

Forecast of food, farming and fertilizer use in the European Union 2014-2024



SUSTAINABLE
AGRICULTURE
IN EUROPE

Nitrogen, phosphorus and potassium



are the three primary
nutrients for plant growth:

- Nitrogen (N), captured from the air, is essential as an important component of proteins.
- Phosphorus (P), extracted from mined ores, is a component of nucleic acids and lipids, and is a key to energy transfer.
- 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).

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Fertilizer Europe's annual forecast of food farming and fertilizer use in the European Union has been independently recognized¹ 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 Agri, 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.

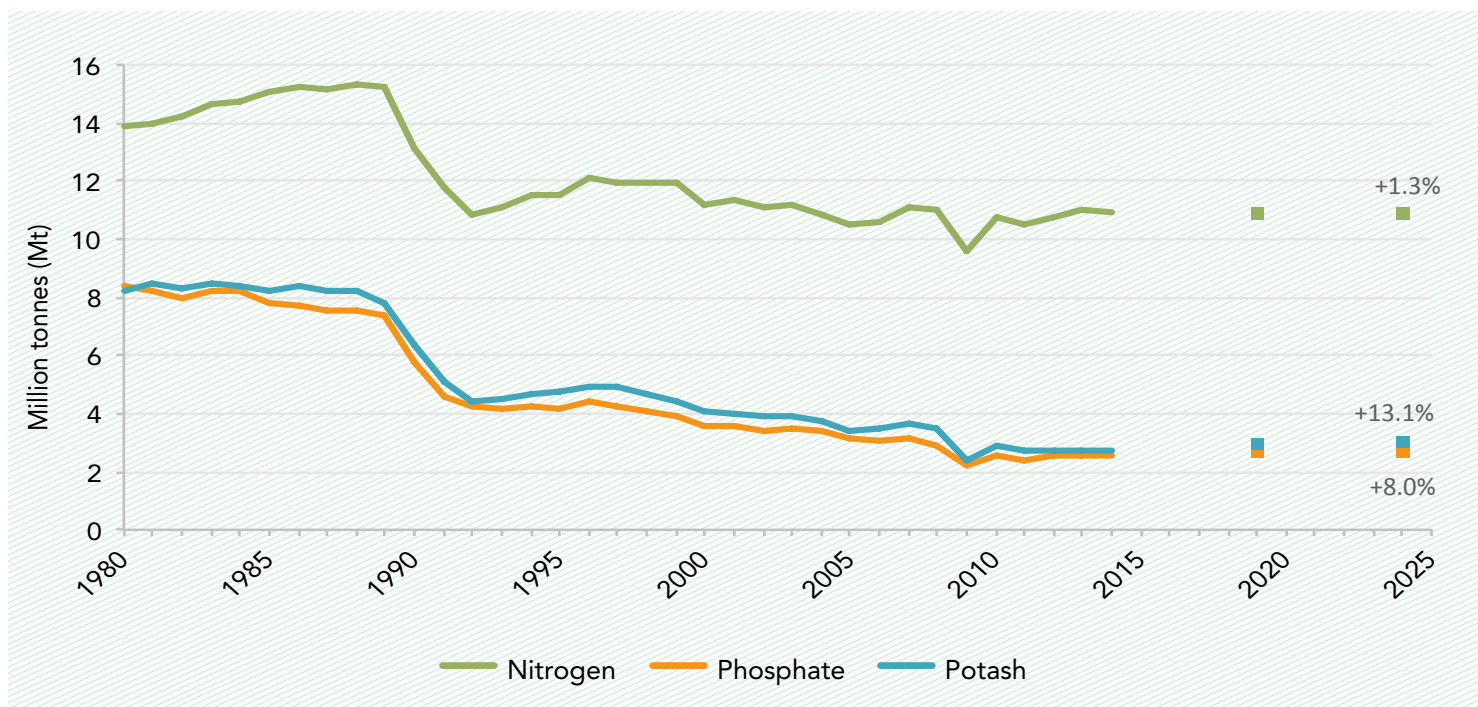
Changes in fertilizer consumption in Europe by 2024:

+1.3% increase in nitrogen consumption, compared to 1% foreseen last year.

+8.0% increase in phosphate consumption, against 6.7% last year.

+13.1% increase in potash consumption, against 11.8% forecast last year.

Fertilizer consumption in the European Union



Over the year, fertilizers containing an average* of 10.7 million tonnes of nitrogen, 2.5 million tonnes of phosphate, and 2.7 million tonnes of potash were applied to 133.5 million hectares of farmland. 46.8 million farmable hectares were not fertilized.

Considering the economic outlook and the anticipated evolution of Europe's cropping area, Fertilizers Europe expects annual nitrogen, phosphate and potash fertilizer consumption to reach

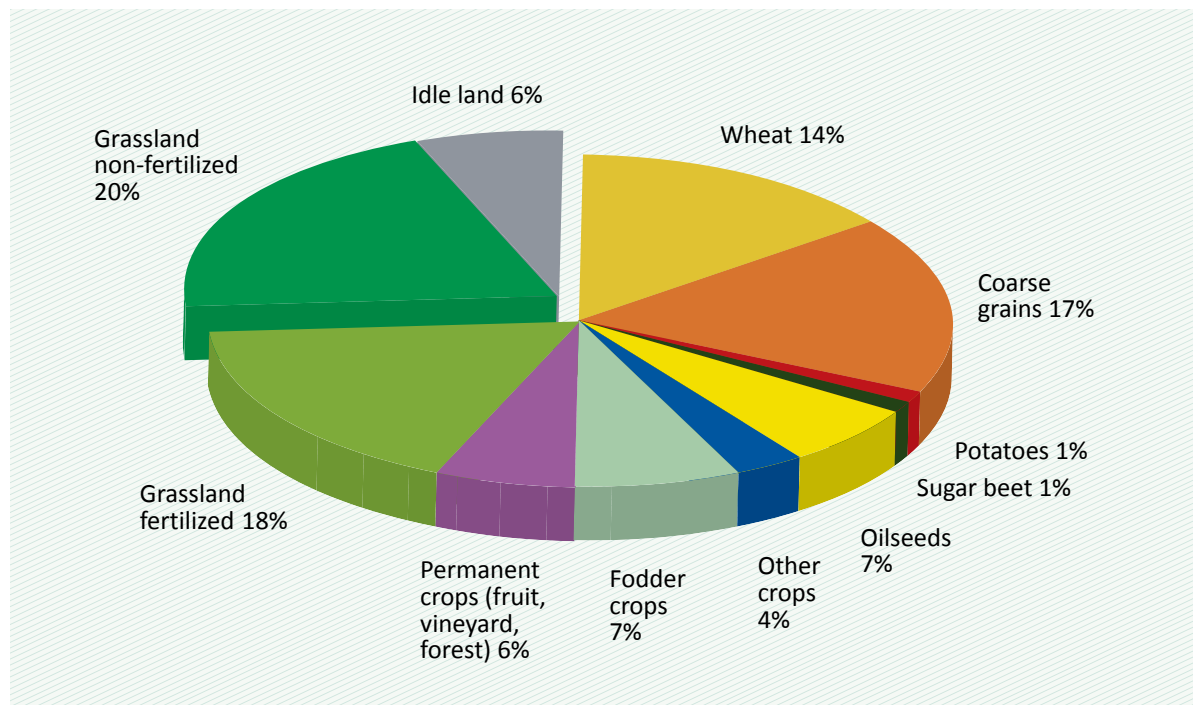
10.8, 2.7 and 3 million tonnes respectively by the 2023/2024 season, applied to 133 million hectares of farmland.

Despite these increases, fertilizer consumption over the next 10 years will remain below the more normal levels recorded immediately prior to the 2008/2009 economic crash.

* Average based on the last three growing seasons - 2011/2012, 2012/2013, 2013/2014

Arable crops account for **60%** of the fertilized area in western Europe and **85%** in central and eastern European countries.

Agricultural land use in the European Union




The fertilized area in the European Union comprises 133.5 million hectares. A further 46.8 million farmable hectares are not fertilized, of which 36.3 million are unfertilized grassland and 10.5 million idle or set-aside land.

Within the fertilized area, arable crops account for 68% (43% cereals, 9% oilseeds, 9% fodder crops). Permanent crops account for 9% 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.

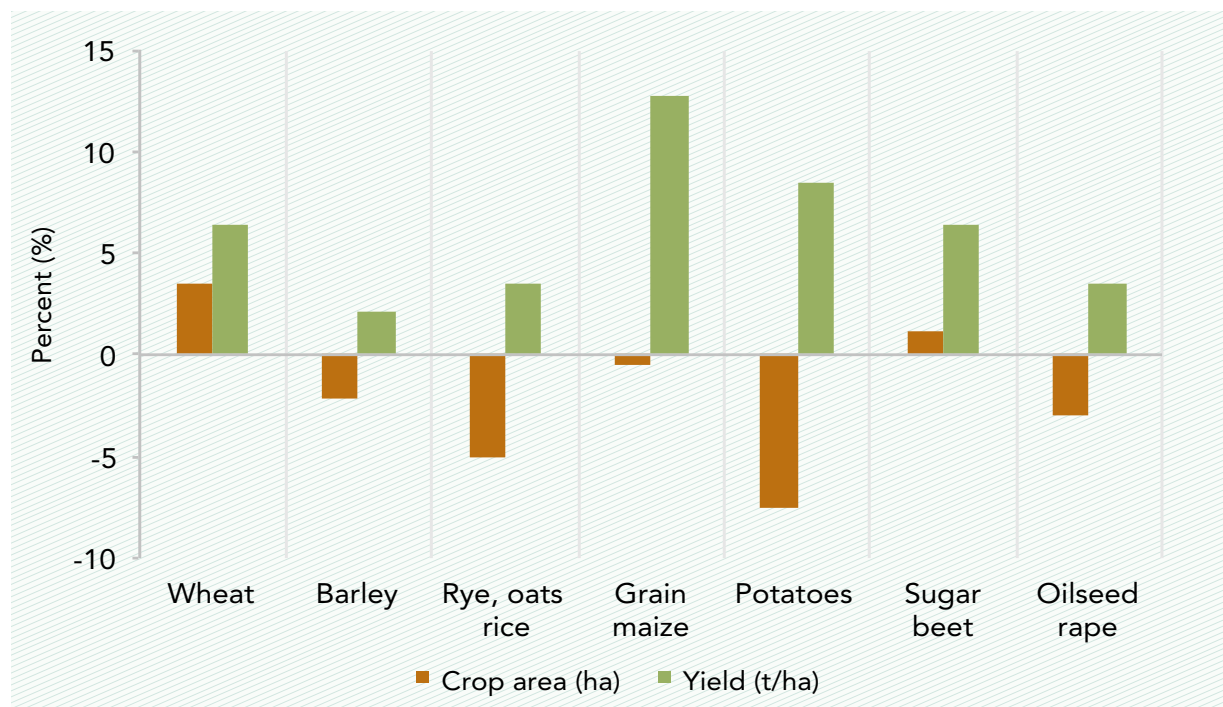
In the countries of western Europe (EU-15), the fertilized area comprises 60% arable crops (37% cereals, 7% oilseeds, 9% fodder crops), 11% permanent crops (vineyards, orchards, forests) and 29% grassland.

Agriculture in central and eastern Europe (EU-12), however, is far more directed towards arable production, which accounts for 85% of the fertilized area (57% cereals, 13% oilseeds, 9% fodder crops). Permanent crops and grassland only comprise 3% and 11% of the fertilized area respectively.



The grain sector (wheat, coarse grains and oilseeds) accounts for **61%** of total nutrient consumption, with wheat accounting for **25%**. Fodder crops and grassland account for a further **23%**.

Changes in farming food crops 2014-2024




The anticipated cropping pattern in the European Union over the next 10 years sees a stabilization of the area devoted to cereals, with an overall decrease of 0.3%. This stabilization, however, is compensated by an overall yield increase of 7%.

As last year, a decreasing cropping area for potatoes is compensated by a continuing increase in yield.

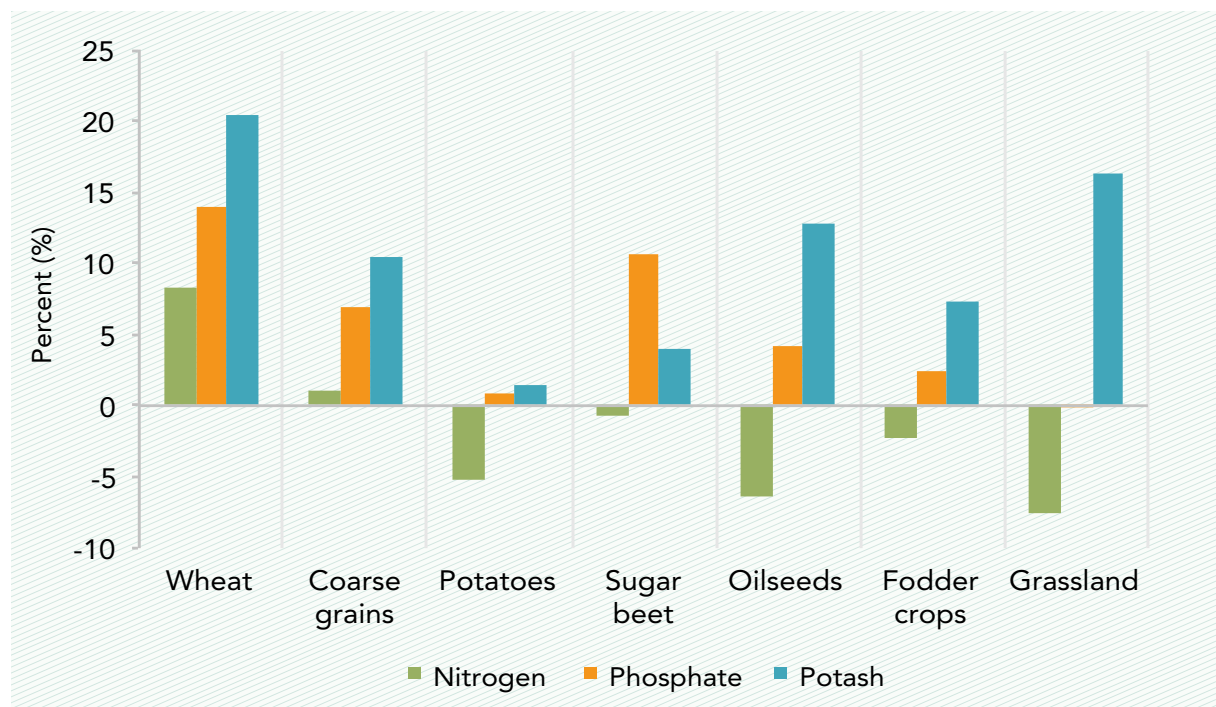
The sugar beet area is forecast to increase by 1.1%, with an expected 6% increase in yield.

The cropping area for oilseed rape is expected to decrease by 3%, but with a forecast growth in yield of 4% for this crop.



Over the next ten years, nutrient consumption (N+P+K) for cereals will increase by 7%.


Changes in fertilizer use by crop 2014-2024



The sustained high yield in the grain area will lead to an increase in nutrient consumption (N+P+K) of around 7% for cereals. There will be a similar evolution for oilseeds with an expected increase of 2%.

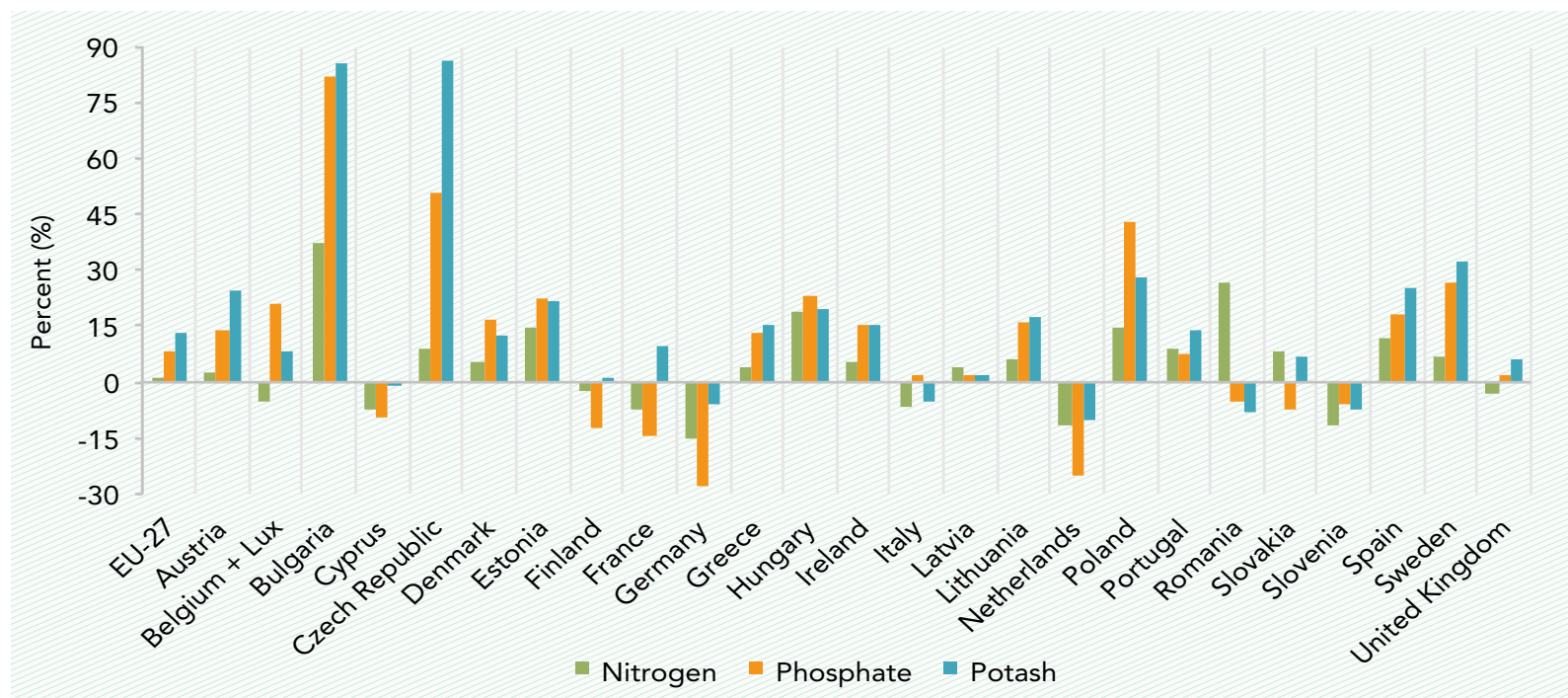
The increase in yield in the sugar beet area induces a moderate increase of 2% in fertilizer consumption for this crop.

Nutrient consumption will stabilize for fodder crops as an impact of the expected abolition of milk quotas which should induce a trend towards greater productivity. At the same time, the decrease for grassland is now foreseen at around 3%.

A man with grey hair, wearing a blue jacket, is bent over in a lush green wheat field, examining the plants. The field is vast and stretches to a line of trees in the background under a clear sky.

Significant decreases in nitrogen consumption are foreseen in Belgium and Luxembourg, France, Germany, Italy and the Netherlands. Evolution of phosphate and potash consumption is largely positive except for Finland, France, Germany, and the Netherlands.

Changes in regional fertilizer use 2014-2024




The evolution in nitrogen consumption by country is similar to last year. Most central and eastern European (EU-12) countries show a positive trend with high consumption, while significant decreases are foreseen in the western European countries of Belgium/Luxembourg, France, Germany, Italy and The Netherlands.

Slight "recovery" is expected in Greece with continued positive growth in Spain and Portugal. The average evolution of nitrogen

consumption in central and eastern European countries increased from 13.8% last year to 16.9% in the current forecast.

For phosphate and potash, significant growth is reported in almost all central and eastern European countries, as well as in Austria, Belgium/Luxembourg, Denmark, Ireland, Greece, Portugal, Spain and Sweden, contributing to the remarkable recovery foreseen for these fertilizers in the European Union over the next 10 years.

A photograph of two men, likely farmers, standing in a dry, grassy field under a clear blue sky. The man on the left is wearing a blue denim shirt, dark jeans, and a brown cap, and is holding a black tablet. The man on the right is wearing a dark green shirt, light blue jeans, and a dark cap, with his arms crossed. In the background, a blue tractor is partially visible on the right side.

CAP 2014-2020 and the impact of the EU's climate change and energy policies will be the main internal drivers of fertilizer consumption within the EU over the next 10 years.

EU policy framework

The global economic crisis and tensions within the food and energy sectors were key factors in the significant drop in fertilizer consumption between 2008 and 2010. After a slow recovery in 2011 and 2012 and a rather pessimistic forecast in 2013, signals from the current forecast are cautiously optimistic.

Increasing agricultural productivity in Europe is now widely recognized as being essential to meeting global food needs. This needs to be backed by coherent and complementary agricultural and economic policies aimed at more targeted nutrient use, including recycling, and the development of other innovations to safeguard the sustainability of the European agricultural sector. The expected increase in productivity will come through “sustainable intensification”.

CAP 2014-2020

The European Union reached the final agreement on the reform of the Common Agriculture Policy for the period 2014-2020. In the move towards a fairer distribution of economic support, the CAP system for direct payments will no longer be based on historical references. National envelopes in each member state will be progressively adjusted to reduce the differences between average payments per hectare.

In addition, the introduction of a “Greening Payment” in January 2015, where 30% of the national envelope is linked to the provision of certain sustainable farming practices, means that a significant share of the subsidy will be directed to environment measures and rural development. All payments will still be subject to farmers respecting certain environmental and cross-compliance rules.

Three basic practices are envisaged within the greening payment:

- the maintenance of permanent grassland;
- crop diversification - a farmer must cultivate at least two crops when his arable land exceeds 10 hectares, and at least three crops when it exceeds 30 ha.
- ensuring an “ecological focus area” of at least 5% of the arable area on most farms with an arable area larger than 15 hectares. This figure may rise to 7% after a European Commission report in 2017.

Fertilizers Europe recognizes the relevance of the better integration of environmental protection within CAP. It also supports the Commission’s “European Innovation Partnership” for agricultural productivity and sustainability which will move the sector towards resource efficiency, productivity and climate-friendly agriculture. However, it regrets seeing more red tape instead of simplification as well as productive land taken out of production in the form of the “ecological focus areas”.

The new CAP will be implemented as of January 2015 and it remains to be seen in practice whether this reform delivers productivity and environmental protection or will be considerably amended in the mid-term review (2017/18).

The forecast is a crop-based procedure based on the cropping area and nutrient application rates.

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 for the future 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 quantitative 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 99.4% of its agricultural area and fertilizer consumption, the forecast is

an expert-based approach constructed from national forecasts generated by Fertilizers Europe's members.

- In Cyprus and Latvia, evaluation of the production and crop area is based on the economic model used by the European Commission. Application rates used for nitrogen, phosphorus and potassium nutrients on each crop are based on an agronomic model developed by a small group of forecasters.
- Croatia and Malta are 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: 2011/2012, 2012/2013 and 2013/2014). This mitigates the extent to which exceptional years (positive or negative) may impact the calculated evolution of demand.



Fertilizers are integral to modern agriculture - they provide farmers with the means to meet increasing global food and energy needs. The European fertilizer industry is committed to the development and production of innovative products, application and recycling techniques to maximize the productivity and the

sustainability of European agriculture. Following the fertilizer loop, it combines active product stewardship and close collaboration with the farming community with increasing interaction along the entire food chain to maximize nutrient-use efficiency and reduce the environmental footprint of food production.



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