



OVERVIEW
2020/21

GREEN AMMONIA
THE WORKHORSE OF THE
EU HYDROGEN ECONOMY





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Foreword - President

Andreas Steinbuechler, President, Fertilizers Europe

The decarbonisation challenge

We are facing unprecedented challenges as a society, with climate change among top priorities. The European Green Deal provides a roadmap that sets out how to transform the economic model by cutting emissions, restoring the health of natural environment and creating new economic opportunities.

But challenges remain. A transformation of energy infrastructure, the increased price competitiveness of green energy, new scientific breakthroughs and the

Developing a market for low-carbon ammonia is also a priority. Certification schemes for green and low-carbon ammonia, and for the fertilizers they are used to produce, would help these products command a premium price in the market.

Fertilizer industry has what it takes to be part of the solution to the decarbonisation challenge and we are willing to play our part. Through investments, public funding, and coherent legislative framework, we can cut emissions from energy intensive sectors such as fertilizer industry, decarbonise food and act as the workhorse for the green hydrogen economy.

development of markets for low carbon products, all of these will be required if the industry is to make further significant reductions in carbon emissions.

The industry has already identified low carbon technologies. Several ammonia producers have announced projects to make hydrogen from water using renewable sources of energy. However, the frontrunners have stated that public funds and a supportive regulatory framework are needed to upscale this technology.

Cost remains a significant hurdle. Green energy is still considerably more expensive than natural gas and the vast amounts of power needed for green hydrogen electrolysis make its production uneconomic. Abundant and competitively priced clean electricity will be needed for green ammonia to become a commercial alternative to the existing production technology.

Enhancing sustainable food systems

Published in May 2020, the EU's Farm-to-Fork Strategy continued to bring about questions from the agri-food community. The strategy which proposes many ambitious targets, including a 50% reduction in nutrient losses, is expected to have a massive impact across the agricultural value chain, including farmers, food systems and consumers across the Single Market.

Fertilizers Europe, with its members, is committed to work closely with farmers and other key stakeholders across the value chain to enhance sustainable food systems in Europe.

EU Fertilising Products Regulation

With just over a year to go, there is still a lot of uncertainty surrounding the impact of the new regulation on the fertilizer industry, and a lot of work still needs to be done, together with the relevant authorities, to ensure the fertilizer sector has a smooth transition to the new framework.

Fertilizers Europe has closely followed the development of the regulation. In particular, the association has made a significant contribution to the finalisation of guidance for the labelling of fertilizer products, as well as organised

For the fertilizer industry to continue investing in Europe, any future policy framework must make economic and commercial sense and ensure a level playing field for European producers, while at the same time incentivising both domestic and foreign producers to decarbonise production.



a two-day webinar to help our members prepare for the practical aspects of the implementation.

'Fit for 55' Package

Reform of the Emissions Trading Scheme and a new Carbon Border Adjustment Mechanism are two key proposals in the European Commission's 'Fit for 55' legislative package, which aim to make all European laws consistent with an upped 55% GHG emission reduction target by 2030.

Many of these legislative initiatives will have a direct impact on the fertilizer sector, which must stay competitive if it is to continue its support to the whole agri-food chain.

Looking ahead

Fertilizers Europe will engage actively with the proposal of the European Commission's 'Fit for 55' package planned for July 2021. Our sector definitely has part of the solution but, at the same time, we have to remain realistic and make sure that the fertilizer sector can remain competitive and continue to invest in this very challenging transition to decarbonise the economy.

Together with our members, Fertilizers Europe will play an active role and engage with policy makers and wider stakeholders to support the development of EU policies and regulations.

Foreword - Director General

Jacob Hansen, Director General, Fertilizers Europe

COVID – Fertilizers Europe rises to the online challenge

As COVID-19 spread across Europe through the first three months of 2020, all the European institutions had instructed their employees to work from home and were closed to external stakeholders.

Fertilizers Europe had to adjust to the realities of the new working methods forced upon association by the COVID crisis. The lockdown of the European Parliament forced the cancellation of two of our events there, including the Forum on Plant Nutrition, and another speaking opportunity to address MEPs on behalf of

I would like to thank our members for the time they have devoted to the association. Their efforts, combined with those of the whole Fertilizers Europe team in Brussels, continue to make a significant and positive contribution to the future of the industry.

the Alliance of Energy Intensive Industries. Remote and virtual working have since transformed the way lobbying and advocacy has traditionally been conducted in Brussels. Meetings, conferences and seminars were forced online, but online cannot replace informal discussions and contacts, which is such an essential part of public affairs and communication work.

Fertilizers Europe quickly adjusted to what became a new normal, launching a 'COVID newsletter' for members and organising, in 2020, two well-received online conferences, hosted by Brussels media outlet EURACTIV. The first of these, in June, focused on the EU's Farm-to-Fork Strategy and the second, in September, discussed the potential of green ammonia in the light of recently announced EU Hydrogen strategy. Encouraged by a success of online events organised in 2020, the secretariat organised an additional panel debate in the first part of 2021. A high-level event 'Decarbonising industry value chains:

hydrogen over ammonia to green agricultural products' during the Commission's flagship industry event "EU Industry Days 2021" focused on making the business case for low carbon products.

A new approach to printed material also emerged because of the move to online working. Our messaging and communications became more visual and less



reliant on text. "Paving the way to green ammonia and low carbon fertilizers" was the first example of this new communication style.

Preparing a complete renewal of the Members Lounge was also an important priority for Fertilizers Europe and was successfully launched in early 2021. The new platform has been designed as a one-stop-shop for all the services provided by the secretariat and is expected to allow members get the most out of their membership.

Global Fertilizer Day in 2020 was dedicated to workers in the agri-food sector, with the #FoodHeroes campaign

highlighting the efforts they made during the crisis to ensure undisturbed supply of food produce. The campaign aimed to raise public awareness of the complexity of food production and how vital fertilizers are to Europe's food security. The campaign deployed multimedia content to tell the stories of fertilizer producers and farmers and had very positive results on social media channels, with around 310,000 views of two video interviews.

Reaping the benefits of long-term efforts

The association achieved some remarkable successes in the past year. Long-term investment in preparation, arguments and discussions paid off. In December 2020,

the European Commission concluded its 15-month long investigation into Russian exports, with a decision to continue the measures for another five years. This follows the equally long review in 2018 and shows the continued effort in developing arguments for such measures. Another example is that the industry secured the lowest category of automatic benchmark reduction for ammonia under the ETS system.

This categorisation obviously reflects the reality of ammonia production, but at the same it also demonstrates years of preparation and fact-based discussions. The final example is the wording in the "Farm-to-Fork Strategy" on

fertilizers, where the concept of Nitrogen Use Efficiency developed over years by the EU Nitrogen Expert Panel was a great reference point to get to a much more balanced position.

Team effort

Recognition should be given to Fertilizers Europe's member companies and their employees. They managed to maintain operations despite the difficult conditions and restrictions imposed upon them by the COVID crisis and thereby helped avoid any food shortages. Board members and the many member representatives in the committees continue to take an active interest in the association's activities and made a significant contribution to the success of Fertilizers Europe in 2020/2021. I would like to thank them for the time they have devoted to the association. Their efforts, combined with those of the whole Fertilizers Europe team in Brussels, continue to make a significant and positive contribution to the future of the industry. I would also like to thank them for their flexible and rapid adjustment to the new online working environment.

Product Stewardship

Fertilizers Europe has always stressed the need for members to be responsible producers and safeguard the well-being of the employees and the environment around us. That is why we have established the industry Product Stewardship program. Every third year the standards and procedures of the member companies are audited by an independent third party. This audit took place in 2020, even if due to the COVID crisis some of the audit had to be done on-line.

It makes me proud to say that all members of Fertilizers Europe have passed the Product Stewardship audit 2020. I want to congratulate each member company with the high standards achieved proven by the independent audit.

Looking ahead

As COVID restrictions start to ease, Fertilizers Europe is preparing for the new hybrid work style from the summer of 2021 onwards. The reopening of EU institutions to public interest groups, like our own, as well as face-to-face meetings with policymakers, officials and politicians, will once more be the order of the day in Brussels. We will be ready for it and intend to hit the ground running!

Green ammonia: the workhorse of the EU hydrogen economy

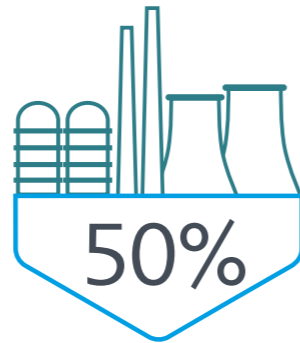
The European Commission's 'Hydrogen Strategy' unveiled in 2020 represents an enormous opportunity for the fertilizer sector. As one of the biggest producers and users of hydrogen in Europe, fertilizer producers have all it takes to be frontrunners in scaling up the production of renewable hydrogen.

"A hydrogen strategy for a climate-neutral Europe" aims to transform the way the EU economy is powered by giving an alternative clean energy option to those sectors of the economy unable to tap into renewable electricity options.

The plan sees hydrogen playing an important role in the decarbonisation of manufacturing, transportation, power generation and the commercial and residential property sectors. Hydrogen's share of Europe's energy market is forecasted to rise from less than 2% today to 13%-14% by 2050.

Ammonia as a workhorse of the hydrogen economy

Unlike hydrogen, ammonia is already being produced and transported worldwide in huge quantities (180 million tonnes annually are produced and 18 million tonnes are transported), as it is the basis of many chemicals and very importantly the building block for producing fertilizers (80% of the demand).



With a share of about 50%, the ammonia industry is today the biggest producer and user of hydrogen in Europe.

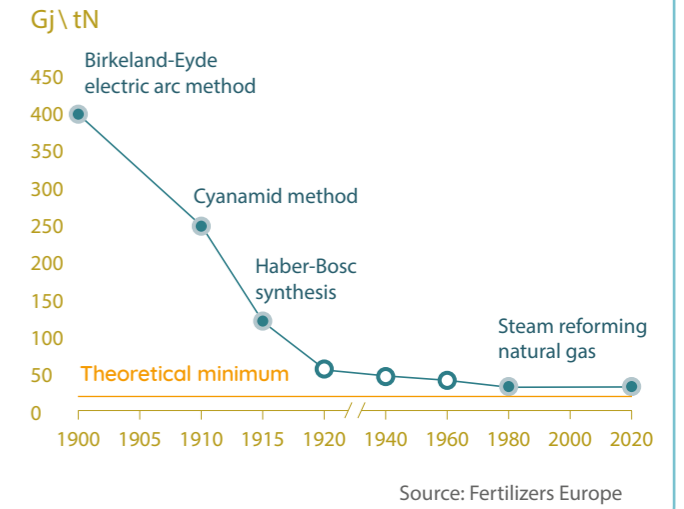


"The EU hydrogen strategy lays the foundation for deployment of relevant policies enhancing a sustainable and competitive business environment for strategic technologies, such as low-carbon hydrogen and ammonia.

As one of the key producers and users of hydrogen, the fertilizer sector is best placed to upscale low-carbon technologies in the most cost-effective way.

Balancing the EU's climate ambitions with industrial competitiveness will be key to a successful implementation of this strategy."

AMMONIA INDUSTRY REACHING TECHNICAL LIMIT IN DECREASING EMISSIONS



Decarbonising ammonia production

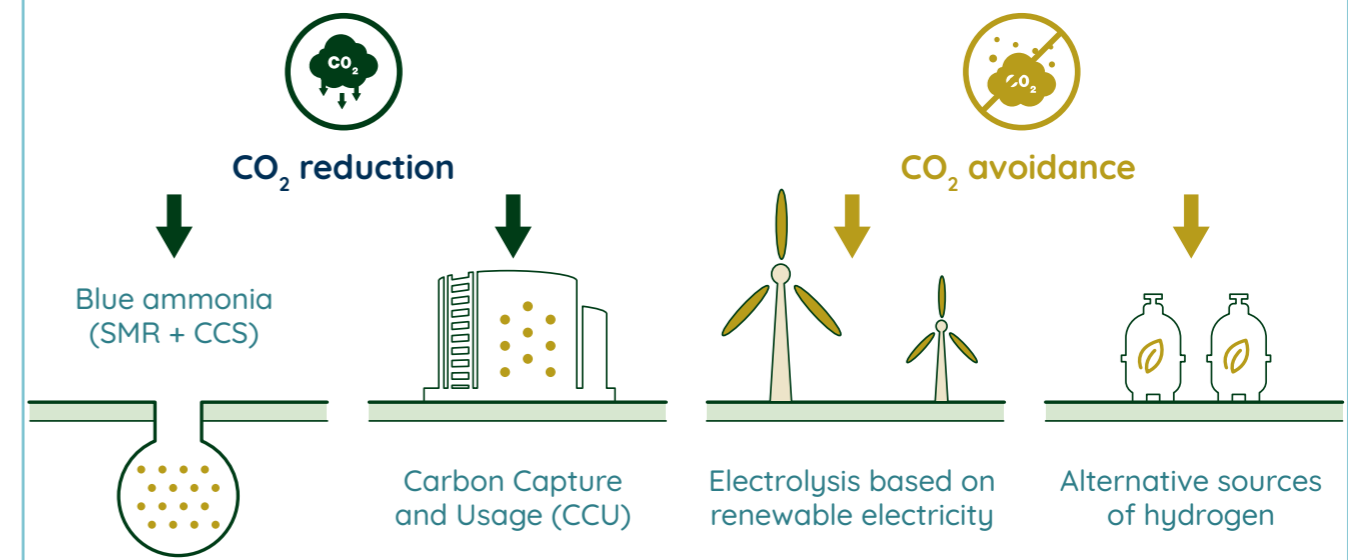
Despite the enormous strides made by the industry in recent years in reducing emissions, current ammonia production methods still generate significant volumes of CO₂.

Production of nitrogen fertilizers is based on high temperature 'cracking' of natural gas into hydrogen and CO₂. Hydrogen is then combined with nitrogen from the air to create ammonia. Further investments

by EU fertilizer producers in this traditional method of production are unlikely to produce more than marginal decarbonisation gains.

A low-carbon alternative involves the underground storage of some of this CO₂ by-product in the production of so-called 'blue ammonia' (i.e. ammonia produced by steam methane cracking, but with the carbon by-product captured and stored - 'CCS').

EMERGING LOW-CARBON TECHNOLOGIES



When 'green ammonia' is produced, only green electricity and water is used via electrolysis, or other sources of low carbon hydrogen, and the process only requires air.

Green ammonia technology is already here

European fertilizer companies are already investing in low-carbon production technologies, with projects being announced in Spain, the Netherlands and Norway. In addition to fertilizers, the main applications for ammonia will be in the energy sector as fuel for long-haul shipping and energy storage.

The development of ammonia-combustion engines is already underway and the cost of adapting existing vessels is relatively inexpensive. Current production of ammonia would have to significantly increase to meet the demand of ammonia as a fuel for the shipping sector.

The ammonia molecule is among the best alternatives for the mid/long-term storage of electricity in the form of chemical energy. It could be used to buffer renewable-based electricity systems, transforming electricity into hydrogen and/or ammonia when renewable energy is abundant and affordable, using it to generate electricity as demand increases.

Another advantage of ammonia is that Europe's fertilizer industry has significant production and shipping capacity, as well as storage infrastructure, already in place.

By 2050, under the right conditions, ammonia production could be based on decarbonised sources of energy, using alternative sources of hydrogen and electrolysis based on renewable energy. However, major obstacles must be overcome to trigger the gradual switch from current production technologies to low carbon solutions.

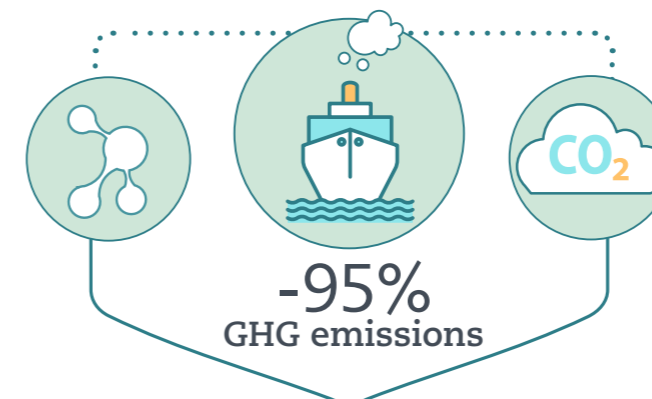
Ensuring a level playing field

Making the business case for low-carbon ammonia could help decarbonize food production and make a big step towards a hydrogen economy. For this, a combination of policy solutions is needed to enable the transition to a climate-neutral economy by 2050, while keeping the fertilizer industry competitive.

One important green policy tool is the EU's new proposal for a 'Carbon Border Adjustment Mechanism' or CBAM.

Under the scheme, importers of fertilizer into the EU would pay an amount equivalent to the cost of the carbon (above the benchmark) that is generated during its production. In this way, the CBAM combined with EU ETS free allowances would create a level playing field for EU fertilizer producers while, at the same time, encouraging third country producers to decarbonise their production.

The European Commission is expected to formally propose its carbon border adjustment mechanism in July 2021, as part of its broader 'Fit for 55' package of climate legislation, which will set a goal of reducing EU



Green ammonia holds the promise of a 95% reduction in maritime emissions by 2035.

emissions by 55% by 2030 (for more information go to energy and climate section – page 16).

As a standardised bulk commodity, it is relatively easy to assess the carbon content of fertilizers, unlike a complex manufactured product, like an automobile, which might contain thousands of components, each with a different carbon footprint.

Fertilizers Europe supports the introduction of the Carbon Border Adjustment Mechanism as a complementary tool to EU ETS. Maintaining free allowances to minimum 2030, with sectors within CBAM granted free allowances on an identical basis to other ETS sectors, will be key to maintaining competitiveness for the fertilizer sector and to remain a responsible supplier to the EU agri-food and other value chains.

Our sector advocates for CBAM that encompasses both the basic products of ammonia and nitric acid as well as finished fertilizer products and selected technical products. Given that 2/3 of nitrogen is imported as finished fertilizers products, such extension is key to avoid CBAM being circumvented.

The European fertilizer industry has an important export of value added fertilizers and selected technical products. An export mechanism must therefore be introduced as part of CBAM to ensure that EU producers remain competitive on the world market.

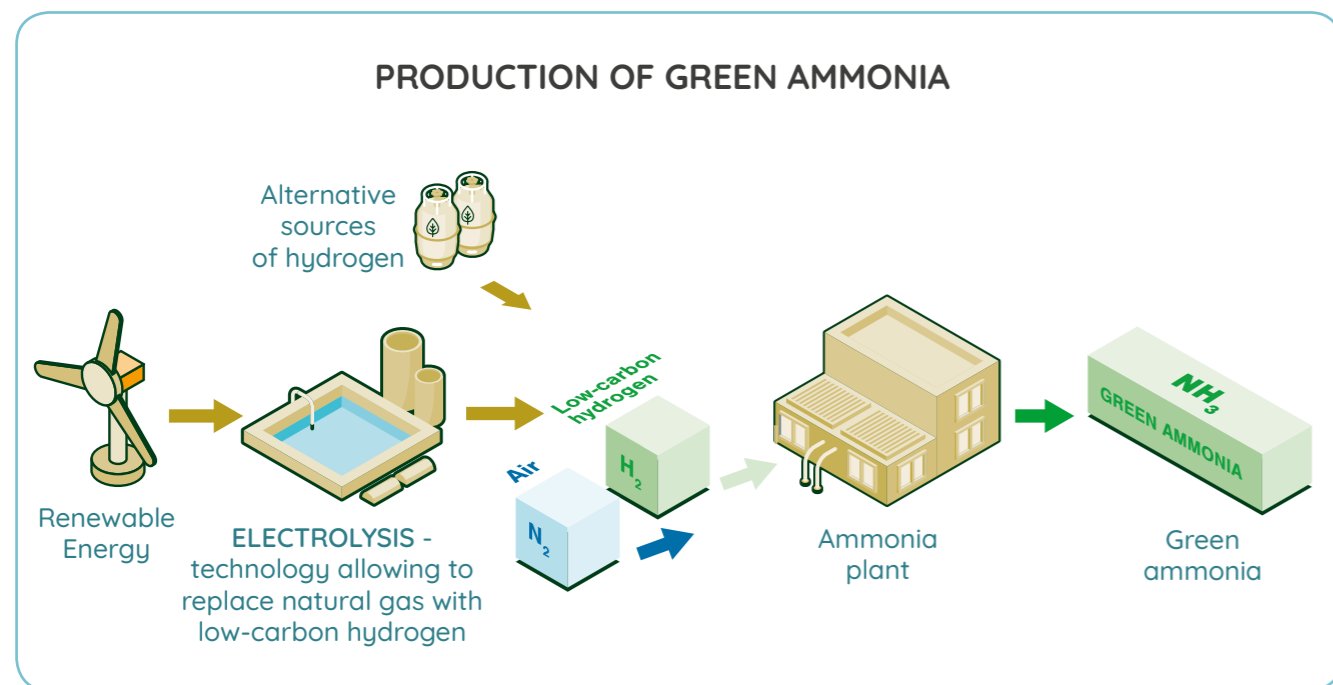
Sharing the costs of green innovation

A key challenge facing green ammonia is the cost of production, which is currently two to four times as expensive as that of conventional ammonia.

Financial support, especially for early movers investing in capital-intensive green ammonia infrastructure, will be vital. These higher costs will also need to be spread across the whole value chain and not just borne by the producer.

Green ammonia certification

A market premium for low carbon fertilizers and ammonia is key to incentivize investments in low-carbon technologies thus supporting decarbonisation process of the fertilizer industry. The development of a coherent and science-based certification process will be key to developing this market.





Our policy priorities

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Industry competitiveness

COVID sparks commodity market volatility

The COVID-19 pandemic largely spared Europe's fertilizer plants, thanks to the swift and effective implementation of hygiene measures at major production sites. Nevertheless, the virus remained a major source of uncertainty and volatility in fertilizer, gas and agricultural commodity markets throughout 2020 as well as the first part of 2021.



The most dramatic movements were seen in oil and gas markets. Gas prices fell to their lowest-ever level, at US \$1.6 mmbtu, following the outbreak and the restrictions on economic activity which were taken in response to it. Warm weather and an already well-supplied market put further downward pressure on prices.

With gas representing 60% to 80% of the cost of EU fertilizer production, gas price volatility had a major economic impact on the sector. Prices started to recover significantly towards the end of 2020 on seasonal factors and tightening global LNG supply. Cold snaps at the beginning of January 2021 further pressured EU gas prices to a high of US \$9 mmbtu, putting severe commercial strains on the fertilizer sector. Rising food security concerns also put upward pressure on grain prices, with hard and soft wheat, as well as maize prices seeing marked increases.

BREXIT

Trade tensions remained a persistent feature of the international scene through 2020. The conclusion of the EU-UK BREXIT negotiations, relations with Ukraine and trade disputes with the US were all sources of concern. Fertilizers Europe supported EU efforts to maintain the rules-based, multilateral trading system and open, free and fair trade with Europe's partners and competitors. Brexit talks concluded at the end of 2020

with an agreement on an EU-UK Trade and Cooperation Agreement. EU fertilizer exports to the UK are included in the deal. A particularly positive outcome for the sector was the agreement to apply the same rules of origin for fertilizers as the 2016 EU-Ukraine free trade deal (the DCFTA) to future EU-UK trade.

Other positive outcomes in the UK-EU trade deal include the binding commitment of both sides to carbon pricing, as well as to the goals of the Paris Agreement on climate change. A key sticking point emerged in the negotiations over alignment of HSE and social legislation. The two sides agreed on a mechanism for the settlement of any disputes, which might arise as a result of legal and regulatory divergences. It was agreed that such disputes will be referred to an arbitration panel of EU, UK and independent experts.

Fertilizers stay out of EU-US trade crossfire

A series of US-EU trade disputes dominated the news headlines during 2020, of which Airbus-Boeing and steel were among the most acrimonious. Fertilizers did not appear on any of the lists of EU products targeted for retaliation by the Trump administration. While the new US administration has adopted a more conciliatory stance on outstanding EU-US trade issues, it is clear that reaching a deal in the stalled TTIP (Transatlantic Trade and Investment Partnership) talks is not high on the agenda of President Joe Biden.

Trade defence

Fertilizers Europe also worked alongside EU producers and the European Commission throughout the year to secure a successful and WTO-compliant resolution of the Ukraine's safeguarding action against imports of EU nitrogen and NPK fertilizers.

Ammonium nitrate - the main product of the EU fertilizer industry - was at the centre of a 15-month long EU investigation which concluded at the end of the year with a decision to continue anti-dumping duties against Russian imports for another five years. The Commission deemed the extension of the €32/mt duty was justified by the significant threat of injurious level of dumping by Russian exporters. The European Commission also interpreted the 'Union Interest' clause in favour of domestic ammonium nitrate producers.

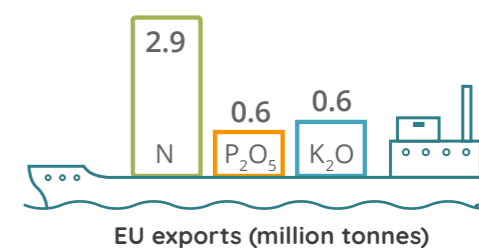
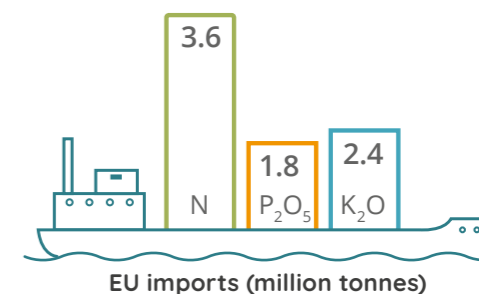
The delayed WTO Panel ruling on Russian complaints regarding EU cost-adjustment methodologies used in several of its anti-dumping decisions was finally published in July 2020. The panel judged that over twenty complaints on this topic were unfounded. On the EU's adjustment for gas price, the panel ruled that, while the EU can make adjustments, it should go further in its analysis of local gas market conditions. The EU continues to defend the rigour of its analysis of the Russian gas market and its adjustment calculation for relative gas prices, and appealed to the WTO Appellate Body in August. It is unclear when the Appellate Body will issue its ruling, given the US withdrawal of support for the WTO's appellate procedure.

New trade policy strategy

Towards the end of the year, the European Commission released its new trade policy strategy called 'Open Strategic Autonomy'. Declared as the EU getting more sovereign and more muscular, the key representative features of this were:

- > the appointment of an Enforcement Officer and an enforcement programme;

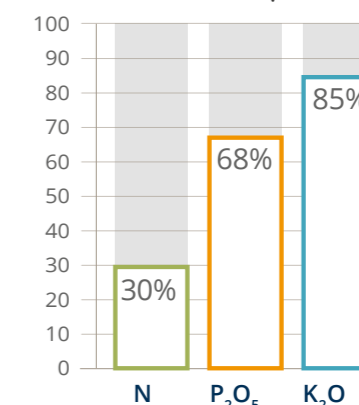
EUROPEAN TRADE BY NUTRIENT 2020* (EU-27 excl. UK)



Total EU consumption*

17 M
tonnes (of nutrient)

Imported products' share of EU consumption



Source: Fertilizers Europe/Eurostat
* Includes products for agricultural and industrial use

- > a proposal for an anti-coercion instrument;
- > and a proposal for a correction law on foreign subsidies distorting the Single Market managed by DG COMP.

In addition, the European Commission by November 2020 launched a new 'trade and environment' initiative towards the WTO. Key issues arising here are green subsidies, the EU Carbon Border Adjustment Mechanism, zero tariff rating environmental goods and promoting better compatibility between trade and climate/environmental issues.

Climate and Energy

Climate Law & Fit for 55 Package

Representing a sector highly exposed to carbon leakage due to its high trade and emission intensity, Fertilizers Europe is advocating for a responsible and predictable framework for EU ETS and Carbon Border Adjustment Mechanism (CBAM) that will balance climate ambitions with industry competitiveness.

By recently agreeing to a landmark climate law, the EU member states cleared the way for the climate neutrality target by 2050. To match the higher level of ambition, the interim 2030 target is expected to be raised from -40% to -55% GHG reduction versus 1990 level.

A combination of CBAM and free allowances is necessary, as only under such conditions will the fertilizer sector stay competitive and remain a responsible and reliable supplier to the EU agri-food and other value chains.

Planned for July 2021, the "Fit for 55" package is expected to be composed of 12 proposals to align main climate policies (e.g., EU ETS, Renewable Energy Directive, Energy Taxation Directive) with a higher GHG emission reduction target for 2030. With increased climate ambition, measures to prevent carbon leakage and secure a level playing field for the EU industry including fertilizers will also be needed.

EU ETS Revision

The Emissions Trading Scheme (ETS) has been and is expected to remain the EU's flagship instrument in Europe's campaign to reduce carbon emissions. Emission reduction targets in the 2021-2030 phase of the ETS are expected to be revised resulting in reduced number of free allowances.

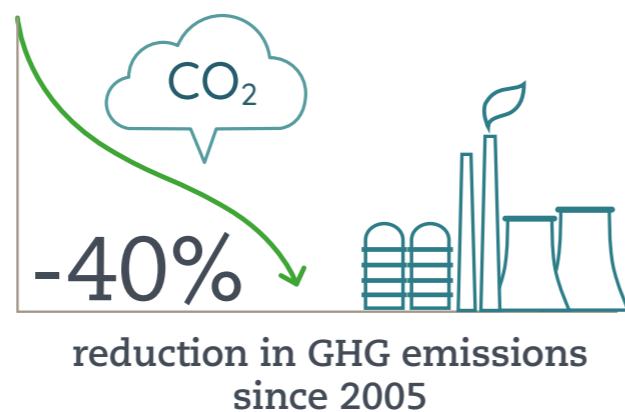
The EU fertilizer industry achieved a 40% reduction in GHG emissions since 2005. As a result, the EU's fertilizer producers are among those with the lowest carbon

footprint, while its ammonia plants are among the most-energy efficient in the world. Most of the sector's nitric acid facilities have also been fitted with cutting-edge technology to limit nitrous oxide (N₂O) emissions.

That said, the EU's ammonia plants now have little room left for further reductions in their carbon emissions, using current technology.

Emerging low-carbon technologies require massive investments and scientific breakthroughs as well as major developments in energy infrastructure, access to plentiful and competitively priced green energy, certification schemes and the creation of a market for low carbon products.

The EU fertilizer industry has an excellent record in decreasing GHG emissions thanks to massive investment in cleaner production processes and new technology.



Carbon Border Adjustment Mechanism

Nitrogen fertilizers are among those industries at highest risk of carbon leakage based on the Commission's two traditional criteria for assessing carbon leakage risks, emission intensity and exposure to international trade.

To safeguard exposed sectors from carbon leakage, the European Commission is expected to present in July 2021 a proposal for a Carbon Border Adjustment Mechanism

or CBAM, which would be imposed on imports of goods into the EU from countries with less stringent emission restrictions. Fertilizers Europe sees CBAM as a tool necessary to guarantee a level playing field. If properly designed, CBAM could be an effective way of securing the competitiveness of European industries and protecting their workforces, while at the same time helping fertilizer sector make an important contribution to the achievement of EU climate targets.

Case for co-existence of EU ETS and CBAM

Fertilizers Europe believes that the CBAM should be designed as a reinforcement of current carbon leakage measures (i.e. free allowances) with the increased climate ambition.

A combination of CBAM and free allowances is necessary, as only under such conditions will the fertilizer sector stay competitive and remain a responsible and reliable supplier to the European agri-food and other value chains.

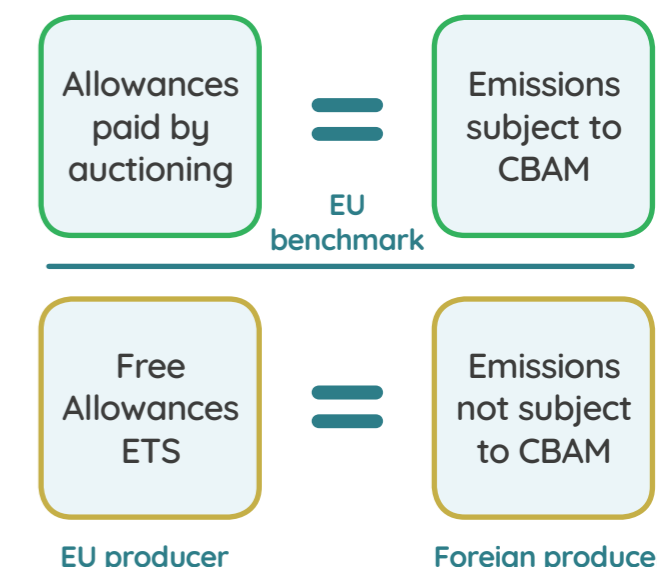
A stand-alone CBAM, on the other hand, would expose EU value chains to the full cost of carbon emissions in a period when low carbon technologies are undergoing development and upscaling.

A CBAM-only approach would also significantly hurt EU industry's exports to third countries. EU exports would carry the full burden of carbon costs, so undermining their ability to compete in third country markets.

In the upcoming years, energy-intensive industries will, in any case, be faced with a gradual reduction of free allowances, as stricter rules and benchmarks enter into force under ETS. EU producers' CO₂ allowances will steadily decrease from year to year and their CO₂ costs will rise, despite any continuation of free allowances.

At the same time, Fertilizers Europe recognises that the current ETS does not address the issue of imports coming into Europe which have not paid a carbon cost. This not only distorts competition within the EU, it also fails to do anything to incentivise reductions in CO₂ emissions at the global level.

A combination of free allowances and the introduction of a CBAM would address both of these objectives.



CARBON LEAKAGE INDICATOR								
	Non-ferrous metals	Organic basic chemicals	Inorganic basic chemicals	Paper	Fertilizers	Steel	Refineries	Cement
Trade intensity	4%	49%	54%	28%	32%	26%	26%	10%
Emission intensity (kg CO ₂ /€)	0.2	2.2	3.0	3.0	7.6	8.3	12.5	24.2

Agriculture and Environment

Farm-to-Fork and Biodiversity Strategy

Published in May 2020, these twin strategies aim to transform European food system, farming practices and land use. They are cornerstones of the Union's overarching Green Deal. Fertilizers Europe sees the Farm-to-Fork, the Biodiversity strategy and the broader Green Deal as an opportunity to show that economic, social and environmental sustainability in agriculture can go hand-in-hand.

Among the core targets of these strategies is the ambition to reduce nutrient losses by 50 percent by 2030. The European fertilizer industry recognizes the need for farming to contribute to the Green agenda, while maintaining a competitive agricultural sector in Europe.

Fertilizers Europe accepts the challenge to reduce nutrient losses but, as this target comprises losses from both, organic and mineral sources, calls for a robust impact assessment and for a realistic timeframe to achieve it.

This ambitious target of reducing nutrient losses to the environment can only be met if farmers are supported and incentivized to use a combination of different on-farm tools.

Key in such an integrated approach is the focus on nitrogen use efficiency.



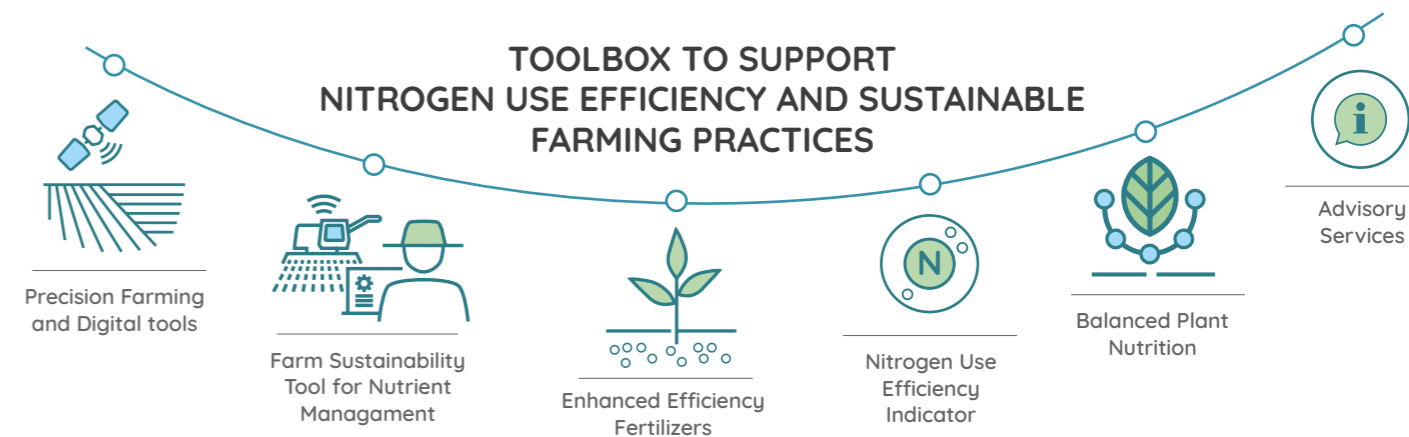
But we need to ask, what is the best way forward?

Nutrient usage currently varies widely from one EU state/region to another, due to the wide diversity of agricultural products, farming methods, weather patterns and soil conditions.

Unless a differentiated approach is introduced, there is a risk that agricultural production in some regions will be undermined by EU-wide targets, which take no account of these important differences.

The solution is also to improve fertilization practices by encouraging a widespread adoption of digital technologies, the use of more advanced fertilizer products and better targeting of fertilizers to specific crops.

All of these can be combined with smart farming application methods and by new tools which can tap into real-time data.



Collaboration with the scientific community

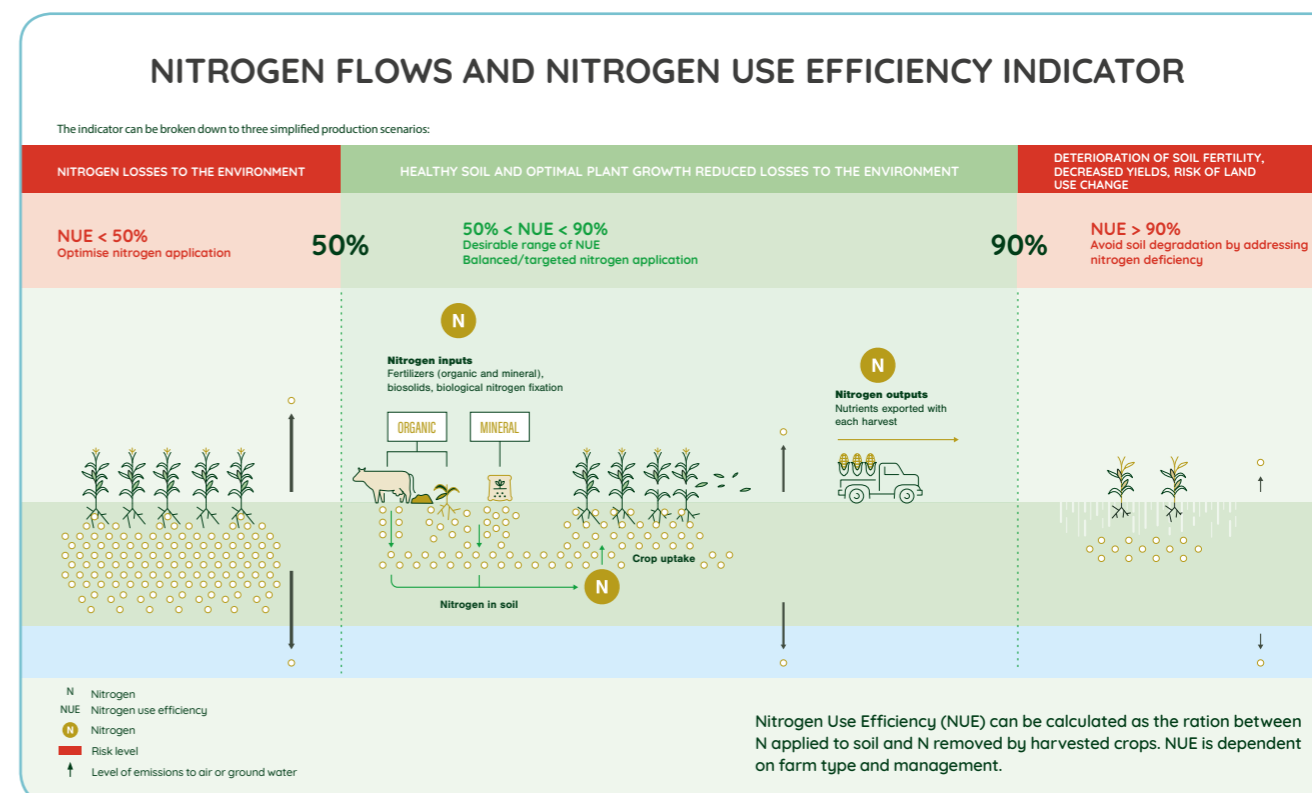
Collaboration with the scientific community has been a key enabler of Fertilizer Europe's contribution for enhancing a productive, resilient and sustainable agriculture in Europe. The EU's Nitrogen Expert Panel and its development of 'The Nutrient Use Efficiency Indicator' is the best example of the way in which this kind of collaboration is supporting better practices and guides farmers in relation to sustainable fertilizer use.

The Panel brings together experts from academia, EU institutions and industry, while its Nitrogen Use Efficiency (NUE) tool promotes optimal nitrogen use in food production.

The NUE indicator addresses both insufficient and excessive use of nitrogen, and provides information to farmers how to adopt their best practices and how to properly calibrate the amount of nitrogen used in any situation.

The NUE indicator allows farmers to examine differences between fields, farms, farming systems and between years. It can be adapted to site and crop-specific conditions, and takes efficiency as well as environmental aspects into consideration.

Such an approach can reward farmers for continuous, progressive improvement of their nitrogen use efficiency at farm level.



Implementation of the new Fertilizing Products Regulation

Published in 2019, the fertilizer sector still has just over a year to become fully compliant with the provisions of the EU Fertilizing Products Regulation before its scheduled implementation in July 2022. The regulation applies new rules to marketing and CE-labelling for fertilizers on the EU market. Specific issues which have yet to be tackled include accreditation via notified bodies and usage of by-products.

On 19 February 2021, the European Commission adopted a long-awaited Communication concerning the visual appearance of the label on EU fertilizing products as part of the implementation process. While not binding, the guidelines bring a much-needed clarity for European fertilizer producers to adapt their products labelling to the requirements set in the Regulation. The Guidelines are an outcome of the work undertaken in 2019-2020 by Commission-led expert group composed of representatives of national authorities and other relevant stakeholders.

The implementation phase is far from being completed. Important work needs to be done to develop official standards enabling fertilizer manufacturers to implement the criteria of new regulation.

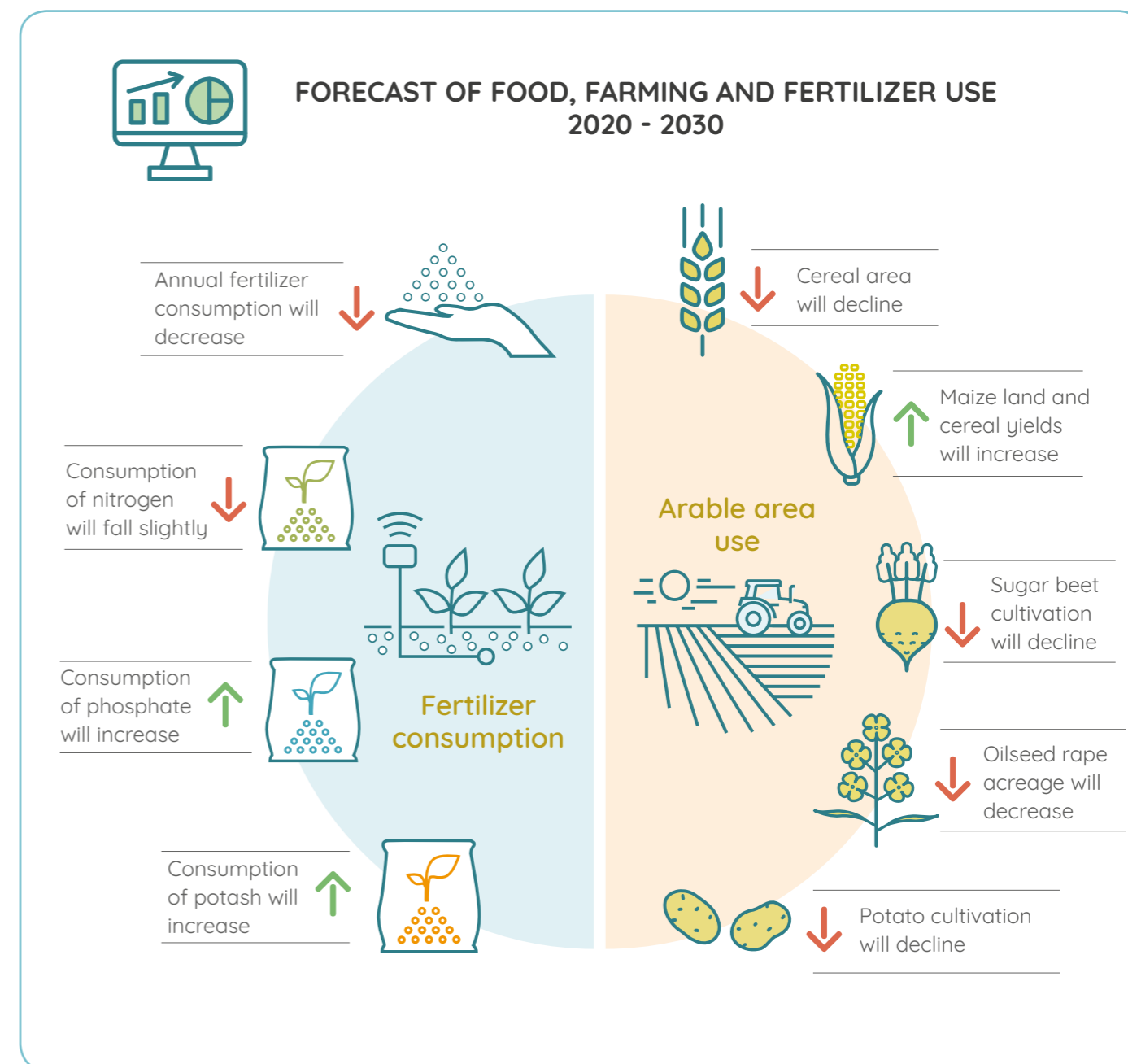
Fertilizers Europe 10-year Forecast for Food, Farming, and Fertilizer Use

Each year Fertilizers Europe publishes its 10-year forecast for EU crop production and fertilizer consumption. The publication is widely acknowledged as one of the most reliable reference tools in its field, as well as a key input into the development of European agricultural policy. The publication supplements members' market intelligence and is a key support tool for Fertilizers Europe's advocacy activities.

Top headlines from Fertilizers Europe's 2020 Forecast:

- Annual fertilizer consumption will decrease over the next 10 years, with nitrogen recording the steepest fall.
- Annual fertilizer consumption of nitrogen to fall slightly over the 10-year forecast horizon for the fourth year in a row, following seven years of moderate recovery.
- Phosphate and potash consumption is predicted to see a significantly higher increase over the next forecast period, but it is still not expected to return to the levels seen immediately before the 2008/2009 Global Financial Crisis.

- Fertilizers Europe estimates the total EU-28 cereal area (EU-27 plus UK) will decline by 1.6% over the next 10 years, of which wheat will increase by 1.8%, land devoted to barley will drop 0.4%, while other cereals (rye, oats, and rice) will fall by 2.8%.
- Land under maize is expected to increase by 2.1%. At the same time, cereal yields are expected to increase over the period by an average of 1%, helping to stabilize production levels.
- Oilseed rape acreage is forecasted to decrease 6.6 %, although yields will increase 6%, limiting the overall output decline to one percent.
- Sugar beet cultivation will continue to decline, falling 4.7% over the forecast period. Potato cultivation is predicted to see a decline of 3.7% in acreage, with yields dropping 5.2% and overall production falling 9%.

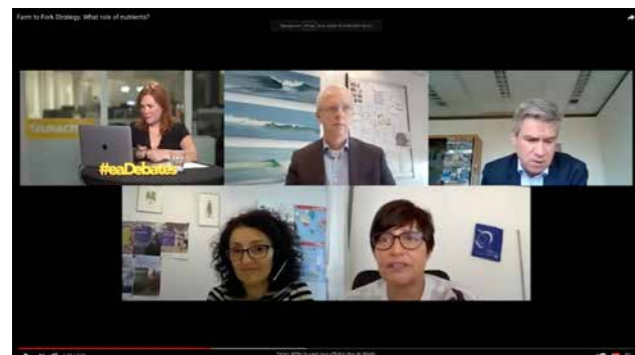


Public affairs

The COVID-19 pandemic has transformed the working lives of many across Europe, including in Brussels and at Fertilizers Europe. The Secretariat quickly adapted to the new situation, organising virtual events, conferences, digital campaigns, and online advocacy meetings to spur discussions on most important legislative initiatives.

Online events

**Farm-to-Fork strategy:
What role of nutrients?**



In June 2020, Fertilizers Europe organised an online event on the Commission's "Farm-to-Fork Strategy" and the contribution which fertilizers could make to the achievement of the EU's Green ambitions. The event featured the participation of Pierre Bascou (DG Agri, European Commission), MEP Christine Schneider (EPP), Oana Neagu (COPA-COGECA) and Jacob Hansen (Fertilizers Europe).

While accepting the challenge to reduce nutrient losses and committing to work hand-in hand with farmers to maintain a productive and competitive agricultural sector in Europe, Fertilizers Europe called for a future policy framework that aims at:

- Applying more knowledge per hectare;
- Increasing nitrogen use efficiency;
- Considering all sources of nutrients for plants;
- Recognising regional differences across the EU.

The event proved to be very successful with over 300 online participants, with many more watching the recorded content.

**Ammonia: Missing link in the
EU hydrogen strategy?**



In September 2020, Fertilizers Europe organised a second online event entitled "Ammonia: Missing link in the EU hydrogen strategy?". The event had a dual role: on the one hand, to launch a debate on the role of ammonia in the EU's hydrogen strategy, unveiled by the Commission in July 2020; on the other hand, to position ammonia and the fertilizer industry in a narrative that so far has been dominated by hydrogen.

Hydrogen is expected to play an important role in Europe's decarbonisation plan, as it offers the solution to power sectors that are not suitable for electrification and provide storage to balance variable renewable energy flows. With this event, Fertilizers Europe showcased that, as the key producer and user of hydrogen, the fertilizer sector is best placed to upscale new technology in the most cost-effective way.

High-level panellists discussed the opportunities and challenges linked to green ammonia. Going beyond fertilizers, ammonia brings the promise to decarbonise the maritime shipping sector reducing its emissions by 95% by 2035. The ammonia molecule is also one of the best alternatives for the mid/long-term storage of electricity as chemical energy. Speakers also discussed challenges that hinder large scale roll out of green ammonia, including the need to scale up renewable hydrogen production, ensuring proper environmental and

safety policies and, last but not least, the need for a right policy framework and funding to make the manufacture of low carbon ammonia economically feasible.

EU Industry Days 2021

Early 2021, Fertilizers Europe continued to actively engage with key stakeholders on industry's role in Europe's green transition.

To this end, Fertilizers Europe organised a high-level event 'Decarbonising industry value chains: hydrogen over ammonia to green agricultural products' during the European Commission's flagship industry event "EU Industry Days 2021". The event brought together representatives of the fertilizer and energy industries, end-customers, as well as EU and national policy makers to discuss how to build a business case for a net zero carbon world and particularly low carbon fertilizers.

Panellists discussed how low-carbon ammonia could open the door to decarbonising fertilizer industry, agriculture and long-haul shipping. Making the business case for decarbonised products has been identified as a main challenge. The two main pathways are either driving down the cost of production by addressing the technical challenges or scaling up on the supply side while, at the same time, creating a market for premium food products with a low-carbon footprint.

Furthermore, fertilizer industry and energy speakers underlined the need for a public support to incentivize the transformation, calling for supporting the frontrunners and granting access to EU funding. Maintaining industry competitiveness during transformation was another requirement of the industry to prevent carbon and investment leakage.

High attendance proved a growing interest in green ammonia and reassured the secretariat to continue investing in promoting a dialogue between industry, policy makers, academia and civil society on this timely and important topic.

Global Fertilizer Day

On October 13, the fertilizer industry united again to celebrate Global Fertilizer Day, commemorating the invention of Haber-Bosch process for the synthesis of ammonia which by many is perceived as one of the most important contributions to agriculture.

Launched by Fertilizers Europe in 2016, Global Fertilizers Day is now supported by fertilizer industry associations



#FoodHeroes

dedicated to grow and provide
nutritions & healthy food for all

around the world. In 2020, Fertilizers Europe dedicated the day to its 'Food Heroes' campaign, which aimed to raise public awareness around food supply issues. The outbreak of the COVID-19 pandemic put food security in Europe back in the limelight, highlighting the complexity and vulnerability of the agri-food supply chain.

The crisis showed how a disruption to any one link in the chain can ripple through the whole food supply system and undermine food security. During the lockdowns, agri-food workers, including fertilizer producers, farmers, distributors, drivers and retailers, made enormous efforts to put food on the tables of the EU's households.

The Food Heroes campaign produced a wide variety of multimedia content, telling the stories of such individuals, who have shown such courage and dedication during the crisis. The campaign has been well received both internally and externally. The European Associations Digital Report 2020 which analysed digital performance of 570 EU associations, recognised Fertilizers Europe as 'Best in Class 2020' with regards to COVID response communication.

EU Fertilizing Product Regulation Workshop

In June 2020, Fertilizers Europe, with the support from the Commission's DG GROW, hosted a scientific workshop to discuss biodegradability criteria and tests for Controlled-Release Fertilizers (CRFs), as required by the EU Fertilising Product Regulation (FPR), which is due to come into force in the summer of 2022.

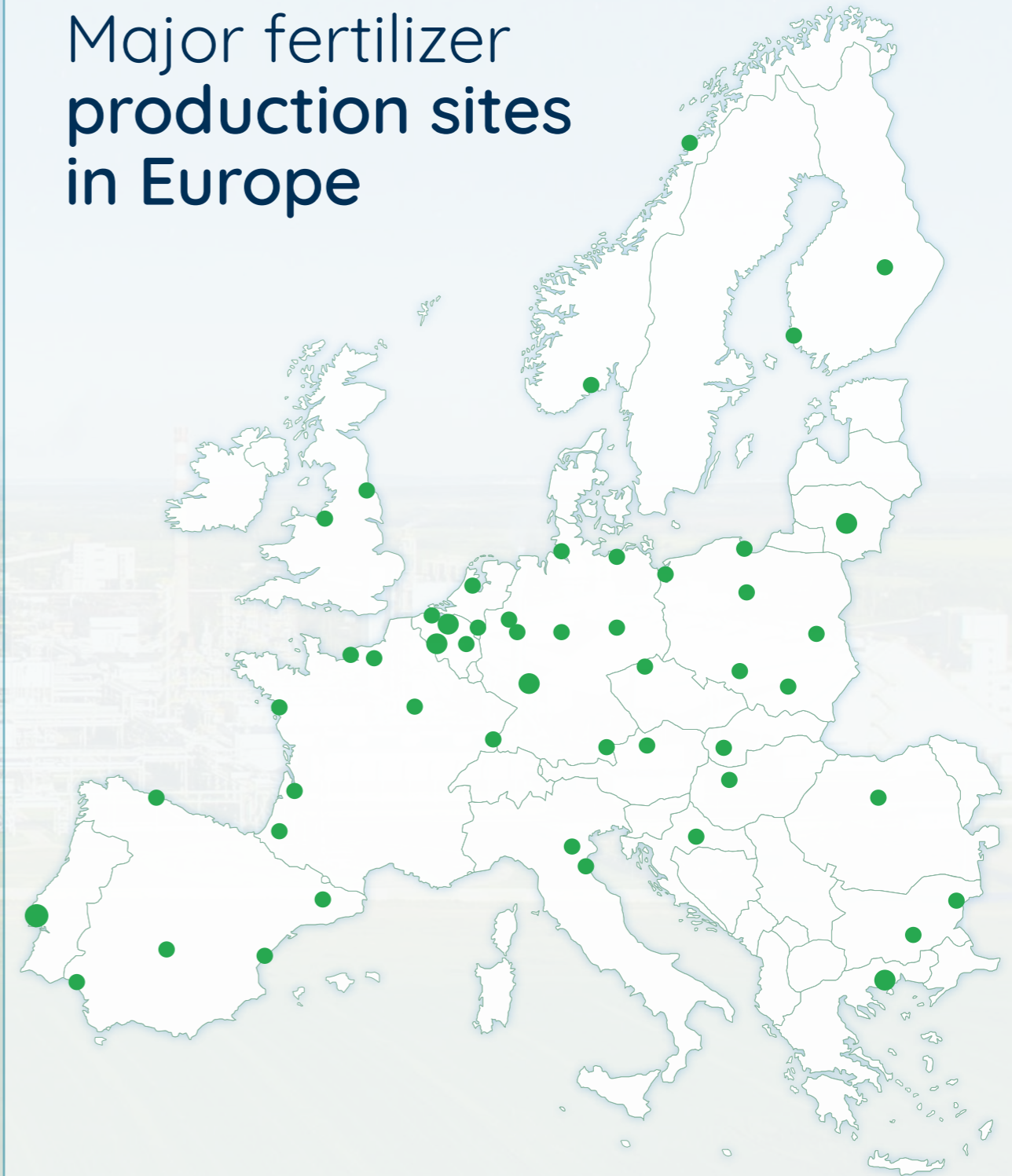
The fertilizer industry emphasised the role CRFs are environmentally friendly and innovative and can play an important role in reducing nutrient losses, a key objective of the Farm-to-Fork Strategy. The industry took this opportunity to underline that the timely establishment of the biodegradability criteria will be essential for CRF producers to make available new generation CRF products in time.

The European Fertilizer Industry at a Glance



* EU-27
Note: Average for last 5 years.
Source: Fertilizers Europe 2020

Major fertilizer production sites in Europe



Source: Fertilizers Europe 2020



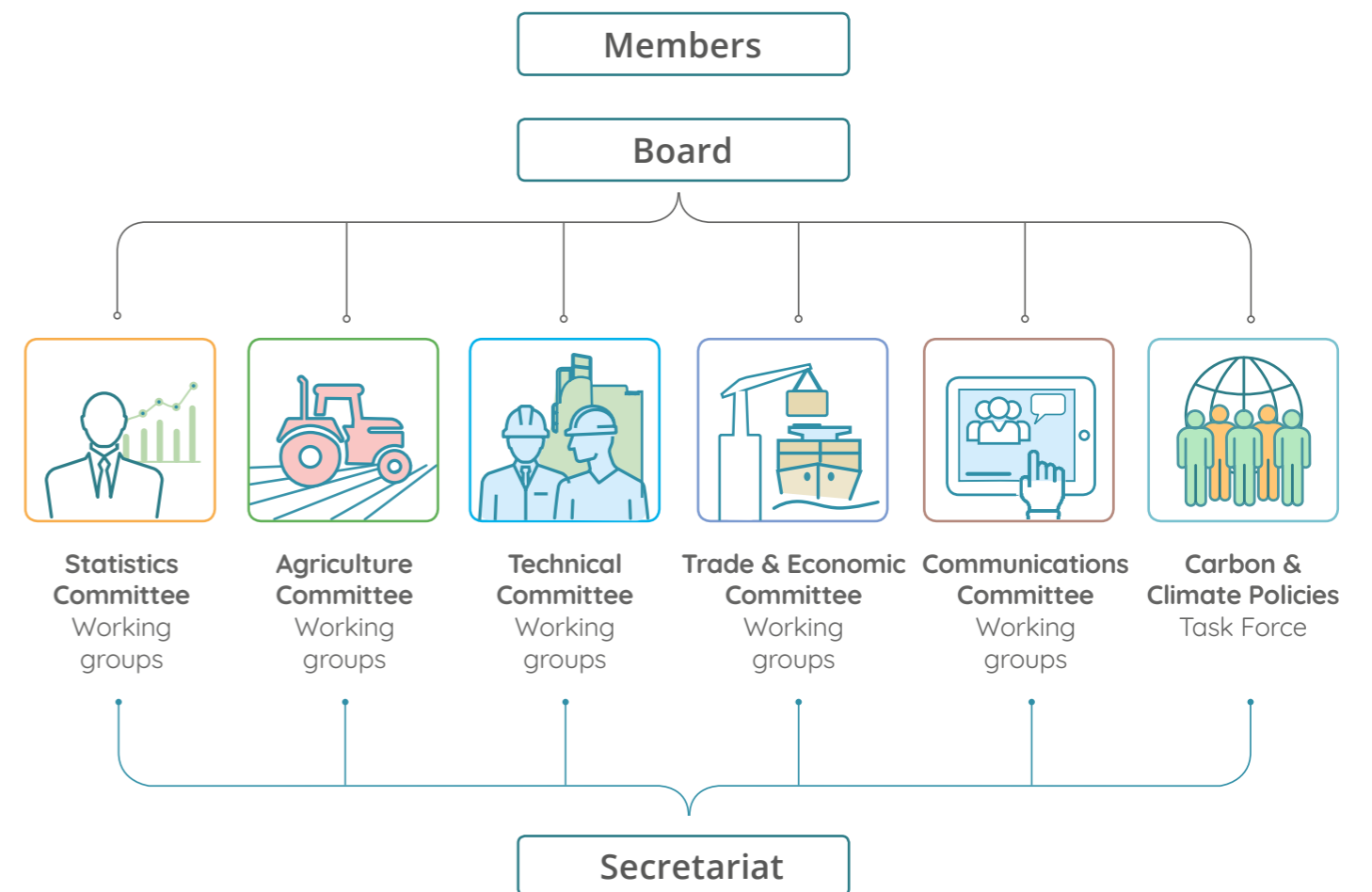
Structure

Fertilizers Europe represents the interests of the majority of mineral fertilizer manufacturers in the European Union. The association's membership comprises 16 fertilizer manufacturers from countries across the European Union and 7 national fertilizer associations.

The association communicates with a wide variety of stakeholders, institutions, European and national policy-makers and members of the general public who seek information on fertilizer products and application technology, and topics relating to today's agricultural, environmental, climate and economic challenges.

Fertilizers Europe's activities are directed by its President and Board, who are elected by its General Assembly of members. Its day-to-day business is primarily carried out through five committees and various working groups and task forces.

The Secretariat in Brussels supports the association's committees and working groups under the guidance of the committee chairmen and vice-chairmen and manages Fertilizer Europe's activities. It also acts as its main interface with stakeholders.



Members

CORPORATE

 AB Achema Lithuania	 Anwil SA Poland	 Azomures SA Romania	 BASF AG/Fertilizer BU Europe Germany
 Borealis AG Austria	 Eurochem Antwerpen BV Belgium	 Fertiberia SA Spain & Portugal	 Grupa Azoty SA Poland
 ICL Europe The Netherlands	 Lovochemie as Czech Republic	 Nitrogénművek Zrt Hungary	 Kavala Fertilizers Ltd NKF s.a. Greece
 OCI Nitrogen BV The Netherlands	 Petrokemija Plc Croatia	 PFIC LTD Greece	 Yara International ASA Norway

ASSOCIATIONS

 ANFFE Asociación Nacional de Fabricantes de Fertilizantes	 ASSOFERTILIZZANTI Associazione Nazionale Fertilizzanti	 BELFERTIL Belgian Mineral Fertilizer Association	 IVA Industrieverband Agrar e.V.
 Meststoffen NEDERLAND Fertilizers Netherlands	 PIPC Polish Chamber of the Chemical Industry	 UNIFA Union des Industries de la Fertilisation	

Board

 Andreas Steinbuechler President Borealis L.A.T	 Bartolomeo Pescio Vice-President Yara	 Gregorz Kądziałowski Vice-President Grupa Azoty	 Jacob Hansen Director General Fertilizers Europe
 Zoltán Bige Chairman, Trade & Economic Committee, Nitrogénművek	 Mindaugas Liaukonis Vice Chairman, Trade and Economic Committee, Achema	 Aviv Bar Tal* Vice-Chairman, Trade and Economic Committee, ICL Europe	 Theodora Kouloura Chairwoman, Communications Committee, Kavala Fertilizers
 David Herrero Fuentes Chairman, Technical Committee, Fertiberia	 Radomir Věk Vice-Chairman, Technical Committee, Lovochemie	 Peter Suba* Vice-Chairman, Technical Committee, Petrokemija	 Jan-Jaap Nusselder Chairman, Statistics Committee OCI Nitrogen
 Tove Andersen Chairwoman, Carbon and Climate Task Force, YARA	 Tomasz Włostowski Vice-Chairman, Carbon and Climate Task Force, Grupa Azoty	 Harri Kiiski Chairman, Agriculture Committee, Azomures	 Igor Shmidt Vice-Chairman, Agriculture Committee, EuroChem Group
 Jacek Mendelewski Vice-Chairman, Agriculture Committee, Anwil	 Florence Nys Observer Unifa	 Lorenzo Faregna Observer Assofertilizzanti	

*Non voting

Team



Jacob Hansen
Director General



Antoine Hoxha
Production &
Agriculture Director



Sean Mackle
Trade & Economic Director



Jenny Wahlman
Senior HR &
Administration Manager



Lukasz Pasterski
Senior Communications
Manager



Konstantin Golombek
Statistics Manager, Acting
Manager, Agriculture &
Environment



Jasmine Barahman
Climate Manager



Laura Casuscelli
Senior Trade & Business
Analyst



Gábor Marton
Senior Data & Statistics
Analyst



Sofia Tsaliki
Senior Communications
Officer



Maja Simpraga
Senior Agricultural Scientific
Officer



Theo Paquet
Regulatory and Green
Ammonia Officer



Leticia Salvador
Policy & Administration
Officer






João Bernardo
Communications
Trainee



Fertilizers Europe represents the majority of fertilizer producers in Europe and is recognized as the dedicated industry source of information on mineral fertilizers. The association communicates with a wide variety of institutions, legislators, stakeholders and members of the public who seek information on fertilizer technology and topics relating to today's agricultural, environmental and economic challenges.

Fertilizers Europe asbl
9-31 Avenue des Nerviens
B-1040 Brussels
Tel. +32 2 675 35 50
communications@fertilizerseurope.com

 Group Fertilizers Europe
 @FertilizersEuro
 www.fertilizerseurope.com

