

The Resilience Gap: INNOVATING FOR EUROPEAN AGRICULTURE

SYNTHESIS REPORT



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Overview & Summary

Geopolitical volatility, climate disruption and economic uncertainty are reshaping food systems worldwide – and Europe is exposed to their effects. Food prices remained almost one-third higher in mid-2026 than they were before the war in Ukraine. In this context, agriculture is not simply another industry. It is a system-critical sector, central to food security, economic activity, rural livelihoods and Europe's strategic autonomy. Its importance stands alongside industries such as energy, digital infrastructure, healthcare, advanced technology and automotive manufacturing.

This report explores the role European agriculture plays and what is needed to strengthen resilience, competitiveness and food security in the years ahead. It is a synthesis of three sources: [economic analysis by Oxford Economics](#), [representative consumer research](#) and [in-depth interviews with farmers](#) across eight European markets. Together, they examine agriculture from multiple perspectives.

Agricultural outcomes are shaped by a complex mix of weather, input and labour costs, farm structures, trade, investment, consumer demand and public policy. This report focuses on one important part of that wider picture – one that Europe can directly influence: ***the contribution that innovation can make to productivity, competitiveness and resilience, and the conditions determining how quickly farmers can access and adopt it.***

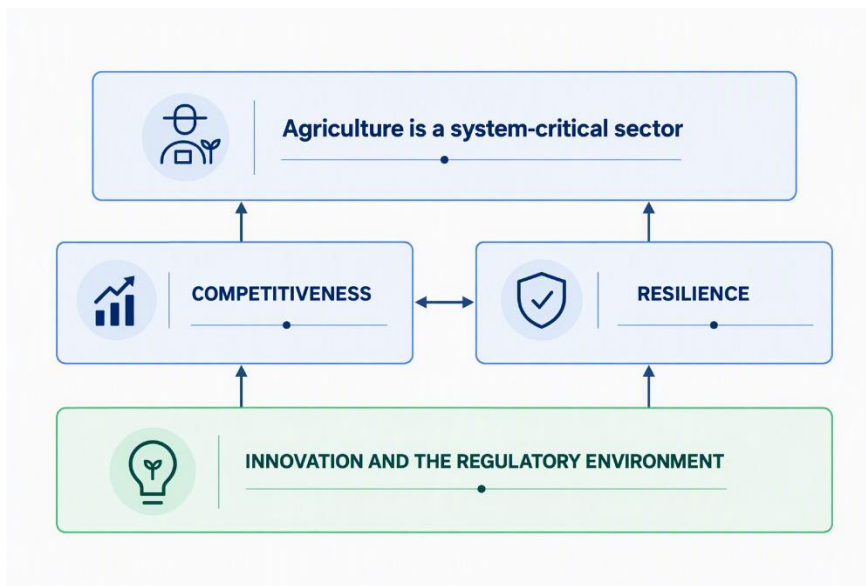
At a glance:

European crop agriculture is of great economic and strategic importance. Contributing €246 billion to the EU's gross domestic product (GDP) and €5.7 billion to that of the UK, it is worth roughly as much as Greece's GDP. And while crop output growth in the EU and the UK has significantly lagged that of comparable countries between 2011 and 2023, European agriculture also has considerable strengths. It benefits from highly productive farmland, world-class farmers and deep scientific and industrial capabilities. The opportunity is to ensure that those strengths can be fully realised as climate, cost and competitive pressures intensify.

A key to achieving this is innovation and access to it. In practice, innovation can strengthen competitiveness and resilience in several ways. For instance, drought- and disease-resistant seeds can improve yields; targeted crop protection can control pests more efficiently; and precision technologies can reduce the unnecessary use of water, fertiliser and other inputs.

The evidence points to a growing mismatch between the speed at which pressures are intensifying and the speed at which effective innovations reach farmers in the field. Meanwhile, farmers in some non-EU markets face lower input costs or can access new crop protection, breeding and digital tools sooner. At present, European farmers therefore face a double disadvantage: strong cost pressures alongside a more limited toolkit and slower access to innovation. This is the resilience gap.

Oxford Economics Farming Innovation Framework



Innovation and a supportive regulatory environment underpin agricultural competitiveness and resilience. Together, these pillars enable farmers to adapt, remain productive, and sustain a system critical to livelihoods and food affordability. Together, they can create a positive cycle of improved food security, increased farmer profitability, and help reduce food costs for consumers in the long term.

The evidence indicates what is needed to strengthen European agriculture as a system-critical sector and points to a clear course of action. The regulatory adoption of New Genomic Techniques (NGTs) and the increasing attention agriculture receives when it comes to Europe's strategic autonomy are already important first steps.

This report sets out five priorities to maintain this course, strengthening the productivity, competitiveness and resilience of European agriculture:

1. Making agriculture a cornerstone of Europe's resilience agenda
2. Embracing innovation as an opportunity
3. Giving farmers the choice and flexibility they need
4. Reducing bureaucracy and making regulation more predictable and proportionate
5. Strengthening trust in facts and science

European crop agriculture: A system-critical asset with further potential to unlock

European crop agriculture, including horticulture, is economically significant and deeply connected to food production, animal feed, biofuels and other industries. The figures below demonstrate both the sector's considerable strength and the importance of sustaining its future performance.

The economic impact of European crop agriculture*

- **€246 billion & €5.7 billion:** estimated direct contribution to EU & UK GDP.
- **4.5 million:** people employed in crop agriculture.
- **€2 billion to €3 billion:** downstream production supported by every €1 billion of crop output, depending on the Member State.
- **87%:** share of supply-chain economic activity estimated to take place within the EU.

*Inclusive of vegetables, horticulture as well as staple crops like grains and cereals, data from Oxford Economics & European Commission

This importance is reflected in consumer attitudes and their general awareness of the role of farming. Across Europe, 84% of consumers agree that food security is a matter of national security. Consumers see farmers' resilience, food affordability and food security as part of the same challenge.

Yet productivity growth suggests that Europe cannot assume its existing strengths will endure. EU agricultural productivity has risen by an estimated 72% since 1960, but growth now lags behind that of other regions. This reflects multiple factors, including Europe's high starting point, farm structures, climate, investment levels and input costs. Innovation can help farmers address these pressures by improving efficiency, reducing input use and protecting yields.

Crop output growth in the EU significantly lagged behind that of comparable countries between 2011 and 2023, averaging just 0.1% a year. In the UK, it remained flat at 0%. This compares with 1% in the United States, a global average of 2%, and a range of 2–3% in China, Canada and India. Brazil was one of the fastest-growing markets, with annual growth averaging 3.3% over the same period. The longer-term comparison is equally stark: average EU production was only 2% higher than in the preceding decade, compared with increases of 16% in the United States, 44% in Canada and 51% in Brazil.

These trends are not just reflected in macroeconomic figures. Farmers themselves are directly feeling the headwinds of mounting pressures. Many farmers report that profitability is becoming harder to sustain through traditional farming activities alone.

“There’s a permanent rise in costs and selling prices that are stuck, or even falling... It used to be one bad year every three or four years. Now it’s more like one good year every five or six.” Arable or combinable crops farmer | Age 55-64 | Reims, France

Economic challenges for farmers are compounded by Europe's exposure to imported inputs. The EU imports around 70% of its phosphatic fertilisers, 40% of its potash fertilisers and 30% of its nitrogen fertilisers, with natural gas accounting for 70% of fertiliser-production costs. Despite efforts to reduce reliance on unstable supply chains, Russia still accounted for 22% of EU fertiliser imports in 2025, while 20% of all non-EU supply-chain activity supported by European agriculture occurs in Russia, and a further 6% in China.

Dependency and underinvestment create costs across the food system. Nitrogen fertiliser prices were 71% higher in April 2026 than their 2024 average and, with fertilisers accounting for 7–8% of agricultural input costs, this directly erodes farmer profitability and adds further upward pressure on food prices. Input costs more broadly remain substantially above pre-crisis levels, with fertiliser up 60%, energy up 51%, machinery up 25% and crop-protection products up 17%, creating sustained pressure on farm margins.

“Right now we’re a bit suffocated because everything takes so much effort to do... costs are too high and we’re not paid a decent profit.” Vineyard or permanent crops farmer | Under 35 | Dos Hermanas, Spain

The wider public recognises farmers' experiences and their challenges. 83% agree that it is becoming harder for farmers to make a living, while 80% say national governments do not appreciate how hard farming is and 78% say the same of the EU.

Mounting pressures from climate change

The competitive challenge is being compounded by climate change, which makes access to effective tools increasingly urgent. Over the past decade, droughts in Europe have pushed crop losses 30% higher than earlier trends would have predicted. Wheat yields in Southern Europe are estimated to fall by up to 49% by 2050. Climate-driven losses already cost European crop agriculture an estimated €17.4 billion annually – equivalent to 6.4 percent of EU crop production – and could rise to €24.8–€28.9 billion by 2050. Farmers interviewed across Europe also reported growing concerns about heat, drought, pests and diseases linked to changing weather patterns.

“We’ve had almost eight weeks without rain... climate change is clearly happening, but you don’t know which direction it’s going.” Arable and vegetable farmer | Brugge, Belgium

France’s experience in summer 2026 illustrates how quickly these risks can translate into lost production and public cost.

France in Summer 2026

Grain maize yields are expected to fall by 35% in 2026 versus 2025, potentially reaching their lowest level since 1980. French sunflower production is expected to fall by 15% from 2025 and 23% from its five-year average. The €1bn in French government support for farmers affected by severe heat and drought in September 2026 offers a vignette of what this might look like for other countries across Europe.

“It is no longer unusual for us to have several consecutive years with losses of more than 50% of the harvest. Before, that might happen once every ten years.” 38 | ***Winegrower | Beaujolais, France***

These impacts are increasingly visible to the public. In France, 91% of consumers say extreme weather is already affecting farmers, while 88% believe it will make food more expensive and 89% say it will put domestic food production at risk.

“This year was the fourth heatwave. You notice fruit-set fails in tomatoes and peppers, no new fruit forms.” Vegetable farmer | Horst, Netherlands

Consumers also connect the effects of climate change to food prices and availability: 91% say that extreme weather is affecting farmers today, 87% expect it to make food more expensive, and the same proportion expect crop failures that put domestic production at risk. Encouragingly, consumers also see part of the solution: 65% believe that allowing farmers to use the latest science and technology would make food more affordable.

Fast access to innovation matters

Timely access to innovation is an important pillar for addressing these challenges. Crucially, it is a pillar that Europe can influence. The farmer interviews make clear that European farmers are not asking for lower safety or stewardship standards, but for access to useful innovations within timeframes that allow them to compete with producers in markets where similar technologies may already be available.

The challenge is that European farmers have slower – or no – access to certain tools. They may also lose access to existing tools while new solutions are delayed by lengthy and bureaucratic processes.

For example, the US began commercial cultivation of gene-edited crops in 2019, while the EU's New Genomic Techniques (NGT) framework is not expected to apply until 2028. The EU's step in 2026 is significant: not adopting NGTs in the EU was estimated to represent an annual opportunity cost of €72–123 billion across agriculture and food applications.

Another example are “traditional” genetically modified seeds: GM crop adoption has been estimated to reduce chemical pesticide use by 37%, raise crop yields by 22% and increase farmer profits by 68%—a technology that is not available to European farmers.

In addition, the number of available crop protection solutions has significantly declined:

“The list of crop protection products gets narrower every year, and sometimes we have no products at all that can deal with a pest or weed problem. Because there are fewer of them, we can't rotate, and pests become resistant to the active substances... I'd say our costs have gone up by around 30 to 40 percent.” Arable or combinable crops farmer | Under 35 | Zamość, Poland

Deep Dive: The diminishing toolbox at the disposal of European farmers

While more than 1,000 active substances were authorised in the EU in the early 2000s, today only around 420 remain approved. These limitations have accelerated in recent years. Farmers have lost access to 92 active substances in seven years, while only one new synthetic active ingredient reached the market over the same period. Farmers are realising this in the field and reported a feeling of helplessness as active ingredients they once relied on were subsequently prohibited. And in addition to the struggle of protecting the current harvest, reducing the variety of tools fosters resistance in the mid and long term.

“Flufenacet is banned for weed control in cereals. We are almost at a dead end now, because molecules have been taken away and there are no new ones to replace them.” Arable farmer | Hauts-de-France

While alternative products try and reach the European market, more than half of new crop protection products are currently tied up in EU approval processes. During interviews, farmers expressed concern that increasingly restricted access to agricultural tools leaves them at a disadvantage compared with other international markets.

Delay leaves potential productivity, resilience and sustainability gains unrealised, weakening agricultural competitiveness and increasing pressure on farm incomes, food affordability and long-term food sovereignty.

Consumers similarly hold the view that the current system constitutes a competitive disadvantage: 72% believe there is too much bureaucracy in approving new technologies. 77% say cutting bureaucracy and red tape would help make sure Europe can produce enough food. Together, these findings suggest that consumers and farmers recognise the same imbalance: European producers are being asked to compete globally with a more limited technological toolkit and a heavier cost and administrative burden. Europe's resilience challenge is increasingly defined by the gap between the speed at which challenges advance and the speed at which farmers can access and economically adopt innovation. Closing that gap matters not only for farm productivity, but also for food security, affordability and European competitiveness.

A shift towards more innovation is possible

For all the challenges farmers face, there has been remarkable progress: after decades of fierce public debate over plant biotechnology, the adoption of the EU NGT regulation demonstrates that change is possible. Farmers recognise the opportunity, with a majority stating that they would grow edited varieties or consider doing so, and only a small portion were against, mostly organic growers or those objecting on patent grounds.

“With CRISPR-Cas, within a species, if you find resistance or drought tolerance in a wild plant – why shouldn’t we use that?” Mixed farming | Over 65 | Rheinhessen, Germany

Europe can build on this momentum by creating more agile and proportionate pathways for technologies that strengthen resistance to drought, disease and pests, protect yields and enable more efficient input use. Faster access to, and uptake of, innovation offers Europe a significant economic and strategic opportunity.

And the public shares that view: 75% agree that innovation in farming is one of the most important drivers of food security, 60% believe national and EU regulators are often too cautious in approving new technology, and 64% say bans introduced without a clear scientific basis only push prices higher. Accordingly, 84% say farmers should have access to the latest innovations. 63% say they are more likely to vote for a party that backed farmers using new science and technology. Support for innovation is strongest when its benefits are clear. Consumers most frequently say they would be more supportive if innovation helped farmers stay in business, strengthened food security or reduced food prices. They are also comfortable with practical applications, including fertiliser sensors, GPS-guided tractors and AI-supported farming.

Economic evidence, public opinion and farmer insights all point to the same conclusion: the cost of inaction will continue to rise. At the same time, Europe has a clear opportunity to strengthen productivity and resilience by accelerating access to novel innovations and those already delivering results elsewhere. Closing this gap will require innovation-enabling frameworks, proportionate risk assessment, and more efficient approval pathways to respond to intensifying climate, geopolitical and competitive pressures, all while maintaining high safety standards.

Five ways to strengthen resilience and seize opportunities

Europe has the farmers, scientific expertise and industrial capabilities to build a more productive, competitive and resilient agricultural sector. Realising this potential requires action across the full innovation pathway – from regulatory approval to practical adoption on farms.

This report sets out five ways forward, which also align with the European Commission's AgRI 2040 strategy. They are the following:

1. Make agriculture a strategic cornerstone of Europe's resilience agenda

Agriculture is part of Europe's critical infrastructure. If policymakers do not place farming at the heart of Europe's resilience agenda with policies that reflect its vital importance, the region risks falling behind in global competitiveness and compromising its strategic autonomy in an increasingly volatile world.

2. Embrace innovation as an opportunity

Europe needs a more open and confident innovation mindset. New technologies like genome editing and AI should be seen as chances to solve pressing challenges and strengthen Europe's competitiveness and resilience, rather than as risks to be managed. While high standards of safety must be maintained, decision-making should also take into account the urgently needed benefits that may be forgone when promising innovations are delayed or not adopted. By opening the door to innovation, Europe can ensure farmers have access to the same new solutions as their peers in other parts of the world.

3. Give farmers the choice and flexibility they need

Conditions in the field are becoming more difficult. Farmers need a broad variety of tools to safeguard their harvests and support food security. They need better access to the best crop protection, seed and digital technologies so they can respond effectively to local realities and strengthen Europe's food supply.

4. Reduce bureaucracy and make regulation more predictable and proportionate

Europe's farmers, researchers and innovators need a lean and reliable regulatory environment that enables growth and progress. This means faster, more predictable approval processes and a stronger risk-based approach that considers real-world exposure and benefits while maintaining high safety standards. Simplified processes should be a political priority, cutting unnecessary administrative burdens and enabling resources to flow towards productivity, competitiveness and resilience.

5. Strengthen trust in facts and science

People are more willing to embrace science-led innovation when it is comprehensible and connected to real-world challenges and tangible benefits. Building on this, a more confident, evidence-based debate about how science can help tackle Europe's major challenges is needed. Political, industry and societal leaders should advocate for scientific facts and counter misinformation, helping strengthen public trust in research and in the technologies needed to reinforce Europe's resilience, competitiveness and future readiness.