EU protein strategy

SUMMARY

The EU is largely self-sufficient in agricultural products, thanks to its common agricultural policy (CAP). However, the EU livestock sector is critically dependent on imports of plant-based proteins for animal feed, especially soybeans, from Argentina, Brazil and the United States (US). The links between protein imports and deforestation, on the one hand, and the substantial greenhouse emissions (GHG) from animal farming, on the other, are also lending greater prominence to the use of plant-based proteins in human nutrition. The European Union (EU) has long aimed to reduce its protein import dependency, but Russia’s invasion of Ukraine has exacerbated the need to shield EU agriculture from price volatility and trade disruptions.

At their informal meeting in Versailles of March 2022, EU leaders identified ‘increasing the EU production of plant-based proteins’ as a means to improve the EU’s food security and reduce food prices. Further to this high-level political declaration, the European Commission is expected to review its protein policy in the first quarter of 2024, reviving hopes for a comprehensive EU protein strategy. Some of the proposals being considered to close the EU’s protein gap include encouraging the domestic production of protein-rich crops, which have received substantial support in the CAP national strategic plans for the 2023-2027 period. Diversifying the available protein sources for food and feed is another way of reducing the EU’s deficit. These sources include microbial, insect and seaweed proteins. Finally, greater efficiency and circularity in the way food is produced and consumed would also contribute to the EU’s protein self-sufficiency and to mitigating the environmental footprint of its agri-food sector.

The European Parliament’s Committee on Agriculture and Rural Development (AGRI) has prepared a draft report on a European protein strategy (rapporteur: Emma Wiesner (Renew, Sweden). Some 716 amendments to the draft report have been submitted ahead of the vote in the AGRI committee.

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Why are proteins important for the EU?

Proteins are essential macronutrients that play a vital role in human nutrition, as they contribute to a healthy and balanced diet. For most adults in the European Union (EU), the main source of protein comes from meat and other animal products, although plant-based sources are gaining in popularity. Proteins also serve as a critical component of animal feed, promoting livestock health and productivity. In the EU, proteins in animal feed are mainly sourced from plants, following the bovine spongiform encephalopathy (BSE) crisis and the 2001 ban on the use of animal proteins in livestock meal. This ban has gradually been lifted, but the EU remains heavily dependent on plant-based proteins to feed its livestock.

Despite its self-sufficiency in many agricultural products, the EU has a major deficit in vegetable proteins due to the high demand from the livestock sector, which cannot be met domestically. Although the EU produces the majority of the feed proteins it needs in the form of forage, it has a low self-sufficiency in high-protein crops (with a 30-50 % protein content), which are important for certain animal species such as poultry and pigs. This deficit has resulted in a massive dependency on protein crop imports from third countries, especially Argentina, Brazil and the United States (see Table 1 below).

Table 1 – EU self-sufficiency in protein crops for feed

<table>
<thead>
<tr>
<th>Product</th>
<th>Protein content (%)</th>
<th>Feed use 2020/2021 (million tonnes)</th>
<th>Feed use with EU origin (million tonnes)</th>
<th>EU self-sufficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybean meal</td>
<td>45.5 %</td>
<td>27.1</td>
<td>0.9</td>
<td>3 %</td>
</tr>
<tr>
<td>Rapeseed meal</td>
<td>33 %</td>
<td>12</td>
<td>8.3</td>
<td>69 %</td>
</tr>
<tr>
<td>Common wheat</td>
<td>11 %</td>
<td>38.2</td>
<td>36.2</td>
<td>95 %</td>
</tr>
<tr>
<td>Barley</td>
<td>10 %</td>
<td>35.6</td>
<td>35.6</td>
<td>100 %</td>
</tr>
<tr>
<td>Maize</td>
<td>8 %</td>
<td>63.5</td>
<td>50.4</td>
<td>79 %</td>
</tr>
<tr>
<td>Fodder legumes</td>
<td>7.2 %</td>
<td>84</td>
<td>84</td>
<td>100 %</td>
</tr>
<tr>
<td>Silage maize</td>
<td>2.9 %</td>
<td>244</td>
<td>244</td>
<td>100 %</td>
</tr>
<tr>
<td>Grass</td>
<td>2.6 %</td>
<td>629</td>
<td>629</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Data source: European Commission, EU feed protein balance sheet.

The EU’s protein import dependency poses risks related to price volatility, global market fluctuations, and trade disruptions, which can threaten EU food security. The Russian invasion of Ukraine highlighted these risks, as the rising feed costs resulting from supply disruptions contributed to the high levels of food inflation in the EU. Furthermore, meeting the EU livestock sector’s demand for protein crops, especially soybeans, has been a key driver of deforestation, land degradation and biodiversity loss in third countries. The need to minimise the exposure of EU agriculture and food security to external shocks and to prevent the EU from contributing to global deforestation has led to renewed efforts to reduce the EU’s protein deficit. Some of the proposed strategies include boosting EU domestic production, diversifying its protein sources or increasing the circularity of its feed use. The growing popularity of vegan, vegetarian and flexitarian diets could also reduce the EU’s protein deficit, as a lower demand for animal products would reduce feed consumption. However, none of these proposals is new, as increasing domestic protein production has long been an EU objective.
EU protein deficit: 'A long-standing problem'

Back in March 2011, the European Parliament adopted a resolution on EU protein deficit: what solution for a long-standing problem? (2010/2111(INI)). This text highlighted many of the issues surrounding the EU’s protein production – such as import dependencies and price volatility, or the contribution of protein crops to soil health – that are still being debated today.

A renewed push for EU protein production came again in July 2017, when 14 Member States signed in Brussels the European Soya Declaration calling for an increased EU production of legume crops for food and feed.

Following this declaration, the European Commission announced in December 2017 its intention to review the situation of plant proteins in the EU, and to consider a possible ‘European plant protein strategy’ aimed at promoting the sustainable and profitable production of plant proteins in the EU.

The Parliament welcomed the Commission’s plan in its resolution of 17 April 2018 on a European strategy for the promotion of protein crops – encouraging the production of protein and leguminous plants in the European agriculture sector. The resolution endorsed the idea of a major European strategic plan for the production and supply of plant proteins. Unlike the ‘Soya Declaration’, it specifically mentioned the need to secure the EU’s autonomy in soya supplies, reflecting the growing European debate on critical dependencies and strategic autonomy.

The announcement was also received well by stakeholders, although priorities and policy recommendations differed between environmental organisations and industry associations.

In line with its promise to review the situation of plant proteins in the EU, in November 2018 the Commission published a report on the subject, in which it made several policy recommendations but did not lay out a comprehensive protein strategy. The report proposed to offer farmers incentives to grow more protein crops through national strategic plans as part of the new CAP legal framework (in force since 1 January 2023). Additionally, it identified the potential of EU and national research and innovation programmes to boost the competitiveness of protein crops in the EU. It then highlighted the importance of market transparency measures to encourage investment by agricultural operators. Finally, the Commission committed to promoting the health and environmental benefits of protein crops as food and feed.

Further commitments to fostering EU-grown plant proteins, including alternative feed materials (i.e. insects, marine feed, algae and by-products) were made in the 2020 farm to fork strategy, but no protein plan was put in place or announced.

The disruptions caused by the coronavirus pandemic renewed calls for an EU-wide protein plan, to complement the national protein strategies put in place by several Member States.

In December 2021, the agriculture ministers of Austria and France signed a joint declaration entitled ‘Towards a European protein strategy and thereby increasing the EU’s self-sufficiency’, in which they called on the Commission to follow up on its 2018 report and to put together an EU protein strategy.

Shortly after the Franco-Austrian declaration, the Russian invasion of Ukraine lent a new urgency to reducing the EU’s import dependencies, including proteins. In their March 2022 informal meeting in Versailles, EU leaders identified food as a strategic dependency to be addressed. More specifically, Member States committed to strengthening the EU’s food security by reducing dependency on key imported agricultural inputs, especially by ‘increasing the EU production of plant-based proteins’.

Also in March 2022, the Parliament adopted a resolution calling on the Commission ‘to propose a comprehensive European protein strategy in order to increase European protein production and reduce the EU’s dependency on third countries’. In that context, the Commission announced in its food security communication its intention to review its protein policy in the first quarter of 2024. Parliament’s Committee on Agriculture and Rural Development (AGRI) is currently considering a draft report on a European protein strategy, prepared by rapporteur Emma Wiesner (Renew,
Sweden). Some 716 amendments to the draft report have been submitted ahead of the vote in the AGRI committee.

**How to reduce the protein deficit?**

**Encouraging domestic production**

One way to reduce an import dependency is to increase domestic production. This postulate has been at the centre of all political declarations addressing the EU’s protein deficit, and the Parliament considers that it should be the focus of any protein strategy. Overcoming this deficit requires a specific mix of policy, legislative and financial incentives.

Farmers, fishers and aquaculture producers are the primary protein producers, but they are also economic players who take decisions based on expected profitability. Therefore, increasing the economic return of protein crops is a way to stimulate producers to invest in these crops. Consequently, the new CAP has increased the support for protein production.

The Commission’s preliminary analysis on the 28 approved CAP strategic plans for the 2023-2027 period found that 20 of them included coupled income support (CIS) for legume and protein crops. In these national plans, the protein sector saw the biggest increase in support (25 %) and accounted for around 13 % of the CIS budget.

One of the most successful policy initiatives resulting in an increased EU protein production was the 2009 Renewable Energy Directive, which encouraged rapeseed cultivation for the biofuels industry. The resulting boost in rapeseed production allowed the feed industry to incorporate the protein-rich co-products into its compound mixes, although rapeseed lacks some of the nutritious advantages making soybeans the preferred protein crop.

Alongside public incentives, market dynamics and the increased expansion of plant-based diets are also likely to encourage EU protein production.

The latest Commission medium-term outlook report 2022-2032 expects the soybean and pulses growing areas to expand by 825,000 ha in the next decade, with soybean production increasing by 33.3 %. The EU production of pulses is expected to reach 6.7 million tonnes in 2032, of which 3.9 million tonnes intended for animal feed and 2.6 million tonnes for human consumption. The latter is projected to increase by 55 % in the next decade. Notably, this surge in pulses production would make the EU nearly self-sufficient in this crop, as imports are projected to fall from the current 1.3 million tonnes to 0.1 million in 2032.

Despite the expected increase in EU protein production and near self-sufficiency in pulses, the Commission acknowledges that the overall import dependency on protein and oilseeds will continue, with oilseeds imports reaching 17.5 million tonnes in 2032.

**Developing alternative proteins**

Together with increasing domestic production, expanding the available sources of protein for human and animal nutrition is another way to reduce the risk of supply shocks. Some of these new sources include microbial protein, algae and insects.

**Microbial protein** is obtained from bacteria, yeast, algae and fungi through a fermentation process. This type of protein is already in use as livestock feed, and there is growing interest in its use for human consumption. Its greatest potential lies in its reduced environmental footprint, as it requires less land and only 10 % of the water used for soybean cultivation, while retaining a significant protein content. However, microbial protein production requires a significant amount of energy and strict toxicological testing, which prevents its expansion. Increased energy efficiency and the overall neutral environmental effects offered by this production could remove these limitations. The EU has supported the research of microbial fermentation to turn forest biomass into single-cell protein meal as part of the Horizon 2020 programme.
Insect consumption remains limited in EU diets for cultural reasons but is increasingly important in animal nutrition, especially aquaculture. Insects require less water and land than other sources of protein, and can transform biomass (such as food waste) into high-value protein and other nutrients, which are well suited for feeding fish, poultry and pigs. The Commission authorised using insect processed proteins in fishmeal in 2017 and in poultry and pig feed in 2021.

Seaweed and microalgae are crucial for marine ecosystems and CO₂ capture, but also play an increasingly important role in biofuels production, the pharmaceutical industry, and animal and human nutrition. Algae are rich in protein and bioactive compounds beneficial to the healthy development of fish, making them particularly relevant for aquaculture. Global production is concentrated in Asia, but stakeholders in the seaweed industry believe that domestic production could cover 30% of the EU’s demand by the end of the decade. In 2022, the Commission launched the EU4Algae platform and published its communication on Towards a strong and sustainable EU algae sector, featuring 23 initiatives to boost algae production.

Greater efficiency and sustainability

Measures to increase the sustainability of agriculture can also contribute to reducing the EU’s protein deficit.

Agri-food production (the production and distribution of food and non-food products of agricultural origin) is a significant source of greenhouse gas emissions (GHG) in the EU. According to a 2022 European Environment Agency publication, crop cultivation and animal farming are responsible for 11% of the EU’s domestic GHG emissions, with livestock rearing being by far the largest source, owing mainly to enteric fermentation and manure management (43% and 15% of total agricultural emissions in 2020 respectively).

An EU protein plan offers the possibility of reducing not only a strategic food dependency of the EU, but also the environmental impact of agri-food production, of livestock rearing in particular, given the links between animal nutrition and GHG emissions, deforestation and land-use change.

Increasing EU protein production could reduce dependency on imports from third countries that generally have lower environmental standards, and thereby contribute to a decrease in deforestation. Developing alternative sources of nutritious and commercially viable proteins would also contribute to both feed autonomy and environmental objectives, as would increasing the role of legumes in human and animal nutrition, due to their nitrogen-fixation properties. These are examples of increased sustainability in the supply side, but changes to human and animal nutrition can also reduce both the EU’s protein deficit and emissions from livestock.
Greater awareness of the environmental impact of the EU agri-food system is shifting consumer preferences towards more plant-based diets and encouraging organic agriculture. Health considerations are also contributing to more sustainable diets, as the links between excessive meat consumption (processed meat in particular) and the risk of developing certain diseases becomes clearer.6

The Commission is promoting healthier nutrition through the Europe’s beating cancer plan and the ‘farm to fork’ strategy (F2F). One of the most relevant initiatives announced in this strategy was the legislative framework for sustainable food systems (FSFS), due to be set out in 2023. This new regulatory framework is expected to support organic and sustainable farming through food procurement in public administrations, and to review EU legislation on food information for consumers, including nutritional, climate, environmental and social aspects of food products.

Thanks to these initiatives, the Commission expects that by 2032 EU citizens will consume less beef and pigmeat (a decrease by 7.8 % and 4 % respectively), and more poultry (an increase by 3 %). Consumption of plant-based alternatives and cultivated meat is expected to remain marginal.

In conjunction with a general decrease in the consumption of animal-based products, certain organisations have advocated for dietary adjustments also within the livestock sector. This approach emphasises the utilisation of 'low opportunity cost' feeds, consisting of substances unsuitable for human consumption, such as pastures. Although this system would have positive environmental effects and would prioritise protein sources in which the EU is self-sufficient, it is incompatible with the current demand for animal products, requiring intensive farming.

The optimisation of existing resources, facilitated by digital technologies, can also play a pivotal role in achieving greater sustainability and self-sufficiency in the EU’s livestock sector. The feed industry already incorporates a wide variety of co-products from other industrial processes into its mixes, such as brewer grains from beer manufacturing or rapeseed meal from biofuels production. The feed industry has advocated for expanding the role of ‘circular feed’ in animal nutrition. Subject to strict sanitary rules, harnessing the potential of protein-rich co-products could reduce food waste, nutrient loss, import dependencies and the environmental footprint of the livestock sector. Finally, feed additives can also contribute to closing the protein gap, optimising protein consumption by animals and potentially reducing methane emissions from enteric fermentation.

The Commission has supported feed optimisation projects through the Horizon 2020 programme and the current Horizon Europe framework.

**Stakeholders' views**

Although the idea of increasing EU production of proteins is widely accepted by all agri-food chain stakeholders, their ultimate goals and policy proposals are varied and often contradictory. At the centre of their debate is what should be the primary source of protein in human diets.
Environmental and animal welfare organisations insist on prioritising plant-based proteins and substantially reducing animal-based production, while industry representatives point to the current demand for animal protein, trusting in diversification and innovation to reduce the protein deficit.

Copa and Cogeca, Euroseeds and FEFAC (representing farmers, agricultural cooperatives, the seed sector and the feed industry respectively) published in March 2022 a joint position paper on the cultivation and use of plant-based proteins. The document argues that a sustainable protein plan should seek to ensure competitiveness, resilience and a high level of quality, facilitated by consistent EU and national policies. The organisations acknowledge the difficulty of achieving EU protein autonomy (which they see as impossible in the short and medium term in the case of high protein sources) and expect continuous reliance on imports ‘for the foreseeable future’. Despite these challenges, the document puts forward certain proposals to increase domestic protein production and reduce imports. The paper suggests that a consistent EU legal framework, among other measures, should facilitate access to approaches, such as novel genomic techniques (NGTs), aiming to increase the resilience and productivity of crops.

The European Alliance for Plant-Based Foods (EAPF) represents a wide spectrum of industry and advocacy organisations promoting a bigger role for vegetal proteins in human nutrition. EAPF calls for redirecting funding and arable land from feed and livestock production to crops for direct human consumption. EAPF also advocates for a greater role of plant-based foods in public procurement, national dietary guidelines and information campaigns. Some organisations have gone further, with 50 NGO’s calling on the Commission to stop the public promotion of meat and dairy. The animal advocacy organisation Eurogroup for Animals supports the expansion of plant-based diets in the EU, including the development of alternative sources of protein such as algae, but opposes the use of insect protein in animal feed.

European Parliament report

The Parliament’s Committee on Agriculture and Rural Development (AGRI) has prepared a draft report on a European Protein Strategy 2023/2015(INI) (rapporteur: Emma Wiesner (Renew, Sweden). The draft report calls on the Commission to urgently present a comprehensive EU protein strategy that introduces effective measures to increase EU protein production in the short, medium and long term. The text recognises the geopolitical need to reduce the protein import dependency by developing all possible protein sources. It also highlights the role of farmers, fishers and aquaculture farmers as the primary protein producers. The draft report continues by listing plant-based and alternative proteins for use in food and feed. It also addresses the factors along the food value chain that can boost protein production, such as public procurement, the synergies with renewable energy generation, and greater circularity to reduce food waste. Finally, the draft report lists extensive policy and legislative initiatives to be put forward by the Commission.

Given the role of fisheries and aquaculture as an important source of protein in the EU, the Committee on Fisheries (PECH) has contributed to the file with an opinion (rapporteur: Nicolás González Casares, S&D, Spain). The opinion highlights the increasing relevance of aquaculture and the nutritional importance of fisheries for billions of people worldwide. It also stresses that, in addition to having a lower carbon footprint and input requirements, the sector is a source of high quality protein. The opinion draws attention to the EU’s low self-sufficiency in fisheries and aquaculture products, with an average of 43% over the past 10 years, and points out the potential of alternative proteins such as insects and algae as sustainable sources of feed for the aquaculture sector.
**MAIN REFERENCES**

Albaladejo Román A., [EU feed autonomy: Closing the gaps in European food security](#), EPRS, European Parliament, February 2023.


European Commission, [Drivers of food security](#), SWD(2023) 4, January 2023.


Kuljanic N., [What if insects were on the menu in Europe?](#), EPRS, European Parliament, 2020.

**ENDNOTES**

1. Some examples of protein crops include soybeans, pulses (such as peas, beans or lentils) and oilseed (like sunflower or rapeseed).

2. Avian and porcine processed animal protein (PAP) and later insect protein were allowed for aquaculture in 2013 and 2017 respectively. The most recent re-authorisation by the EU of PAP in animal feed came in 2021, allowing its use in poultry and porcine feed. Ruminant protein and intra-species recycling (also known as ‘cannibalism’) remains banned.

3. These included Germany, Hungary, Austria, France, the Netherlands, Italy, Poland, Croatia, Romania, Slovenia, Slovakia, Finland, Greece and Luxembourg.

4. The announcement came in a statement attached to the proposal for [Regulation (EU) 2017/2393](#).

5. Belgium is the only EU Member State with two CAP strategic plans, one for Flanders and one for Wallonia.

6. The study by the International Agency for Research on Cancer (IARC) found that the consumption of red meat was ‘probably carcinogenic’ and that of processed meat was ‘carcinogenic’ to humans.

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[eprs@ep.europa.eu](mailto:eprs@ep.europa.eu) (contact)

[www.eprs.ep.parl.union.eu](http://www.eprs.ep.parl.union.eu) (intranet)


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