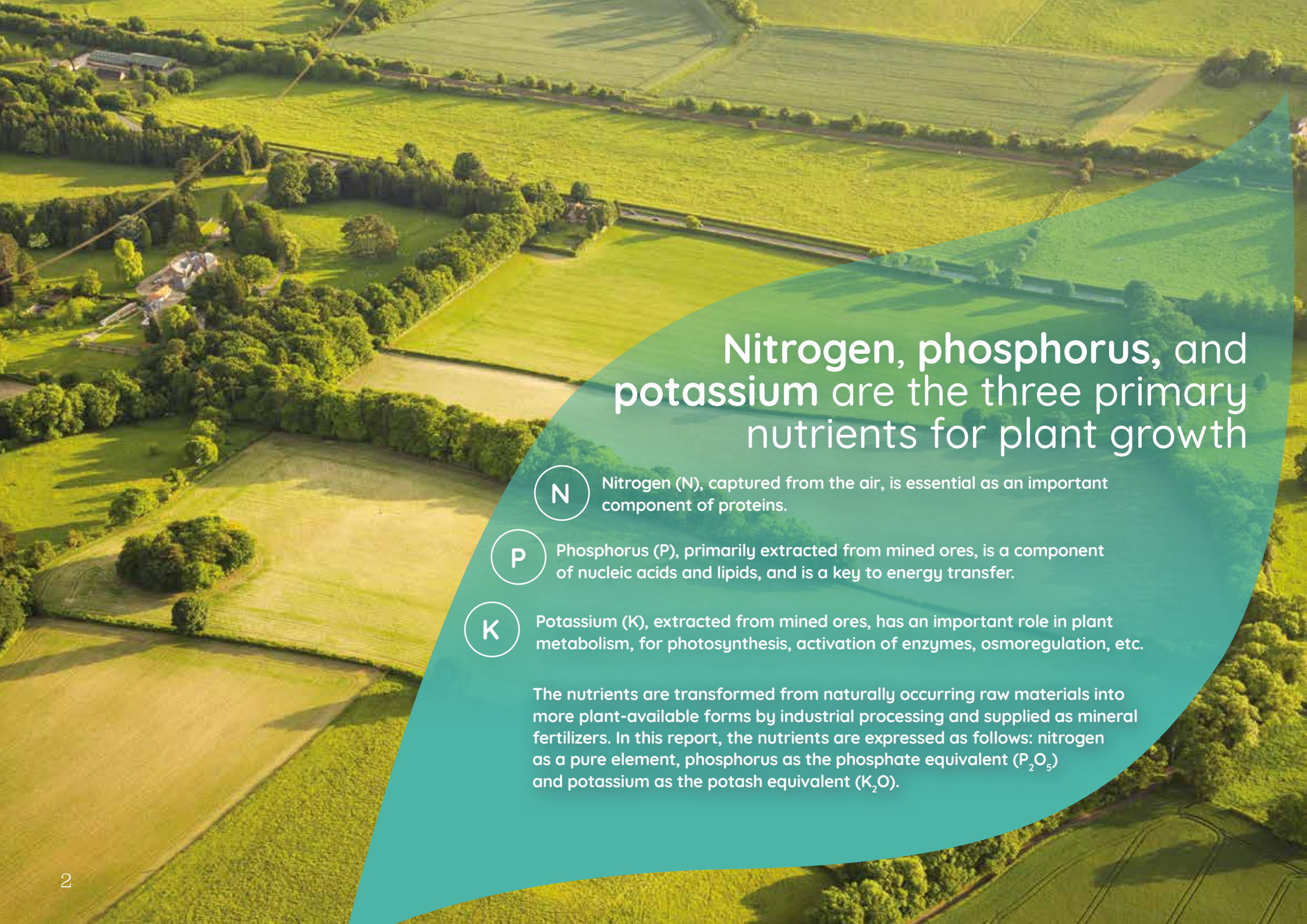
fertilizers europe

FORECAST OF **FOOD, FARMING AND FERTILIZER USE** in the European Union 2021-2031



Nitrogen, phosphorus, and **potassium** are the three primary nutrients for plant growth

N Nitrogen (N), captured from the air, is essential as an important component of proteins.

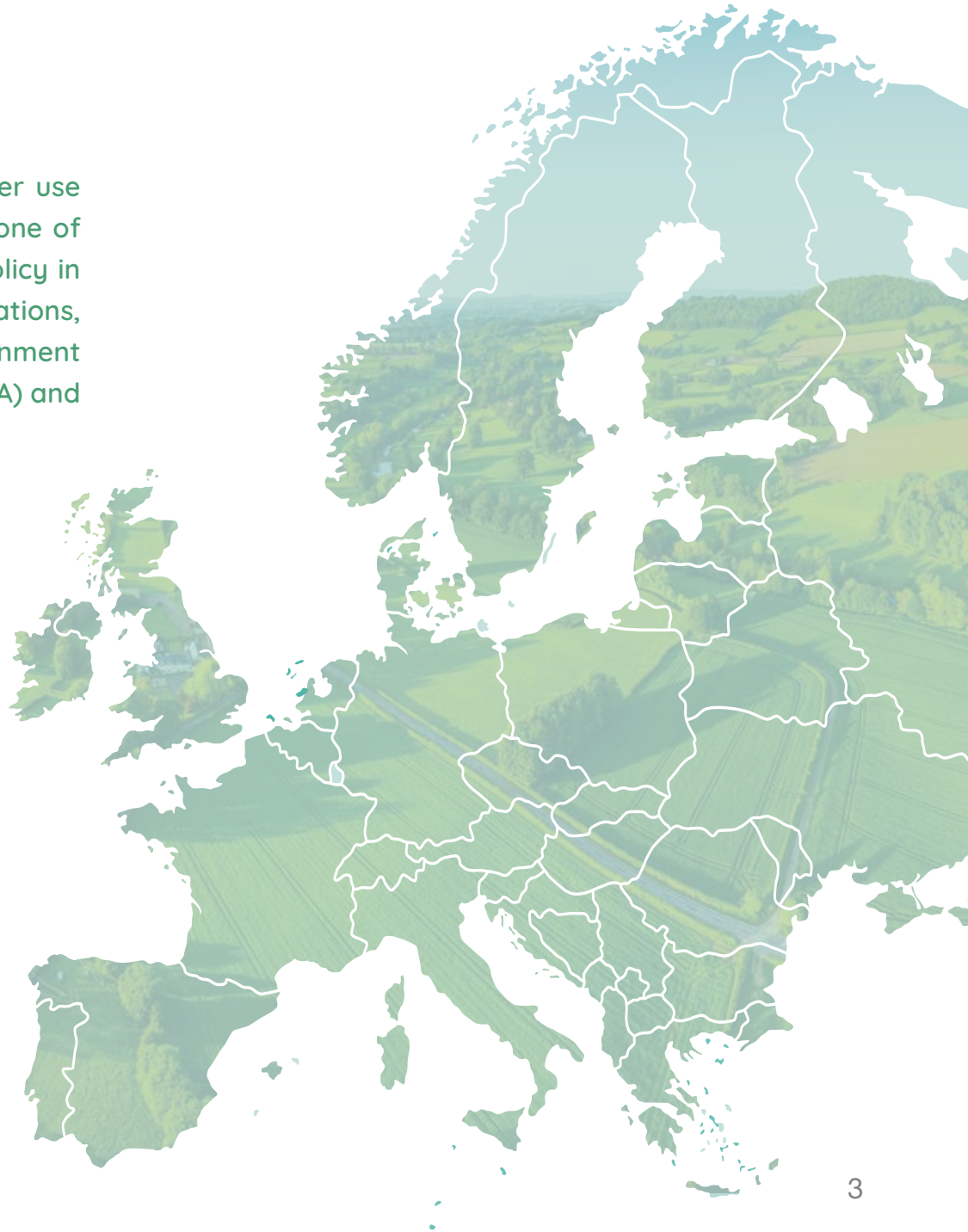
P Phosphorus (P), primarily extracted from mined ores, is a component of nucleic acids and lipids, and is a key to energy transfer.

K Potassium (K), extracted from mined ores, has an important role in plant metabolism, for photosynthesis, activation of enzymes, osmoregulation, etc.

The nutrients are transformed from naturally occurring raw materials into more plant-available forms by industrial processing and supplied as mineral fertilizers. In this report, the nutrients are expressed as follows: nitrogen as a pure element, phosphorus as the phosphate equivalent (P_2O_5) and potassium as the potash equivalent (K_2O).

Fertilizer Europe's annual forecast of food farming and fertilizer use in the European Union has been independently recognized[1] as one of the most trusted inputs into the development of agricultural policy in Europe. Its data is regularly used by many international organizations, including the European Commission (DG Agriculture, DG Environment and DG Energy), the FAO, the European Environment Agency (EEA) and the International Fertilizer Producer Association (IFA).

[1] Exploring land use trends in Europe: a comparison of forecasting approaches and results: H. van Delden, et al. iEMSs International Congress on Environmental Modelling and Software 2012, Leipzig, Germany.



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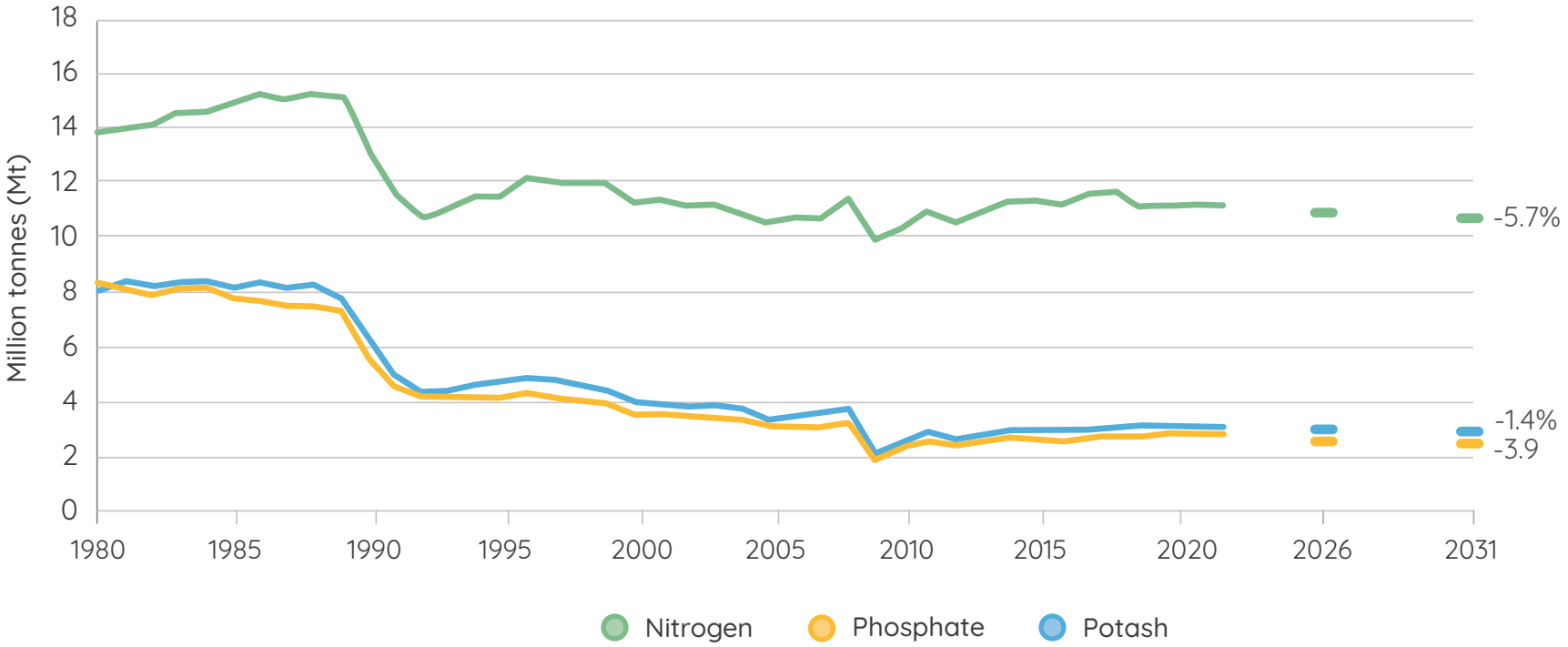
Changes in annual fertilizer consumption in Europe by 2031:

N -5.7% in **nitrogen consumption**, compared to -6.1% foreseen last year.

P -3.9% in **phosphate consumption**, against -2.1% last year.

K -1.4% in **potash consumption**, against +0.9% forecast last year.

Fertilizer consumption
in the European Union



Over the season, fertilizers containing an average* of 11.1 million tons of nitrogen, 2.8 million tons of phosphate, and 3.1 million tons of potash were applied to 133.9 million hectares of farmland. 46.0 million cultivable hectares in the EU were not fertilized.

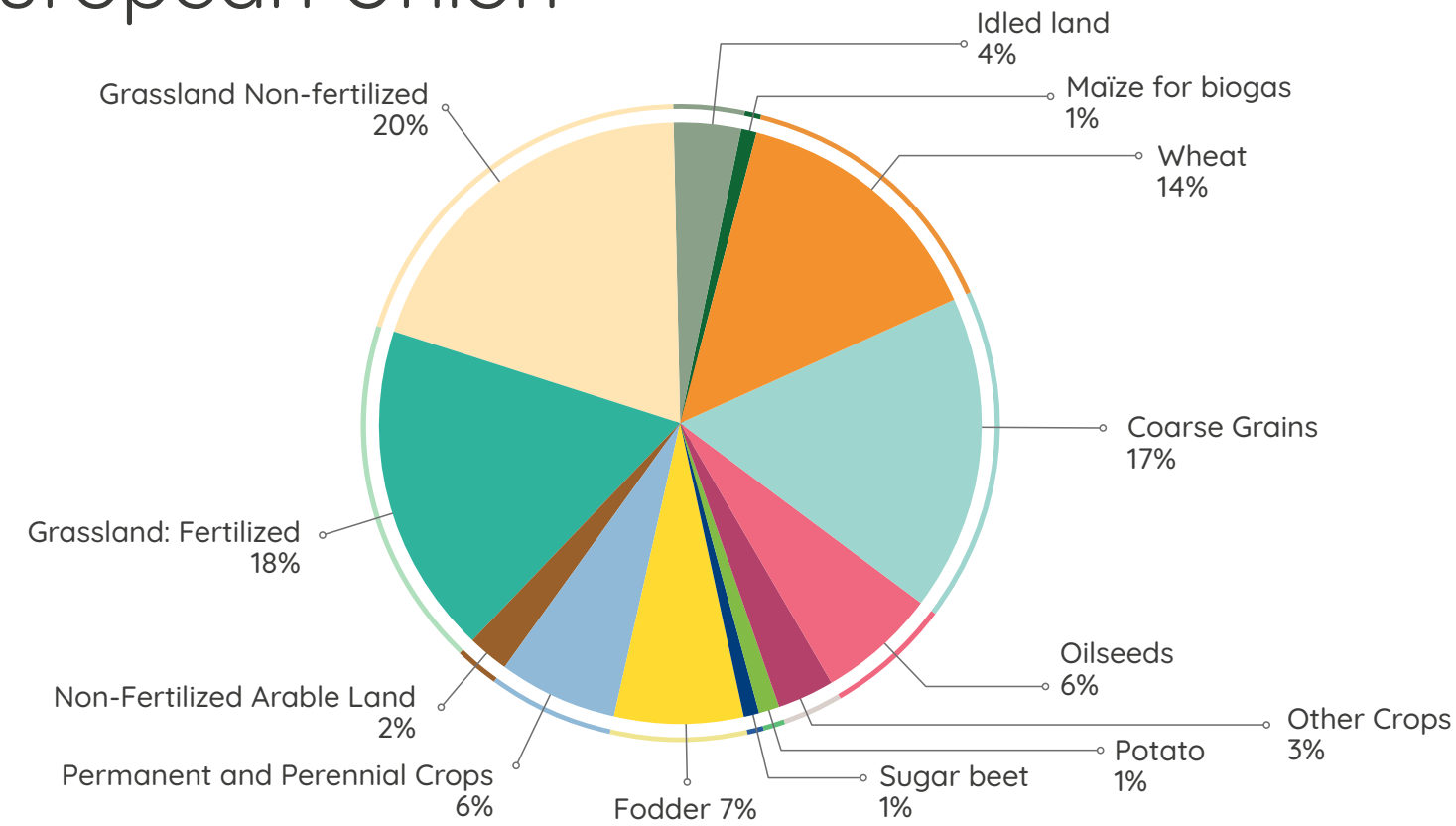
Consideration of the economic outlook and the anticipated evolution of Europe's cropping area has led Fertilizers Europe to expect annual nitrogen, phosphate and potash fertilizer consumption to reach 10.5, 2.7 and 3.1 million tons respectively by the 2030/2031 season, applied to 132.9 million hectares of farmland.

After several years of recovery, annual fertilizer consumption over the next 10 years is expected to decrease. Nitrogen is experiencing the biggest expected reduction. Phosphate and Potash consumption will continue a downward trend, especially Phosphate. The tightening of the environmental regulatory framework limits productivity growth. The ban of one single input factors often drags down the use of the other input factors as well. The political priorities of the European Union and of several European countries are challenging EU's farming sector as a whole and fertilizer use by farmers as well.

** Average based on the last three growing seasons - 2018/2019, 2019/2020, 2020/2021.*


Arable crops account
for 59% of the fertilized
area in Western and 87%
in Central and Eastern
European Union countries.

Agricultural land use in the European Union



Within the total agricultural area of the European Union, the fertilized area comprises 133.9 million hectares. A further 46.0 million farmable hectares are not fertilized, of which 35.3 million are unfertilized grassland and 10.7 million idle or set-aside land.

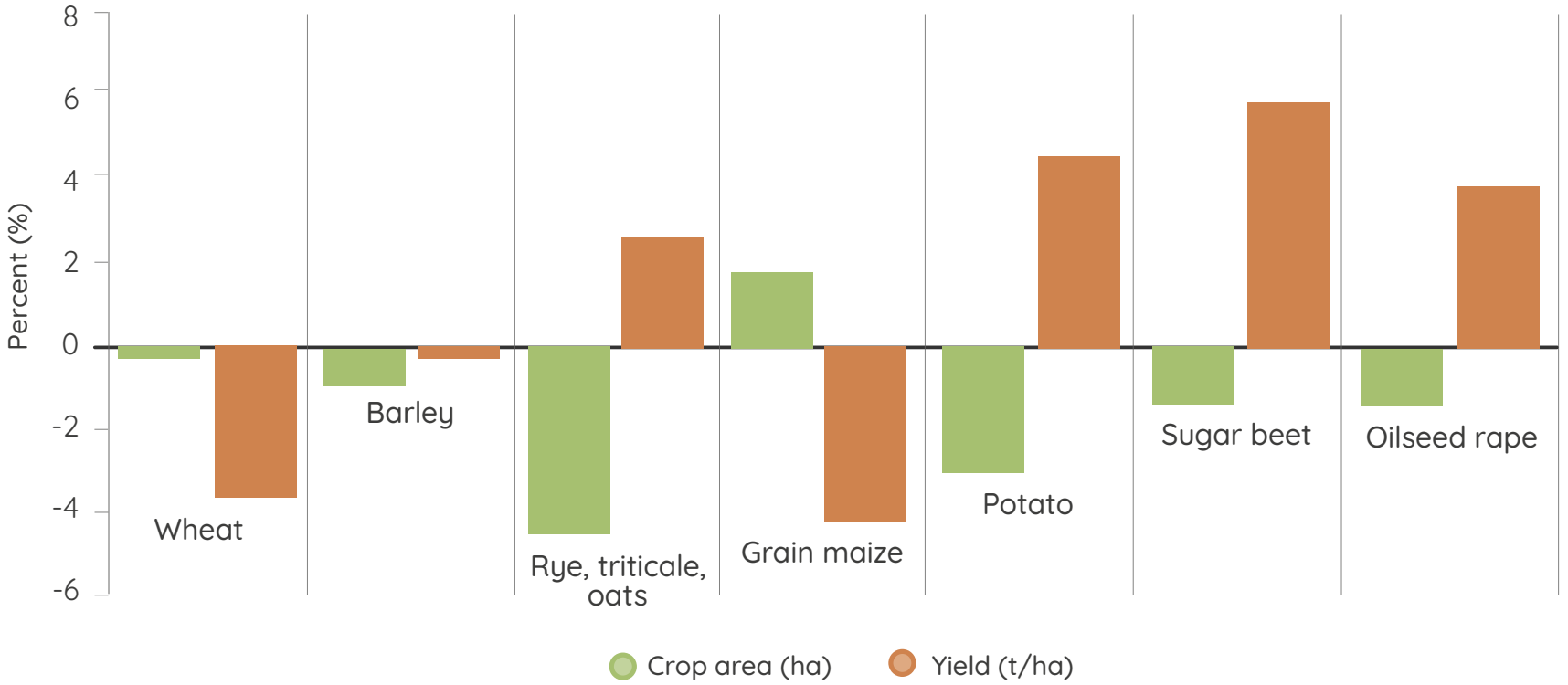
Within the fertilized area, arable crops account for 67% (42% cereals, 8% oilseeds, 9% fodder crops). Permanent crops account for 8% of the area and grassland for a further 24%. The unfertilized area is evenly spread across the countries of the European Union but there are significant differences in fertilized crop areas between the countries of Western, and Central and Eastern Europe.

In Western Europe (EU-15), the fertilized area comprises 59% arable crops (36% cereals, 6% oilseeds, 10% fodder crops), 11% permanent crops (vineyards, orchards, forests) and 30% fertilized grassland. Agriculture in Central and Eastern Europe (EU-13), however, is far more directed towards arable production, which accounts for 87% of the fertilized area (57% cereals, 15% oilseeds, 8% fodder crops), with permanent crops and fertilized grassland only comprising 3% and 10% of the fertilized area respectively.

Note: Due to rounding, figures may not add up to 100%

The grain sector (wheat, coarse grains and oilseeds) accounts for 61% of total nutrient consumption, with wheat accounting for 26%. **Fodder crops and grassland** account for a further 22%.

Changes in farming food crops 2021-2031



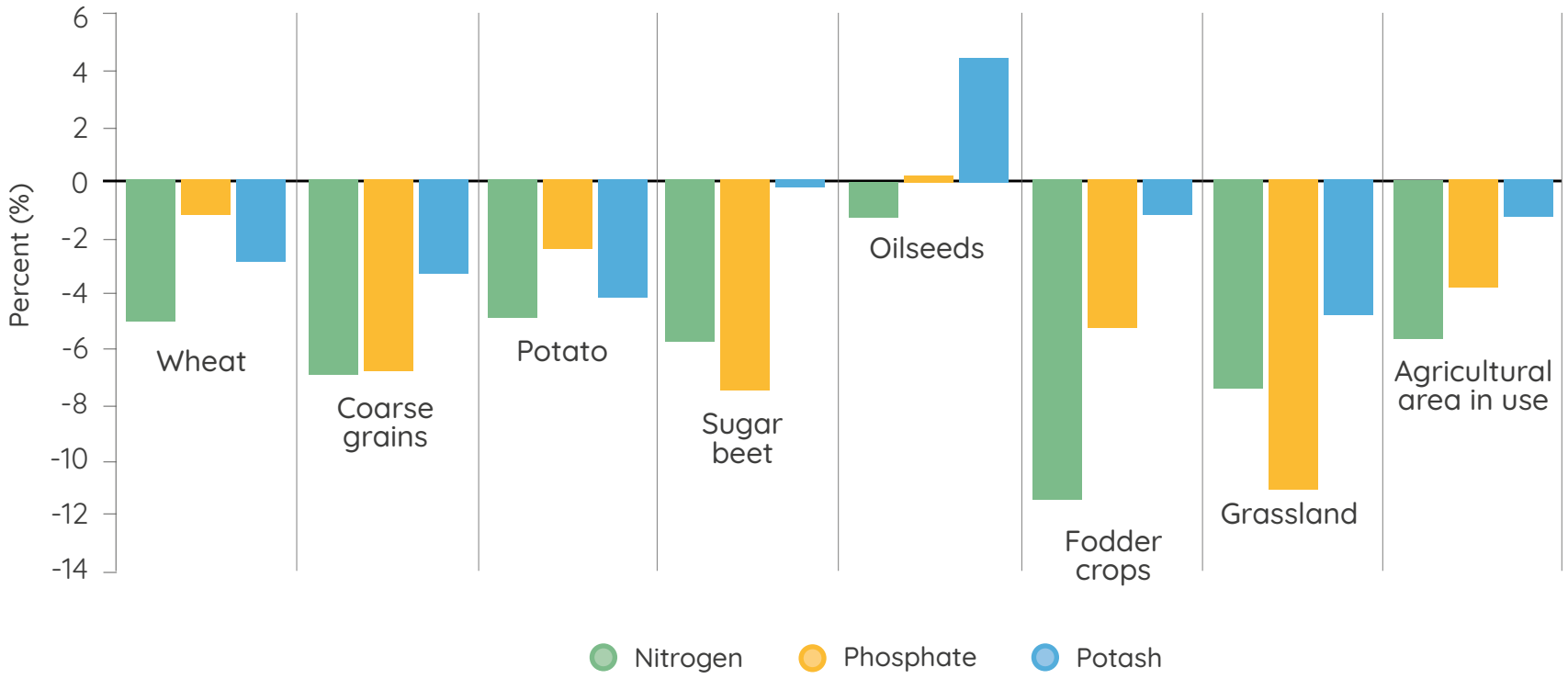
The anticipated cropping pattern in the European Union over the next 10 years sees a decrease (-1.0%) in the agricultural area devoted to cereals. This decrease of area is accompanied by a stagnation of crop yield development (i.e. 0% change of the forecasted year 2031 to this reference period).

Compared to last year, the two trends remain similar. The decreases in area for oilseed rape (-1%) will be well compensated by increases in yield (4%). The area for sugarbeet is again foreseen to drop (-1%) but at an expected remarkable rise of yield (6%).

The biggest drop of area coverage is foreseen for potato where the area is forecast to decrease by -3%, but well balanced with an expected yield growth of -5%.

Over the next ten years, nutrient consumption (N+P+K) for agriculture is forecasted to decrease by **-4.6%**.

Changes in fertilizer use by crop 2021-2031

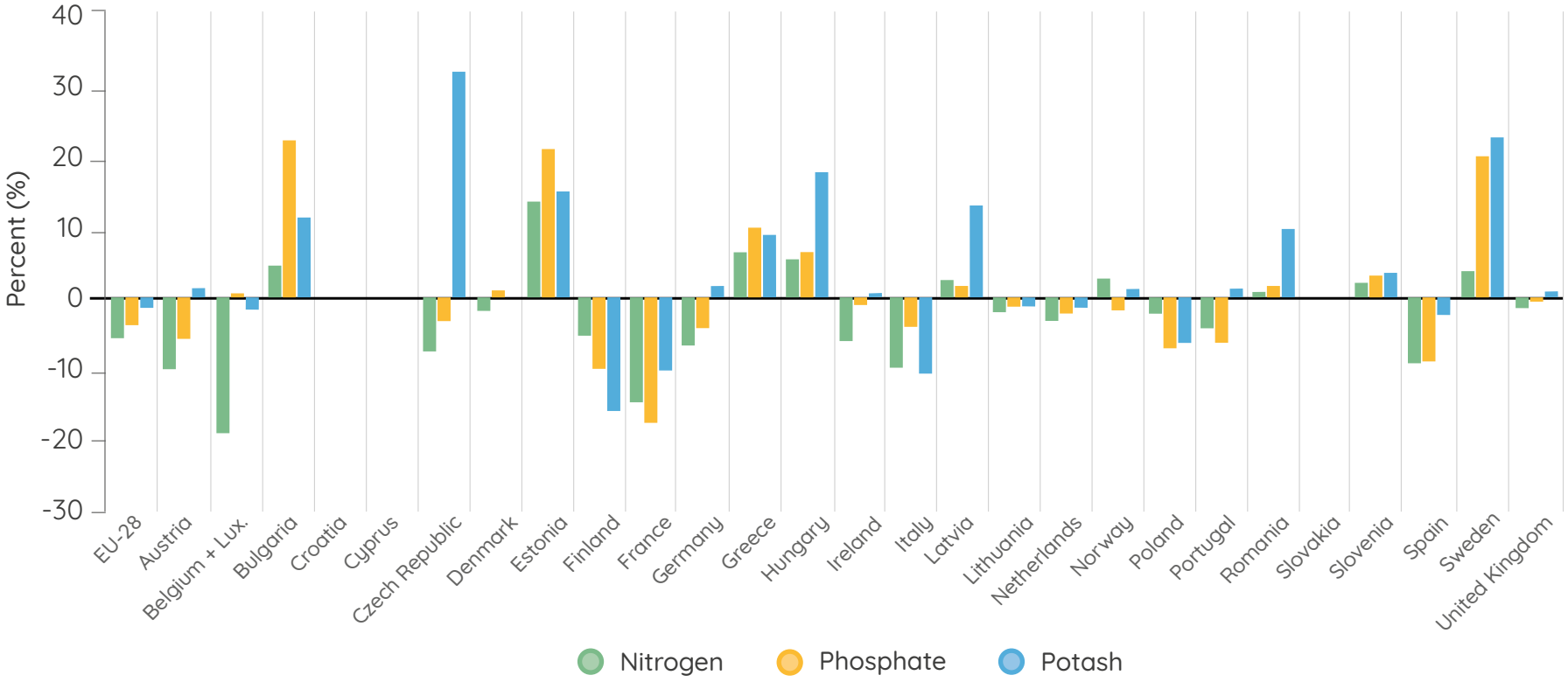


While the forecasted yield development is ambiguous for the major crops (-4% for total cereals; 5% for potato; 4% for oilseed), the overall nutrient consumption (N+P+K) is expected to decrease significantly (-4.6%). Except for oilseed where a stabilized nutrient consumption is forecasted (i.e. 0% change), all major crops' nutrient consumption will decrease with for instance -4% for sugar beet, -4% potato and -5% for cereals and for fodder crops with the steepest downturn of even -8% in the next ten years. The tightening of the environmental rules is expected to affect the nitrogen consumption most as all crops show a downturn in nitrogen use (average -6.0%). The aforementioned general decrease of nutrient consumption can only be attenuated by some smaller decrease of phosphate (-3.9%) and potash application (-1.4%).

The forecast predicts that Belgium is facing important decrease in nutrient consumption closely followed by France, mainly because of a tightening of the rules for the use of fertilizers in general.

For the period 2021-2031, it appears that this trend is also impacting other Western EU members states (EU-14 + UK). Still, most Central and Eastern European members (EU-13) demonstrate a trend for higher nutrient consumption.

Changes in regional fertilizer use 2021-2031



Increased consumption of Nitrogen is foreseen in half of the member states in Central and Eastern Europe (EU-13), while significant decreases are foreseen in the Western European Union countries, with the highest decreases in Belgium, France, Austria and Italy.

For Nitrogen, the average growth in consumption in Central and Eastern countries remains still positive at 0.2%. For Western countries, the expected decrease is of -8.3%.

For Potash, the slight growth of the past is now expected to slightly decrease over the next 10 years (-1.4%) with those European countries with the highest reduction of Nitrogen consumption driving the downturn.

For phosphate, the decrease foreseen over the next 10 years is -3.8%, driven by EU member states with high Nitrogen use reduction.

On 16 July 2022, the Fertilizing Products Regulation (FPR) enters into force, which aims to harmonise the certification process of fertilizing products across the Single Market.

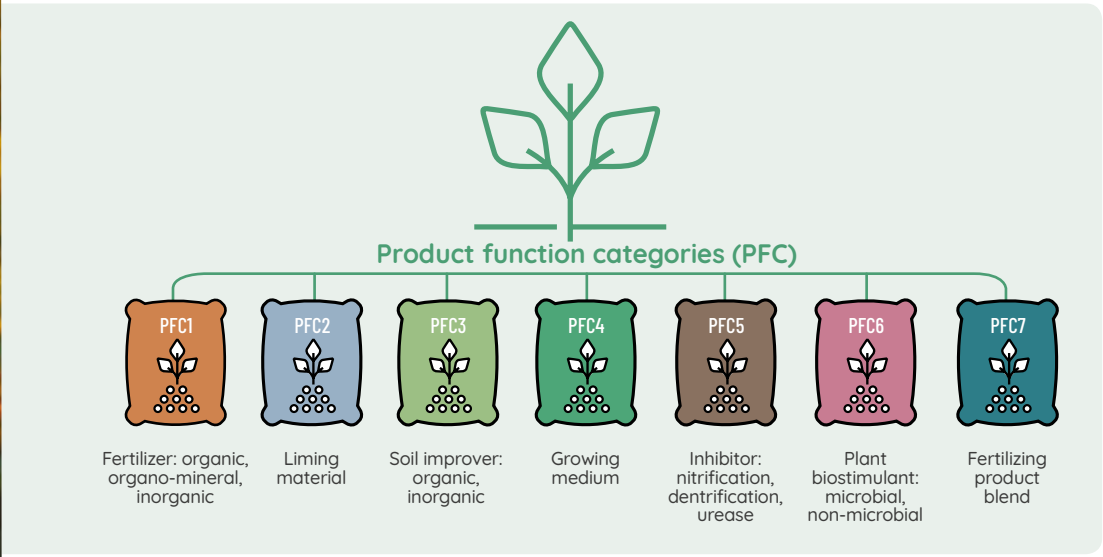
In comparison to the existing Fertilizer Regulation (EC) 2003/2003, there are significant changes on how fertilizers will be classified, putting the emphasis on what they contain, rather than what type they belong to.

Fertilizer Europe is supporting the industry in finding workable solutions and ensure a smooth transition to the new legislative framework.

Fertilizing Products Regulation
overcoming implementation barriers

On 16 July 2022, the Fertilizing Products Regulation (FPR) enters into force, overhauling current rules for placing fertilizing products on the EU market. In comparison to the existing Fertilizer Regulation (EC) 2003/2003, there are significant changes on how fertilizers will be classified, putting the emphasis on what they contain, rather than what type they belong to.

The FPR aims to harmonise the certification process of fertilizing products across the Single Market. The scope of the regulation has been widened and now does not only include mineral fertilizers, but also other fertilizing products such as organic fertilizers, organo-mineral fertilizers, soil improvers, liming materials, plant biostimulants, inhibitors and fertilizing product blends. These are all grouped into seven product function categories (PFCs).



Implementation – issues remain

Despite the transition period running since the adoption of the new Regulation by the European Council in May 2019, many technical and practical hurdles are yet to be resolved. This situation puts many fertilizer producers at risk of not complying fully with the new regulation on the date of entry into application. Fertilizer Europe continues engaging with the EU Commission and other stakeholders across the EU agri-food sector to work out common workable solutions and ensure a smooth transition to the new legislation.

The new regulation establishes a common legal framework for fertilizing products in the form of a toolbox of measures, with different pathways depending on the product category and its content. This is to be understood as a 'conformity assessment', i.e. a process demonstrating whether specified requirements relating to a fertilizing product are fulfilled. The FPR will exist in parallel to national legislation and mutual recognition as it is only creating an optional harmonization. It will therefore be up to a manufacturer to decide whether it applies for a CE mark to benefit from free circulation in the EU's internal market. Manufacturers of fertilizers that do not bear the CE marking will still be able to place fertilizers on their national market.

Notified bodies

Under the new regulation, notified bodies will be in fact a conformity assessment organisation officially designated by the national authority to carry out the procedures for conformity assessment within the meaning of the FPR.

A notified body will be required in the process of certification of a fertilizing product other than the typical mineral fertilizers. However, for some mineral products such as ammonium nitrate, mineral fertilizers with inhibitors and products which include

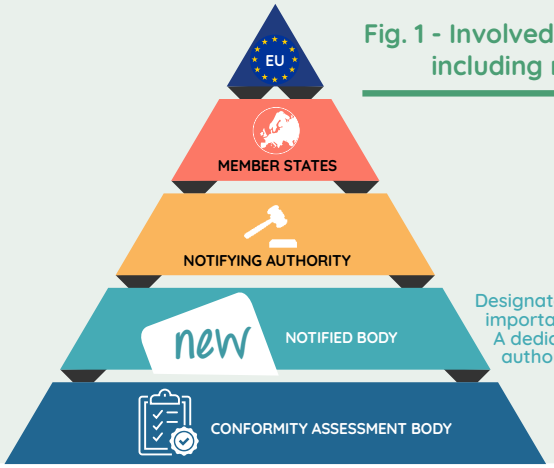
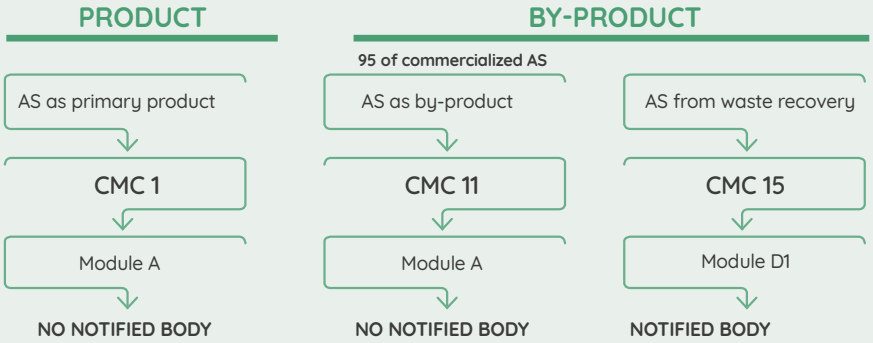


Fig. 1 - Involved players on the EU fertilizer market including notified body as a new player.

Designated by members states, notified bodies will play an important role in bringing fertilizer products on the market. A dedicated database run by the EU Commission will list all authorised bodies.

Fig. 2 - Classification of ammonium sulphate (AS)



waste streams (e.g. garden products), notified bodies will be needed. It is estimated that the whole fertilizing products market includes over 58,000 products that fall under notified bodies' assessment.

However, with just over six months before the FPR's entry into force, there are only few assessment bodies across Europe that are either approved or in the process of becoming a recognised notified body by the EU member state.

As things stand, the accreditation of notified bodies by national authorities is progressing too slowly and will likely create a bottleneck in the FPR approval system. Fertilizers Europe and its members have been actively seeking solutions to facilitate the implementation process.

Standardised conformity assessments

Not every fertilizing product has to be assessed by the notified body. In fact, the FPR allows self-assessment for certain modules. This process can be used for the so-called virgin materials and substances and for other Component Material Categories (CMC) materials as specified in the regulation.

One of the main advances in the implementation phase was the status on the ammonium sulphate by-product. The initial proposal by the Joint Research Centre, the technical arm of the European Commission, provided too rigid criteria for the ammonium sulphate. Fertilizers Europe argued in favour of a more practical solution that reduces administrative burden. A recently published delegated act confirmed that only ammonium sulphate from waste recovery will need to go through the scrutiny of notified bodies (see Fig. 2).

Fertilizers Europe has developed standard technical documentation dossiers for typical mineral fertilizer products such as urea or CAN and will continue to organise workshops to support its members in the transition to FPR.

Labelling

Products complying with the requirements of the FPR will carry a CE marking. Products with a CE mark can be sold in all EU member states without a need to fulfil additional requirements of national legislations. The business entity that wishes to place the product on the market has the responsibility to ensure the product complies with the FPR requirements for their product function category and labelling.

FPR – enhancing industry's innovative pathway

The mineral fertilizer industry has always been a leader in recycling millions of tons of by-products into high quality nutrient inputs for agriculture. The new framework will further facilitate the current innovative pathway that the industry has already undertaken in the spheres of circular economy, controlled released fertilizers, biodegradability solutions, etc.

How the forecast is made

Fertilizers Europe's forecast is an annual exercise that uses the following procedure:

- at the end of each growing season, a general European scenario is established, based on quantitative information (from the FAO-OECD, USDA, FAPRI and the European Commission) and a qualitative analysis made by Fertilizers Europe experts.
- the general scenario is then adapted to the specificities of each country and national forecasts made.
- the national forecasts are then analysed and discussed by all the experts.
- when the market and economic situation require it, the forecasters carry out a last update of the current situation before integration and publication.

The forecast is an upward crop-based procedure where fertilizer consumption is evaluated by assessing the evolution of the cropping area and the nutrient application rates for each crop.

However, two different methodologies are used to achieve this crop-based procedure:

- In the majority of European Union countries, representing the huge majority of its agricultural area and fertilizer consumption, the forecast is an expert-based approach constructed from national forecasts generated by Fertilizer Europe's members.
- In Croatia, Cyprus, and Slovakia, evaluation of the crop area and production, as well as application rates used for N, P and K nutrients on each crop, is based on a combination of data taken out of the IFA-FAO database, European Commission,...; when precise figures are not available, the evaluation is based on an agronomic model developed by the group of forecasters, for both the current value and the 10 years forecasted value.
- Malta is currently not covered in the forecast.

REFERENCE VOLUMES

The reference volumes used to calculate the percentage changes in fertilizer demand are based on the average value of the last three growing seasons (for the current exercise: 2018/2019, 2019/2020 and 2020/2021). This mitigates the extent to which exceptional years (positive or negative) may impact the calculated evolution of demand.

The European Fertilizer Industry at a Glance

9.5 BN* turnover

€ 1.2 BN* investment

74.000 employees**

120+ production sites

* EU-28

** total including supply chain (average last 5 years)

Fertilizers Europe represents the majority of fertilizer producers in Europe and is recognised 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. The Fertilizers Europe website provides information on subjects of relevance to all those interested in fertilizers contribution to global food security.

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