Forecast of food, farming and fertilizer use in the European Union 2009 - 2019
Our new identity will provide immediate recognition of our organization as the official and dedicated source of information on fertilizers. This is particularly important due to the vital role the industry plays in feeding the world.

As the single largest representative of manufacturers of mineral fertilizers in Europe, our organization is in communication with a broad range of people in government and legislators as well as experts and individual members of the public who seek information on fertilizer technology and a diversity of subjects within the context of today’s environmental, safety and economic challenges. Our new identity expresses our function in a more convenient form and will facilitate exchange of information more openly and readily.

Our new website www.fertilizeurope.com is designed to provide the latest information on a range of subjects of immediate relevance to everybody interested in fertilizers and their contribution to the world’s food supply.

It presents the crucial role of fertilizers - currently providing almost 50% of the world population with food and offering the only feasible means of meeting future demands for nourishment as the world population is forecast to double by 2050.

www.fertilizeurope.com
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“In the next ten years, use of nitrogen in the EU 27 is expected to grow by around 3%.”
FORECAST OF FERTILIZER USE IN EU27

OVERVIEW FOR 2019

Fertilizer consumption in EU27

On average over the last three seasons in the EU27, fertilizers containing 10.5 million tonnes of nitrogen (N), 2.7 million tonnes of phosphate (P₂O₅) and 3.1 million tonnes of potash (K₂O) have been applied to 135.3 million hectares of farmland each season (46.1 million farmable hectares are not fertilized, which include 36.5 million hectares of unfertilized grasslands).

By 2018/19, the Forecasters expect these fertilizer consumption figures to reach 11.0, 2.8 and 3.4 million tonnes respectively, applied to 133.6 million hectares. Considering the economic situation covered in page 15, and in view of the foreseen evolution of the crop areas as presented in page 13, the changes expected using the usual forecast methodology would appear to be surprising:

The increase in N consumption reached +4.1% for the EU27, against +3.8% last year.

Appearing even more remarkable are the foreseen changes for P₂O₅ and K₂O:

For the first time in several decades, an increase of +3.9% is foreseen for P₂O₅ in the EU27 over the next 10 years, as opposed to the -4.3% last year. K₂O, which was just about stable last year with -0.2%, suddenly reaches a record value of +7.7% in 10 years.

However, these changes are in relation to the base year, which, due to the significant disruptions to supply and demand for both agricultural outputs and fertilizers, is very significantly different from earlier base years. The apparent changes do not show in the same way if a base year which is less extremely affected is used, as we will see below. The factors which caused the spikes in prices and demands are not expected to persist, but their effect has influenced the current apparently anomalous changes. It is important therefore to note actual anticipated volumes rather more than percentage change.

Considering the reference years

For seven campaigns now, the reference used to calculate the percentage changes in the Forecast is based on the average value of the last three campaigns (thus from 2006/07 to 2008/09 for the current exercise), to avoid the extent to which exceptional years (positive or negative) may impact the calculated evolution. But this three-year buffer was not sufficient for the current reference which includes two exceptional campaigns: between 2007 and 2009.

While the reference volume for N has decreased by only -1.1%, the PK reference volumes have dropped by -13.1% for P₂O₅ and -11.2% for K₂O, causing the surprising positive percentage changes calculated this year. When using the reference volumes used in 2007 as the base year, the expected changes become +3% for N, -9.7% for P₂O₅, and -4.4% for K₂O, more or less a doubling of the decreasing rate of last year for P₂O₅ and K₂O.
Increase foreseen for $\text{P}_2\text{O}_5$ and $\text{K}_2\text{O}$ in EU27, a significant growth is reported in Sweden, Spain and UK in the coming 10 years.
FORECAST OF FERTILIZER USE IN EU27

HOW THE FORECAST IS MADE

The Forecast is an annual exercise that respects the following procedure:

- In spring, a European scenario is established, based on quantitative information (from USDA, FAPRI, European Commission) and qualitative analyses made by the forecasters, Fertilizers Europe experts.

- Between May and July the general scenario is adapted to the specificities of each country. National forecasts are then made by forecasters.

- National forecasts are then analysed and discussed by all experts in July.

- When the market and economic situation require it, forecasters carry out a last update of the current situation during August, before integration and publication.

In all EU27 countries, the Forecast is an upward crop-based procedure, where fertilizer consumption is evaluated by assessing area and nutrient application rates for each crop. However, two different methodologies are used to achieve this crop-based procedure:

- In 20 countries (EU15, Estonia, Hungary, Latvia, Lithuania and Poland), representing 88% of the EU27 Agricultural area and 94% of the EU27 fertilizer consumption, the Forecast is an expert-based approach constructed from the national forecast generated by our members.

- In the other 7 countries, the evaluation of the production and crop area is based on the economic model used by the European Commission. Application rates used for N, P and K nutrients on each crop are based on an agronomic model developed by a small group of forecasters.

In this report, fertilizer nutrients are expressed as follows: nitrogen (N) as pure element, phosphorus (P) as phosphate equivalent ($P_{2}O_{5}$ or phosphorus pentoxide), and potassium (K) as potash equivalent ($K_{2}O$ or potassium oxide).

Forecast changes in regional fertilizer use

The evolutions in N consumption by countries are similar to last year, with few exceptions: after positive trends during the last years, important decreases are foreseen in the UK, Portugal and Latvia. Also a significant increase of consumption in Romania, obviously foreseeing a new pace in the development of its agriculture.

Contributing to the remarkable increase foreseen for $P_{2}O_{5}$ and $K_{2}O$ in EU27, a significant growth is reported in Sweden, Spain and UK in the coming 10 years.
In the EU 27 grain sector (including oilseeds) accounts for 58% of total nutrient consumption, of which 23% is wheat.
FARMING AND FERTILIZING OUTLOOK IN EU-27

THE CROPPING PATTERN

Agricultural area throughout the EU27 is marked by a large diversity. The current situation is illustrated in the pie charts facing.

In the EU15, fertilized area accounts for 73% of the total agricultural area. Non-fertilized area consists of idle-land, set-aside and non-fertilized grassland.

The fertilized area encompasses 61% arable crops (of which 38% cereals, 6% oilseeds, 10% fodders), 11% permanent crops (vineyard, orchards, forest) and 28% grassland.

In the EU12, fertilized area accounts for 79% total agricultural area. Non-fertilized area consists of idle-land, and non-fertilized grassland (some non-fertilized grassland are not taken into account in the statistics).

The fertilized area encompasses 87% arable crops (of which 59% cereals, 11%, oilseeds, 8% fodders), 3% permanent crops (vineyard, orchards, forest) and 10% grassland.

The aggregated figures for EU27:

The fertilized area equals 135.3 Mio ha, of which arable crops account for 69%, (cereals 44%, oilseeds 8%, fodders 10%), permanent crops 9% and grassland 23%.

Crop-area combined with the application rates give us the following results: grain sector (including oilseeds) accounts for 58% of total nutrient consumption, of which 23% is wheat. Grasslands and fodders account for 24%.
Over the next ten years, we foresee that nutrient consumption (N+P+K) will increase by 7% for cereals.
FARMING AND FERTILIZING OUTLOOK IN EU-27

THE FUTURE

Over the next ten years, the new Common Agricultural Policy (CAP) is expected to be more market orientated. Associated with a global context where we still foresee tensions on food supply, this is expected to maintain a sustained demand for biomass production, despite an increase pressure on environmental protection.

This situation has induced some significant changes from the previously expected cropping pattern: stabilization of the cereal area with a small decrease of -1% (after the +3.4% increase expected last year), of which -2% was in the EU12 and no change in the EU15. The increase in oilseeds is now limited at +12%, when it was still foreseen at +16% last year; the drop is particularly important for rape seed in EU15, where the expected area increase is limited to +9%, when the expectation for the rape seed area in EU15 was +20% last year.

In contrast, the decrease of the sugar beet acreage is now stabilizing, with a foreseen decrease of –4% in EU27 over the 10-year period. This induces a much more moderate decrease of fertilizer consumption of this crop, now limited to -2%.

However, the stabilization of the grain area is compensated by a sustained increase in yield, which will lead to an increase in nutrient consumption (N+P+K) which is similar to the evolution foreseen last year on cereal, with around +7%, but a lower increase for oilseeds with an expected increase of 18%.

Nutrient consumption will stabilize at +1% for fodder crops, as a partial impact of the expected abolition of milk quotas, but will continue to decrease at the same pace, at around 8%, for grasslands due to the trend toward extensification in the meat sector.

Forecast changes 2009-2019 in farming food crops in EU27

Forecast changes 2009-2019 in fertilizer use by crop in EU27
CAP “Health Check” and 2008 bioenergy development strategy are significant drivers for fertilizer consumption in the coming 10 years.
THE COMMON AGRICULTURAL POLICY (CAP)

TOWARD SIGNIFICANT CHANGES IN EU POLICIES

Food tensions and economic crisis

The implementation of the CAP “Health Check” and the anticipated impact of the 2008 bioenergy development strategy are significant drivers for fertilizer consumption in the coming 10 years, but the recent tensions in the energy and food sectors and their related impact on food and fertilizer prices, as well as some consequences of the current economic crisis, have been the key factors which have induced a drop in fertilizer consumption during last two campaigns. These exceptional circumstances have to be carefully considered in the current forecast edition.

Bioenergy and biofuels

It is expected that first generation of biofuels will still dominate during coming decade: cereal grains for the production of bio-ethanol will increase three-fold between 2008 and 2015, with a reduction in exports providing a significant proportion of this grain, and sugar beet will provide the other main feedstock for bio-ethanol. On the other hand, due to agronomic constraints, a deceleration of the expansion of the oil seed area is now foreseen.

Forest thinning and second generation biofuel feedstocks will probably become more significant over the period of the forecast, but are unlikely to affect cropping areas and fertilizer use. Specific biomass crops grown for bioenergy, such as miscanthus and willow, will have to compete with arable crops for land other than the most marginal, but with the removal of set aside and an improvement in grain prices, the true profitability of these crops may not be as attractive to farmers as originally thought.

Sustainable consumption and production of food

This aspect will develop very quickly during the first 5 years of the forecast period, in two directions:

- Development and communication to consumers of sustainability criteria similar to the ones developed for biofuels, especially GHG and energy consumption. This may have a negative impact on the consumption of certain types of meat.
- Linked to the above part, incentive for changing human diet within the EU, with the objective of better use of natural resources.

NITROGEN, PHOSPHORUS AND POTASSIUM ARE THE THREE MAIN NUTRIENTS OF PLANTS

Mineral fertilizers are made from naturally occurring raw materials which have been transformed into a more plant-available form by industrial processing.

- Nitrogen (N), taken 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 key to energy transfer.
- Potassium (K), extracted from mined ores, has an important role in plant metabolism, for photosynthesis, activation of enzymes, osmoregulation, etc.
Today, European agriculture produces more crops with less nitrogen fertilizer than 20 years ago.
AGRICULTURE, FERTILIZERS AND ENVIRONMENTAL PROTECTION

INTEGRATED APPROACH OF ENVIRONMENTAL IMPACT ASSESSMENT

Two directions of integration have to be carefully considered to achieve a true reliable environmental impact assessment of fertilizers:

Vertical integration: Life-cycle perspective

Different fertilizers have different environmental impacts, as can be seen from the comparison between the production and use of urea and CAN (Calcium Ammonium Nitrate). Urea is the most important straight nitrogen fertilizer globally and its use is increasing in Europe.

Most of the increase in world consumption of nitrogen over the past 30 years has been in the form of urea, whose higher nitrogen concentration can reduce distribution, storage and handling costs per unit of nutrient. Its share in developing countries represents 67% of total nitrogen consumption, compared with only 16% in western Europe.

The dominance of urea in many countries, however, is often due more to logistics and economics rather than to agronomic suitability and environmental impact. From an environmental perspective, although urea production has a lower environmental footprint than that of nitrate fertilizers, when soil emissions related to its application are included in the equation, the picture is reversed. This demonstrates the importance of a complete life-cycle perspective when looking at the environmental impact of different fertilizers.

Horizontal integration:

The integrated approach to nitrogen management, as proposed and developed in several projects at EU and UN level which consider the whole nitrogen cycle, will bring new constraints on certain causes of nitrogen loss, especially in the animal sector; this will also offer more opportunities to consider the interactions between measures applied in different environmental compartments and loss pathways.

The above two approaches will certainly bring more pressure on nitrogen use, but may also limit the potential impact of new or more restrictive environmental legislation in some respect.
The mission of the European fertilizer industry is to respond to the needs of agriculture and society by providing, in accordance with the principles of Responsible Care, a reliable and competitive supply of high-quality mineral fertilizers.

The industry encourages, moreover, the adoption of Good Agricultural Practices in the use of plant nutrients, thus stimulating farmers and growers to produce high-quality crops in an economically and environmentally sound manner.

The mission of Fertilizers Europe is to identify, promote and manage the common interests of its members by:

- promoting the role of mineral fertilizers in European agriculture and horticulture;
- anticipating and preparing for upcoming issues that may affect the industry;
- being the industry’s spokesperson and sounding board;
- providing its members with a wide range of statistical information and studies.