Forecast of food, farming and fertilizer use in the European Union 2013-2023
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 (P₂O₅) and potassium as the potash equivalent (K₂O).
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 Agri, DG Environment and DG Energy), the FAO, the European Environment Agency (EEA) and the International Fertilizer Industry Association (IFA).

Changes in fertilizer consumption in Europe 2013-2023:

+1% increase in nitrogen consumption, compared to 3.4% foreseen last year.

+6.7% increase in phosphate consumption, against 9.1% last year.

+11.8% increase in potash consumption against a remarkable 18.1% forecast last year.
Over the year, fertilizers containing an average* of 10.5 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. 47.4 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 10.6, 2.6 and 3 million tonnes respectively by the 2022/2023 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.

Arable crops account for 61% of the fertilized area in western Europe and 85% in eastern European countries.
The fertilized area in the European Union comprises 133.5 million hectares. A further 47.4 million farmable hectares are not fertilized, of which 36.3 million are unfertilized grassland and 11.1 million idle or set-aside land.

Within the fertilized area in Europe, arable crops account for 68% (43% cereals, 9% 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 European Union but there are significant differences in the fertilized crop areas between the countries of western and eastern Europe.

In western Europe (EU-15) countries, the fertilized area comprises 61% arable crops (37% cereals, 7% oilseeds, 10% fodder crops), 10% permanent crops (vineyards, orchards, forests) and 29% grassland.

Agriculture in eastern Europe (EU-12), however, is far more directed towards arable production, which accounts for 85% of the fertilized area (56% cereals, 13% oilseeds, 9% fodder crops), with permanent crops and grassland only respectively comprising 3% and 11% of the fertilized area.
The grain sector (wheat, coarse grains and oilseeds) accounts for 60% of total nutrient consumption, with wheat accounting for 25%. Fodder crops and grassland account for a further 23%.
Changes in farming food crops 2013-2023

The anticipated cropping pattern in the European Union over the next 10 years sees a stabilization of the cereals area with an overall increase of 0.4% (against a 0.6% decrease expected last year). This stabilization, however, is compensated by a sustained high increase in yield (9% compared to 8% last year).

The cropping area for oilseed rape has also stabilized, compared to the 6.5% increase foreseen last year, but at 11% the yield growth remains high.

Conversely, the sugar beet area is forecast to decrease by 0.4%, combined with declining yield. As last year, a decreasing cropping area for potatoes is compensated by a continuing increase in yield.
Over the next ten years, nutrient consumption (N+P+K) for cereals will increase by 6%.
Changes in fertilizer use by crop 2013-2023

The sustained high yield in the grain area will lead to an increase in nutrient consumption (N+P+K) of around 6% for cereals. There will be a similar evolution for oilseeds with an expected increase of 2% (a slower pace compared to the 11% increase foreseen last year).

Nutrient consumption will decrease by 5% overall for fodder crops, as an impact of the expected abolition of milk quotas which should induce a trend towards greater productivity. The declining yield in the sugar beet area induces a moderate increase of 1% in fertilizer consumption for this crop.

At the same time, the decrease for grassland is now foreseen at around 5%.
Significant decreases in nitrogen consumption are foreseen in France and Germany. Phosphate and potash consumption is largely positive, except for Finland and Germany.
The evolution in nitrogen consumption by country is similar to last year. Most eastern European (EU-12) countries showed a positive trend with high consumption, while significant decreases are now foreseen in Belgium/Luxemburg, France, Germany and The Netherlands after the positive trends of recent years.

Slight “recovery” is expected in Greece with continued positive growth in Spain and Portugal. The average nitrogen consumption for the eastern European countries increased slightly from 13% last year to 13.8% in the current forecast.

For phosphate and potash, significant growth is reported in almost all eastern European countries, as well as Austria, Belgium/Luxemburg, Spain, Sweden and Portugal, contributing to the remarkable recovery foreseen for these fertilizers in the European Union over the next 10 years.
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.
Economic overview and EU policy

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, signals from the current forecast are rather pessimistic.

However, 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 sustainably the European agricultural sector.

CAP 2014-2020

With the European Union reaching agreement on the reform of the Common Agriculture Policy up to 2020, the European Commission is now preparing legislation for the new rules to enter into force during 2014, or from January 2015 for most of the new arrangements for direct farm payments. Separate “transition rules” for 2014 have been approved.

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.

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.

All payments will still be subject to farmers respecting certain environmental and cross-compliance rules.

Member states also have the possibility of transferring up to 15% of their national envelope for direct payments (1st Pillar) to their rural development envelope (2nd Pillar) and vice-versa.

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 more resource efficiency, improved productivity and climate-friendly agriculture.

The reintroduction of 5% set-aside land (ecological focus areas), with the possibility of 7% by 2017, raises concerns. Fertilizers Europe regrets to see that a significant percentage of land will be kept out of rotation, and thus difficult to bring back into production, especially if the sector has to respond to a growing food demand.
It is expected that first generation biofuels will continue to dominate until at least 2017.
BIOENERGY AND BIOFUELS

Growth in bio-energy and biofuels will place additional demands on the European food system. But their growth in the EU is hindered by both internal and external factors.

Increased environmental emissions resulting from indirect land use change has led the European Commission to reconsider its sustainability criteria for biofuels and to propose a policy revision limiting the first generation of food crop-based biofuels to 5%.

This has caused turmoil in EU biofuels production. The European Parliament’s environment committee has called for a 6% cap on food crop-based biofuels, while member state governments are highly divided. Negotiations on the Commission’s proposal are only likely to occur in autumn 2014.

The growth in European biofuel consumption will also depend on external factors such as the increase in oil prices and the worldwide availability of biofuel. The issue of resource availability could come up much earlier than expected and dictate the pace at which second generation non-food crop biofuels grow. It is expected that first generation biofuels will continue to dominate until at least 2017.
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 (except Croatia, Cyprus, Latvia and Malta), 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, although Croatia will be included from next year onwards.

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: 2010/2011, 2011/2012 and 2012/2013). 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 carbon footprint of food production.