

The European bioeconomy and the

CAP & Farm to Fork Strategy

in support of Europe's farmers



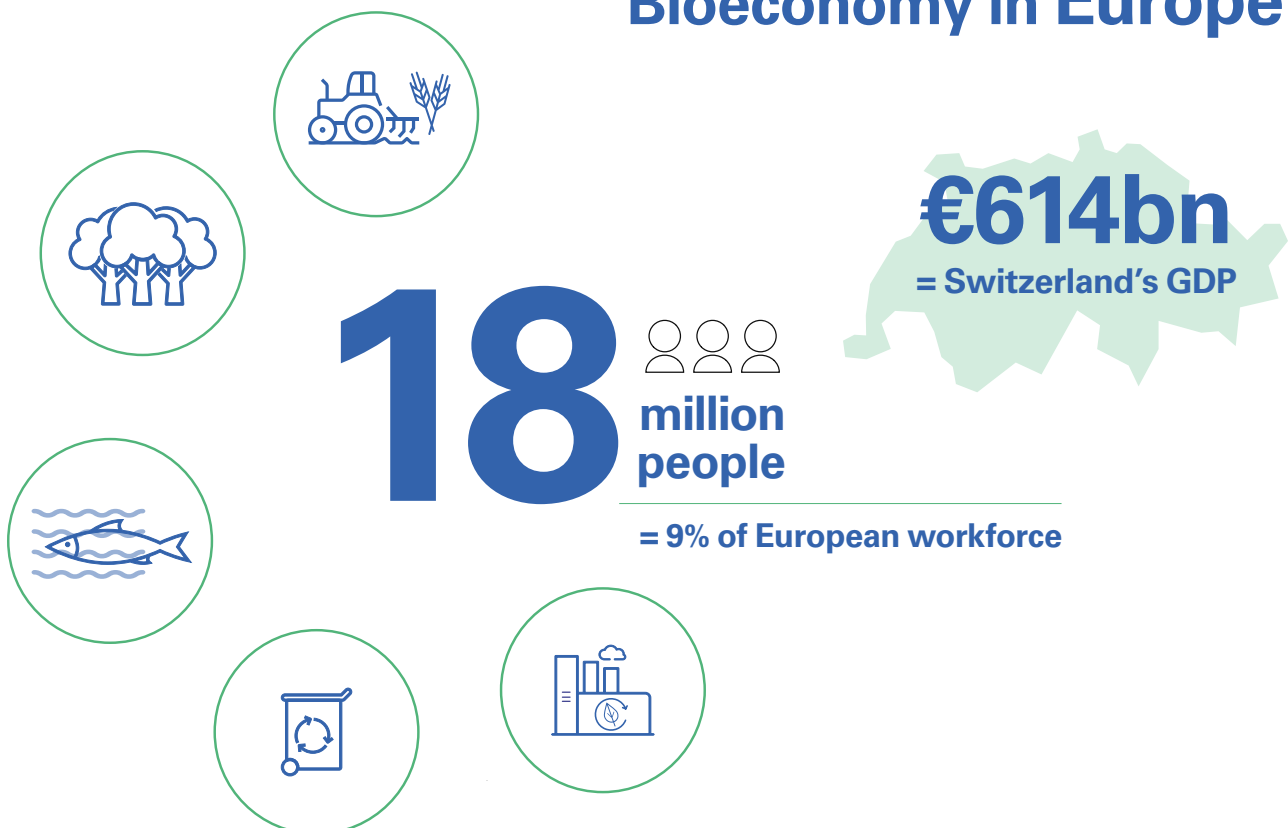
Unleashing the potential of the bioeconomy

The bioeconomy is a very important sector for Europe. It employs around 18 million people in the EU-27, around 9% of the total workforce,¹ and adds €614 billion of economic value,² similar to the GDP of Switzerland.³ It spans agriculture, aquaculture, forestry, and all the products and waste streams that arise from these activities, including food and feed, forest and crop residues, sewage and manure, bioenergy, biofuels, and bio-based chemicals and materials.

The bioeconomy has enormous potential to help achieve the goals of the European Green Deal, by reducing emissions and reversing biodiversity loss, boosting jobs and innovation, and supporting Europe in its recovery from Covid-19. In fact, the renewable products from photosynthesis in agriculture and forestry are more or less the only net-positive inputs that can contribute to all of these goals at once.

In support of these goals, the BioAdvantage Europe coalition, powered by Xynteo, was founded by leading businesses across the bioeconomy value chain, including Avril, DB Schenker, Lantmännen, Scania, Shell, and Yara. By identifying and building awareness of solutions that are ready today, incubating new demonstration projects, and supporting EU policymakers to shape the optimal policy conditions, our mission is to unleash the full potential of Europe's bioeconomy.

Bioeconomy in Europe



The potential of Europe's agricultural sector and bioeconomy

Agriculture is one of Europe's biggest greenhouse gas (GHG) emitting sectors – accounting for over 10% of total emissions in 2018⁴ – and one that has reduced emissions less than most other sectors in recent years.⁵ At the same time, European agriculture has a stronger track-record and higher standards for sustainability than many of its peers. The sector is pivotal in accelerating Europe's path to net zero. It can drive the transition away from fossil-based products and high-carbon imports by increasing domestic availability of sustainable food, feed and biomass feedstocks. BioAdvantage Europe proposes four ways in which the agricultural sector can support these goals and underpin a thriving bioeconomy value chain.

Grow more with less



With increasing pressure to meet the needs of a growing population, Europe's agricultural sector is employing regenerative farming techniques and innovative technologies to increase food, feed, and biomass feedstock production on existing land, while reducing its carbon footprint. *For example, increasing the protein content of European rapeseed by just 2% could save half a million hectares of soya production abroad,⁶ reducing Europe's dependence on imported protein linked to deforestation and supporting the substitution of meat protein in diets.*

Protect & restore biodiversity



Environmental protection and increased yields can work concurrently. Through sustainable fertilisation, reduced use of plant protection products, and improved landscape management, it is possible to alleviate the pressure on all species, endangered or otherwise, and accelerate biodiversity restoration. *Where agricultural practices, such as planting of flower strips, help boost wild pollinators and other species, there are proven improvements for crop yields, food quality, shelf-life and human health.⁸*

Increase carbon sequestration



Bringing together best farming practices – including transitioning to no-till agriculture; maximising the benefits of cover crops into overall crop rotation; returning organic materials to the soil; tailoring the nutrient combination to the needs of the plant; and using precision farming tools to minimise losses – enables the reconciliation of productivity, crop quality (including protein content) and carbon sequestration. *Some scenarios estimate that through a combination of efficiency and production measures with conversion of freed up agricultural land to forestry, the EU's net agricultural emissions could be 81% lower than in 2010.⁷*

Increase deployment of innovative practices



Supporting farmers, particularly those with limited access to resources, to modernise and adopt innovative and low-cost practices – such as new plant breeding technologies, low or no tillage farming, and cover cropping – can create immediate sequestration and biodiversity benefits for European agriculture. *For example, replacing all urea-based fertilisers with ammonium nitrate could prevent 63% of overall ammonia losses from mineral fertiliser application in Europe, while contributing to cleaner air and climate mitigation ambitions in Europe.⁹*

Many of the solutions are ready, but the European bioeconomy and agricultural sector need greater support to achieve their full potential. In the next section, we propose a series of recommendations on how the CAP and Farm to Fork Strategy can enable the bioeconomy and agricultural sector to contribute even more to the EU's Green Deal targets.

Making the CAP and Farm to Fork Strategy work for the bioeconomy and European farmers

In 2020, the European Commission introduced the Farm to Fork Strategy, a flagship policy to redesign EU food systems to be more 'fair, healthy and environmentally-friendly' and thus advance the 2030 targets of the European Green Deal. Through innovative mechanisms and initiatives, Farm to Fork aims to drive greater sustainability across the entire agricultural value chain, from primary producer to end consumer. Of particular importance is the opportunity it provides to address sustainability concerns regarding the impact of increased biomass production on climate, land use change and biodiversity.

Critical to successfully implementing the Farm to Fork Strategy is ensuring alignment with the Common Agricultural Policy (CAP) and putting European farmers first. As Commissioner Wojciechowski has said, 'it is paramount that we recognise the key role our farmers play in the context of translating the Green Deal ambition into action.'¹⁰ With many farmers across Europe struggling to stay profitable, their engagement and wellbeing is essential if the agricultural sector, and the bioeconomy, is to deliver sustainable food and biomass production, biodiversity conservation and carbon sequestration.

A forward-looking, joined up CAP and Farm to Fork Strategy would also go far in securing major socio-economic benefits across Europe. With a total budget of over €95bn, the European Agricultural Fund for Rural Development (under Pillar 2 of the CAP), boosted with funds from Next Generation EU, can support regions and rural communities at risk of becoming left-behind, accelerating a just transition, job creation, competitive trade, and innovation.

This paper explores how the CAP and Farm to Fork Strategy can use results-based incentives to encourage farmers to measure and improve the performance of the practices they are implementing. With the appropriate rewards and support to be profitable, farmers can help increase the availability and sustainability of biomass, thus unlocking the potential of the European bioeconomy.

“We need to find more solutions where increased profitability and better livelihoods for farmers can be combined with a higher level of sustainability.”

– Alarik Sandrup, Director of Public and Regulatory Affairs, Lantmännen

Policy recommendations

A harmonised CAP, Farm to Fork Strategy and Biodiversity Strategy that enables farmers to implement sustainable agricultural practices while improving their profitability can help guarantee the long-term availability of sustainable biomass and unleash the potential of the bioeconomy. We believe that key opportunities exist at the European and Member State levels to support farmers and achieve these goals. These include:

1 Incentivising and rewarding farmers for sustainable practices

Establishing effective incentive programmes and result-based systems to support and reward sustainable performance is critical to improving farmer livelihoods and the environmental footprint of agriculture. Previous CAP greening measures to encourage sustainable farming practices were criticised as being too lenient, with minimal conditions or proof of impact required to access income support. By ensuring farmers are incentivised and rewarded for measuring and improving performance across GHG emissions, biodiversity, air quality, water quality and more, the environmental footprint of the entire bioeconomy value chain will benefit. Achieving this will rely on:

- Ensuring that agricultural practices listed under CAP eco-schemes, which are voluntary for farmers, are better targeted and use incentives that guarantee farmer commitment and long-term environmental benefits. With concern about the additional administrative burden that such schemes could place on farmers, it is important that they a) remain simple, b) can be adopted by a sufficiently high number of farmers, and c) cover an adequately large area of land to have material impact.
- Encouraging Member States to provide productive investments (via the European Agricultural Fund for Rural Development (EAFRD) and European Structural and Investment Funds) to machinery rings or farm contractors that could be undertaken to offer affordable precision farming tools, digital tools and specialised equipment to farmers. Combined with targeted programmes encouraging farmers to uptake sustainable practices, this would help increase the share of agricultural land committed to such practices with the necessary resources for effective implementation, and stimulate domestic innovation and development of these technologies.
- Supporting farmers to measure the climate impact of sustainable farm practices by providing access to and promoting awareness of easy-to-use monitoring tools. For example, The Cool Farm Tool (an online greenhouse gas, water and biodiversity calculator) and the Farm Sustainability Tool for Nutrients (FaST) can better inform decision making and encourage the efficient use of inputs in line with Green Deal targets. Where farmers have achieved measurable impact towards climate mitigation, for example, through using fewer inputs or reducing GHG emissions by more than the national average, this should be rewarded appropriately.
- Facilitating carbon farming practices, such as conservation agriculture, soil cover with cover crops, re/afforestation, and grassland management by way of a result-based system that rewards farmers for achieving verified, additional and permanent carbon removal or offsetting (measured via CO₂ equivalents removed or emissions avoided). This would offer a potential new source of revenue to farmers, either in the form of CAP payments or from private sector players seeking to offset their emissions.

“We are showing that farmer-centric business models can guarantee that feedstocks are produced sustainably and farmers are rewarded for doing so.”

– Christophe Beaunoir, CEO, Saipol (subsidiary of Avril)

2 Accelerating the transition to and scaling of sustainable practices

In tandem with incentivising and rewarding sustainable farming practices, complementary activities such as knowledge sharing, advisory services, peer learning and pilot projects can provide farmers with greater assurance to adopt such practices. While we acknowledge that the CAP already makes considerable efforts to stimulate bottom-up local development – including the support of young farmers, small farms, short supply chains, women in rural areas, climate change mitigation and adaptation, biodiversity, and restructuring of certain agricultural sectors – it is important that the Farm to Fork Strategy supports the CAP to:

- Provide farmers with access to tailored investment advice, agri-banking support and appropriate insurance schemes. With climate change and more extreme weather events heightening the risk of production issues and crop failure, the farming community must be supported in making short- and long-term investments and innovative changes to their practices that increase both financial and food security. Otherwise, farmers struggling financially will not have the capacity, interest, nor the incentives to invest in necessary improvements, modern technology, and other actions to increase their sustainability performance. Surveys have shown that farmers with a higher level of financial security invest in and implement more sustainability-aligned practices than their less secure counterparts.
- Support Member States, through the European Agricultural Fund for Rural Development, in actively promoting platforms for farmer-to-farmer exchanges. While farmers are often highly competent and understand, for example, the crop production principles underlying precision farming technologies and digital solutions, they need convincing that they are future-fit for their specific situation. Using study trips, multi-stakeholder events, and advisory services to share successful case studies of the uptake of new practices by fellow farmers, as well as disseminating science-based research and credible policy expertise, can support this goal.
- Encourage Member States to set up demonstration and pilot farms to increase farmers' knowledge about the economic and environmental benefits of adopting sustainable practices, as well as to co-discover innovative practices and business models in collaboration with agricultural scientists and the private sector. Such pilot and test schemes can be

“Where we think the legislative framework and CAP can really help is working alongside business to provide science based criteria and creating incentives that reward farmers in the correct way. Then we can accelerate this transition.”

– Tove Andersen, EVP Europe, Yara

explored alongside the agricultural European Innovation Partnership (EIP-AGRI) Operational Groups, which are supported under the Rural Development Pillar of the CAP Cooperation measure.



3 Addressing sustainability across the entire bioeconomy value chain

Additionally, achieving European Green Deal goals related to the agricultural sector could be aided by:

- Undertaking a comprehensive impact assessment of the Farm to Fork Strategy one year since its publication, to engage in a concrete discussion on its effectiveness and how it can be better actioned in line with the CAP and Biodiversity Strategy.
- Integrating and aligning sustainability targets and definitions of key EU directives and policies related to the bioeconomy (including the CAP, Farm to Fork Strategy, Biodiversity Strategy, Forests Strategy, Renewable Energy Directive, Waste Directive, Sustainable Products Initiative) to improve consistency and cross-sector collaboration. For example, an integrated biomass policy with the CAP, Farm to Fork Strategy and Renewable Energy Directive could support sustainable agricultural models while increasing the availability of biomass for sustainable biofuel production.
- Requiring the implementation of a well-to-wheel approach that accounts for emissions throughout the value chain, from biomass production to product distribution and use. In tandem with measurable, science-based sustainability criteria for biodiversity loss / restoration, biomass origin and other socio-economic factors, this will help create a level playing field when measuring bio-based products against fossil-based equivalents and other technologies.

“I think what really matters is the communication of the value of sustainability across the entire value chain, from producers to consumers.”

– Lukas Visek, Member of Cabinet of Executive Vice President Frans Timmermans, European Commission

“While agriculture does not lie at the core of our business, we understand the importance of looking at the bioeconomy value chain as a whole. Without doing so, addressing sustainability concerns in transport is even more challenging.”

– Staffan Arvas, Director of Public Affairs, Scania



Partner solutions

BioAdvantage Europe partners are leading the way in creating sustainable bio-based solutions that support farmers, the agricultural sector, and the European bioeconomy. Promoting and scaling their deployment via Member States' CAP Strategic Plans can help achieve the goals of the European Green Deal and Farm to Fork Strategy.



- **Rewarding farmers for carbon practices** – by supporting farmers to make operational changes to implement carbon cropping practices, and facilitating the process with clear and transparent guidance, Yara's AGORO Carbon Alliance's solution enables farmers to generate high quality carbon credits certifying real carbon removals. These can be purchased by businesses to achieve their carbon emission goals and, with a correct carbon price, can provide farmers with a new revenue stream for the long term. This concept is underway in the USA and still being tested in the EU.
- **Deploying climate-smart farming solutions** – Yara provides farmers with a collection of tools and services that allow fertilisers and nutrients to be used more efficiently, maximising crop yield and quality whilst avoiding over-fertilisation and protecting the environment. The Farmer's Toolbox includes remote crop monitoring software, nitrogen sensors, conversion calculators and fertilizer selectors. For the latter, replacing all urea-based fertilisers with ammonium nitrate could prevent 63% of overall ammonia losses from mineral fertiliser application in Europe. That would not only contribute to reducing nutrient losses (in the form of ammonia), but also contribute to cleaner air in Europe.
- **Working across the food chain** – a pilot project to reduce the carbon footprint of Lantmännen's grain production using Yara's mineral fertilisers produced from renewable energy launched in 2019. The fertilisers, which Yara aims to bring to market by 2022, will reduce the total CO₂-impact of grain farming by 20%. While using renewable energy as a feedstock for mineral fertiliser production will increase production costs and have an impact on food prices, by working closely within the whole food chain, the ambition is to minimise the additional cost for the consumer.



- **Piloting productive farming techniques** – Lantmännen is using an 880-hectare arable farm to test and demonstrate the best precision farming techniques, which can increase yields by over 40% for wheat when combined with digitalisation, optimal management, and plant breeding. As well as using technology to improve productivity, the farm is contributing to strengthening biodiversity by creating 'lark plots' – undrilled patches in arable fields where skylarks can land and forage – which can increase the number of breeding skylarks by up to 60% compared to fields without.¹¹ The techniques being demonstrated create more environmental value than current approaches, and help to secure and grow agricultural livelihoods into the future.
- **Reducing chemicals in farming** – as a sustainable alternative to chemical treatment, seeds can be treated biologically or thermally for increased pest resistance.¹² In 2017, 59% of Lantmännen's seeds were biologically or thermally treated, or untreated altogether where possible, helping protect farmers' crops being attacked from bacteria or fungal diseases, which can make cultivation less efficient in various ways.
- **Capturing and cleaning carbon dioxide** – Lantmännen's biorefinery, Agroetanol, is using carbon capture and utilization technology in its biorefining process to capture much of the CO₂ produced during the ethanol fermentation process. The CO₂ is then purified, cleaned, and sold as renewable carbonic acid, replacing the imported fossil equivalent. In 2020, additional investment was made to expand capacity by 100 tons per day in their NORLIC plant, to meet increasing demand from the paper and pulp industry and the food industry.



- **Incentivising farmers to improve performance** – Avril has created OleoZE, a digital marketplace that certifies and traces sustainably cultivated sunflower and rapeseeds, rewarding farmers with above-market prices for efforts to reduce greenhouse gas emissions and store carbon in the soil on their farms. The right policies can help level the playing-field by nudging market prices up to support higher standards.
- **Farming sustainable biofuel feedstocks** – using sustainably cultivated rapeseed from French farmers, Avril produces a sustainable biofuel (Oleo100), which reduces CO₂ emissions by at least 60% compared to fossil diesel, and fine particle emissions by up to 80%. Oleo100 is compatible with all B100 approved diesel vehicles, enabling rapid deployment with existing fleets.
- **Boosting Europe’s protein self-sufficiency** – Avril and DSM have joined forces to produce a plant-based (canola) protein, which will contribute to increasing Europe’s protein self-sufficiency and reducing the need for imports. Additionally, by enhancing vegan and vegetarian products with its high nutritional value, it will help in meeting the growing demand for meat and dairy alternatives.

- **Sourcing local feedstocks to power public transport** – Working with local farmers and wine producers, Scania and Citram Aquitaine, a French transport operator, are collaborating to test a bus service running on ED95 made of residues from the wine-making process. There is enough grape production in the region to produce bioethanol to supply 1,000 buses locally – a climate neutral fuel that also creates rural job opportunities.
- **Fuelling heavy duty transport with waste** – Using local feedstocks, such as wheat and residues from the farming and food industry, Lantmännen is producing ethanol as a biofuel (ED95) for Scania’s heavy duty transport fleet, which reduces carbon emissions by 90% compared with diesel.



- **Promoting farmer knowledge exchange** – with the farming sector demanding a tech-savvy, highly skilled workforce, there is a need to improve understanding about the role lubrication plays in the performance and life span of machinery. Shell Lubricant Solutions has developed a modular learning course that provides farmers a platform for knowledge exchange, training, and expert advice on how to optimise agricultural operations and machinery to improve productivity and reduce total cost of ownership.

Coalition demonstration projects

- **Reclaiming contaminated and underutilised land in CEE coal regions**

Coalition partners, Scania and Yara, are exploring the feasibility of reclaiming contaminated and underutilised European land, which is not suitable for the production of food or feed, and cultivating feedstocks for biofuels. By focusing primarily on former coal mining regions in Central and Eastern Europe, the project’s aim is to explore the full range of environmental and socio-economic benefits biofuels production could bring as part of the low carbon energy transition in such areas.

- **Connecting Europe for sustainable heavy duty transport**

Coalition partners, Scania and Avril, alongside IKEA, are aiming to provide a highly credible proof-point that sustainable biofuels for heavy duty transport can deliver - here and now - deep and proven cuts in CO₂ emissions at scale, while also delivering other benefits for rural growth, jobs, innovation, and biodiversity. The ambition is to create heavy duty transport flows between at least 3 member states across the EU using B100, a 100% plant-based and renewable biodiesel.

“ We must realise that the biodiversity and climate crises are strongly interlinked and pose an equally serious existential threat. Bioeconomy solutions also need to address both and avoid any trade-offs between biodiversity and climate.”

– Helena Braun, Member of Cabinet of Executive Vice President
Frans Timmermans, European Commission



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Policy Roundtable

8th June 2021

This paper supported BioAdvantage Europe's policy roundtable held on Tuesday 8th June 2021, an event designed to: 1) highlight the potential of the bioeconomy to support the goals of the European Green Deal; and 2) identify how the CAP and Farm to Fork Strategy can incentivise and reward European farmers to adopt sustainable practices, and in doing so, unleash the potential of the bioeconomy. Joining the roundtable:



Lukas Visek
Member of Cabinet of
EVP Frans Timmermans,
European Commission



Helena Braun
Member of Cabinet of
EVP Frans Timmermans,
European Commission



Tove Andersen
EVP, Europe
Yara



Luc Haustermans
Head of EU Public Affairs &
Industry Relations
Yara



Christophe Beaunoir
CEO
Saipol (Avril Group)



Kristell Guizouarn
Director, European Affairs
Avril Group



Jean Cadu
Fuels Strategy Manager
Shell



Staffan Arvas
Director, Public Affairs
Scania



Martin Wilberg
Associate Director
Kreab / Scania



Alarik Sandrup
Director of Public and
Regulatory Affairs
Lantmännen



Philip Smith
EVP Europe Delivers
Xynteo (Moderator)

A cross-sector coalition working alongside policymakers

The BioAdvantage Europe coalition has been launched to identify opportunities for unleashing growth in the bioeconomy in Europe. We represent many different sectors relevant to the bioeconomy and with business activities in a range of geographies across Europe.

Our work has shown that there is significant potential for the bioeconomy to contribute to more sustainable and inclusive growth in Europe, and that it can play a crucial role in meeting the goals of the European Green Deal. But we also recognise that the bioeconomy needs an integrated, effective and fact-based policy framework to meet this potential.

At this important moment in Europe's transition, we are: raising awareness of the potential of the bioeconomy; demonstrating bio-based solutions in action across Europe; and supporting policymakers to develop bioeconomy-related policies at the regional, national and EU level that deliver rapid decarbonisation, biodiversity restoration, rural growth, green jobs and innovation.

We welcome the opportunity to work beside policymakers to create a policy framework that enables this.



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