plant breeding innovation for disease- and insect-resistant varieties. In addition, genome edited plants can bring important health and nutritional benefits such as soya for healthier food oils, coeliac friendly wheat and potatoes producing far less acrylamide when fried. These and more examples already coming close to the market outside the EU can be found on the EuropaBio website [here](#).

With these many benefits in mind, EuropaBio welcomes the Commission's ongoing initiative to assess the role of new genomic techniques and their status under Union law.

3. Agricultural productivity

Productivity increases will have to continue, as the UN Food and Agriculture Organisation (FAO) estimates that global food supply must increase by 70% by 2050¹. 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, the 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.

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 Eurostat², and in the same period EU agriculture increased its overall productivity by 25%³. 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.

¹ [FAO report How to feed the world in 2050](#), 2009

² <https://ec.europa.eu/eurostat/statistics-explained/pdfscache/16817.pdf>

³ [Copa-Cogeca Position on Climate Action](#)

4. Meaningful and 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) scheme⁴, the Livestock Environmental Assessment and Performance Partnership of the FAO⁵ and the US field to market programme⁶) to set sustainability objectives and measure progress.⁷ 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 farming model.⁸ Reduced productivity in Europe's agriculture with lower land use efficiency would risk to harm biodiversity (and global food security). 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.⁹ Before focusing on a single model, the Commission should follow an objective and science-based approach, taking all sustainability factors into account.

5. Bioeconomy

The Farm to Fork Strategy rightly points out that “advanced bio-refineries that produce bio-fertilisers, protein feed, bioenergy, and bio-chemicals offer opportunities for the transition to a climate-neutral European economy and the creation of new jobs in primary production”.

The EU should aim to make the CAP post 2020 fit for purpose to incentivize the smart and sustainable use of biomass and encourage Member States to include concrete bioeconomy related measures in their future Strategic Plans.

6. 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. We welcome that “the Commission will facilitate the placing on the market of sustainable and innovative feed additives that help reduce the associated greenhouse gas (GHG) footprint and water and air pollution”, as indicated in the Strategy. 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.¹⁰

⁴ https://ec.europa.eu/environment/eussd/smgp/ef_pilots.htm#pef

⁵ <http://www.fao.org/partnerships/leap/en/>

⁶ [Field to Market programme](#)

⁷ There are also various different sustainability schemes relevant to the sustainability and biodiversity discussion, such as [ISCC PLUS](#), [RSB](#), etc

⁸ [EuropaBio comments Farm to Fork Roadmap, March 2020](#)

⁹ 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. 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 \(2019\).](#)

¹⁰ [Industrial Biotechnology Solutions for sustainable agriculture, EuropaBio, Jan. 2020](#)

7. Sustainable agriculture: striking the balance between the conservation of natural resources and the production of agricultural goods

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 land¹¹, avoiding the need to use land that is currently a 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.¹²
- *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.¹³ 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).¹⁴
- *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.¹⁵

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.

¹¹ [Brookes, G., Yu, T.H., Tokgoz, S., Elobeid, A., AgBioForum 2010 13\(1\) 25-52](#)

¹² [Brookes, G., Barfood, P., Farm income and production impacts of using GM crop technology 1996–2016](#)

¹³ [PG Economics press release 31 May 2016](#)

¹⁴ [PG Economics press release 31 May 2016](#)

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

