



# Closing the loop

STEWARDS



MARO

Continuing to feed the world

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## 5 keys to unlock growth and prosperity

#### FOOD SECURITY

In partnership with farmers and the food chain, fertilizers enable the world to be fed. But for agriculture to be sustainable, it must be economically viable. The EU should ensure that policy initiatives increase Europe's contribution to feeding its population.

#### MANUFACTURING

A strong Europe needs to be based on a strong manufacturing sector. Only on this basis, can Europe afford to create a green economy. The EU should aim at generating 20% of GNP from industry.

#### ENERGY

Restoring global energy cost-competitiveness is a priority. Completion of the internal energy market and allowing the development of new energy sources within the EU can help lessen the gap.

### 4

#### **CLIMATE CHANGE**

Europe's fertilizer industry has reduced emissions by more than 50% during ETS III. Further targets should focus on avoiding carbon leakage and encouraging investment in the industry, allowing it to grow and increase production. A sector approach is needed to keep this highly performing industry and the jobs it supports in Europe.

#### INNOVATION

Innovation is the driver of any economy. Precision farming techniques based on satellite navigation and mobile apps will assist in increasing agricultural productivity. Given the right incentives, the fertilizer industry will also be able to improve its products and production processes.



# The challenges ahead

FERTILIZERS EUROPE PRESIDENT, EGIL HOGNA, OUTLINES THE MAIN CHALLENGES FACING THE EUROPEAN FERTILIZER INDUSTRY.

### What's the current outlook for the industry in Europe?

For the most part, 2013 was a solid year for the industry. Europe's farmers continue to be efficient and maintain their production using fertilizers and, as a result, figures published by Fertilizers Europe members were mostly healthy.

The outlook for fertilizers in Europe over the next ten years is primarily positive. Fertilizers Europe is forecasting a slight increase (1%) in annual nitrogen consumption. Annual consumption of phosphate and potash fertilizers is expected to grow by 6.7% and 11.8% respectively, albeit from low bases and helped by significant increases in consumption by the EU's newer member states.

As always, the industry's fortunes are highly dependent on the health of Europe's farming sector and are directly influenced by many of the challenges it faces in increasing its productivity in a sustainable way to meet growing food needs.

### How important is the industry to Europe's food security?

Last year marked the 100th anniversary of the foundation of the modern fertilizer industry in Europe. Although the industry has changed beyond all recognition since then, its primary objective remains the same - to support European farmers in their efforts to produce sufficient food crops to meet European demand.

Egil Hogna, President, Fertilizers Europe



There is also the need for the fertilizer industry worldwide to play its part in helping agriculture develop so that it can address the gap between today's food supply and the demands of a global population of more than nine billion by 2050. Half the world already relies on fertilizers for its food and this figure certainly looks set to increase.

Within the global scenario, Europe needs a strong, economically viable agricultural sector to meet its own food commitments. This is only realistic with the backing of a strong, efficient local fertilizer industry.

### How do Europe's high energy costs affect the industry?

The continuing challenge in providing European farmers with high quality fertilizers at an acceptable price is the high cost of natural gas in Europe. All fertilizer production relies on gas as a source of energy but, even more than that, it is also a vital raw material for the production of nitrogen-based fertilizers, the largest product group.

The challenge is becoming even more demanding in the light of shale gas development in the USA and continued low state-fixed gas prices in other countries. Events in Ukraine may also affect gas availability in Europe. Restoring Europe's global energy competitiveness is essential to the industry's future.

#### What about climate change?

Climate change is a serious issue, but it is also a global issue that needs to be addressed in a balanced manner. Europe cannot solve it alone. Policies which in reality call for energy-intensive industries such as ours to reduce emissions by over 70% are not sustainable.

It must be understood that the  $CO_2$ -tax comes on top of energy prices which are already 2-3 times higher than those of our global competitors. The European industry is still the most energy efficient industry in the world and the climate globally will suffer if such heavy burdens force the European industry to move abroad - AND it would take with it jobs and investment.

Since the legislation was introduced, the industry has significantly reduced its emissions. Industry programmes such as Product Stewardship have helped raise production standards to global leadership levels and ensure that the industry maintains the highest efficiency, safety and environmental performance.

The industry needs continued dialogue with policymakers and other stakeholders to ensure the conditions that make it possible for the industry to continue to flourish and be part of Europe's green economy.

#### ... and industry innovation?

Increasing Europe's agricultural productivity in a sustainable way is vital. In this respect, the industry's relationship with the farming community and food producers has steadily grown. Today we work closely with many organisations to promote practical, precision farming techniques and to encourage the best agricultural practice across Europe.

As part of this effort, Fertilizers Europe's DAN initiative highlights the qualities of ammonium nitrate fertilizers and their environmental and agronomic benefits for Europe's farmers.

Over the past two years the industry has seen significant structural change. Companies have merged and production facilities changed hands. This demonstrates that the European fertilizer industry is actively lining up to meet the challenges of the next few years.





# Following the **fertilizer curve**

### JACOB HANSEN, DIRECTOR GENERAL OF FERTILIZERS EUROPE, SUMMARIZES THE ASSOCIATION'S ACTIVITIES SUPPORTING THE INDUSTRY.

### What guides Fertilizers Europe's activities on behalf of the industry?

Our activities are shaped by our vision of infinite fertilizers. This is based on the industry's view that it has the responsibility not only to account for the quality, safety, security and environmental impact of our fertilizers during their production and distribution, but also to actively promote their efficient use by Europe's farmers so that, in turn, they produce both the quantity and quality of crops required by Europe's food producers.

This requires the industry to consider the interests of all the food production chains and cooperate increasingly closely with each of the players in them. We call this closing the fertilizer loop.

### So what do you see as the association's main role?

We represent the major manufacturers of nitrogen, phosphate and potash fertilizers in Europe as well as eight national fertilizer associations, so we are in a strong position to ensure that our industry standards are the highest and to facilitate dialogue between our members and the various players in the fertilizer chain. Fertilizers Europe's Product Stewardship program, for example, encompasses the industry's aspirations for efficient, safe and environmentally-friendly fertilizer production and the effective use of our raw materials, most of which are imported. The program's standards are recognised as being among the highest globally and it is compulsory for all our members. An independent audit of our members will be carried out in 2014.

Our advice and statistics are widely drawn upon not only by our members but also by the European institutions and other international bodies when forming agricultural and industrial policy. We also offer an increasingly wide variety of scientifically-backed information on agricultural best practice and fertilizer use for Europe's farmers, food producers and other interested groups.

Events such as our "Forum on Fertilizers and Nutrients for Growth" in the European Parliament have provided the opportunity for informal dialogue and debate between MEPs, the European Commission, scientists and others on important issues like climate change and industry innovation. Our workshop on de-cadmiation attracted 70 key players from knowledge institutes, the European Commission, regulatory authorities and the fertilizer industry, providing valuable insight into the latest scientific data on cadmium levels in agriculture and the most recent de-cadmiation technologies.

#### How about your links with farmers?

As the customers for fertilizers, our relationship with Europe's farming communities is naturally of the utmost importance. We work closely with the European Farmers' Union COPA-COGECA through meetings and seminars.

The main thrust of our activities here have been based on our concept of 'nutrient stewardship' within infinite fertilizers. We encourage sustainable agriculture through promotion of the best agricultural practice and by increasing farmers' knowledge of the correct selection and use of our products and the adoption of the latest application technology.

Our DAN campaign, promoting the use of directly available nitrogen fertilizers, continues to spearhead these activities, covering subject such as air quality, crop productivity and climate change.



Life-cycle analysis of emissions from fertilizer use is an important input into assessing the overall environmental footprint of agriculture. As a founding member of the

Cool Farm Institute, Fertilizers Europe has been active in promoting the benefits of the Cool Farm Tool. This tool enables farmers to immediately assess greenhouse gas emissions from their production and food companies to evaluate and reduce emissions in their supply chain.

Combined with our own carbon footprint calculator for fertilizer production, the Cool Farm Tool provides an important tool in efforts to mitigate climate change and reduce the impact of European agriculture.

The reduction of waste and the recycling of nutrients from non-renewable resources such as phosphates are also becoming increasingly important. Our phosphate recycling workshop in February 2014 looked at available phosphorusrich waste streams and highlighted the latest recycling technologies.



#### How do you manage all these activities?

Our expansion into all areas of the food production chain would not be possible without the active engagement of our members. Without their support, we could not play such an effective role.

I would particularly like to thank our Board for their dedication and guidance over the past year. I would also like to mention the solid efforts of Fertilizers Europe staff, more about which can be found later in this report.

2013 has been a highly successful year and if anyone ever doubted the need for an association like ours, I am very proud to say that in 2013 we also celebrated our 25th anniversary.





# Infinite **fertilizers**

FERTILIZERS ARE AN INTEGRAL PART OF FOOD PRODUCTION. THE EUROPEAN FERTILIZER INDUSTRY IS COMMITTED TO COLLABORATING WITH ALL THOSE INVOLVED IN FOOD PRODUCTION CHAINS TO INCREASE THE EFFICIENT USE OF NUTRIENTS AND REDUCE THE CARBON FOOTPRINT OF FOOD PRODUCTION.







# Why we need **fertilizers**

### GLOBAL FOOD PRODUCTION MUST INCREASE SIGNIFICANTLY TO ENSURE FOOD SECURITY.

he FAO predicts that the world's population will reach 9.1 billion people by 2050. Food production will have to increase by some 70% above today's levels to keep pace with demand.

This increase in food production could be achieved by developing more land for agriculture. However, the negative impact on climate change and global bio-diversity of converting natural forests or other wild habitats is well documented. Changes in land use account for some 12% of all the greenhouse gas emissions that lead to global warming.

After almost doubling over the past 50 years, the world population is set to reach 9.1 billion people by 2050.

#### Increased agricultural efficiency

A more practical option is to make better use of the land currently devoted to agriculture, although this also faces some challenges. The world's agricultural area is actually shrinking due to increasing urbanisation, soil erosion and nutrient exhaustion and an alarming number of regions are now affected by water scarcity.

Furthermore, since the impressive growth in crop production during the "green revolution" of the 1960s and 1970s, growth in agricultural productivity has now started to decline in many regions. Recent climate change studies predict that this decline will accelerate.

Global food security rests on reversing this trend. This requires better agricultural efficiency, more targeted crop fertilization and the adoption of modern crop science.



#### European self-sufficiency

Europe is fortunate in that it has a climate and enough farmland to be potentially self-sufficient in food production. Its food imports, however, have increased by some 40% over the last 10 years. An agricultural area, outside of Europe, the size of Germany is now devoted to supplying these. Given increasing global food needs, this land could be better used to support demand elsewhere.

Europe's agricultural policy has a decisive role in ensuring that it maintains a strong and diverse agricultural sector. It must encourage European farmers to optimize their production and, at the same time, reduce the environmental impact of their operations. This "sustainable intensification" of European agriculture requires widespread adoption of the best agricultural practice and the latest cultivation and soil management techniques.

#### Ensuring economic viability

To enable the necessary measures to be adopted by Europe's farming communities, European agriculture must be economically viable. If Europe's farmers are not profitable in the face of ever increasing input costs, they will be unwilling to invest in modernizing their operations.

Fertilizers are an integral part of the global food production chain. Their contribution has enabled European agricultural productivity to become the highest in the world. Every euro invested in a fertilizer in Europe provides, on average, a five-fold return, assuring European farmers' financial independence and increased agricultural production. Europe's agricultural policy has a decisive role in ensuring that it maintains a strong and diverse agricultural sector.





# How fertilizers are made

### FERTILIZER MANUFACTURE TRANSFORMS NATURALLY OCCURRING RAW MATERIALS INTO PRACTICAL PRODUCTS TO SUPPORT PLANT LIFE.

ach year, the European fertilizer industry transforms millions of tons of air, natural gas and mined ores into products based on the three essential plant nutrients nitrogen, phosphorus and potassium.

For nitrogen-based fertilizers, the largest product group, the process starts by mixing nitrogen from the air with hydrogen from natural gas at high temperature and pressure to create ammonia. Approximately 60% of the natural gas is used as raw material, with the remainder employed to power the synthesis process.

The ammonia is used to make nitric acid, with which it is then mixed to produce nitrate fertilizers such as ammonium nitrate (AN). Ammonia may also be mixed with liquid carbon dioxide to create urea. Both these products can be further mixed together with water to form UAN (ureaammonium nitrate) solution.

Phosphorus and potassium-based fertilizers are both produced from mined ores. Phosphate rock is primarily treated with sulphuric acid to produce phosphoric acid, which is either concentrated or mixed with ammonia to make a range of phosphate  $(P_2O_z)$  fertilizers.





FOR AMMONIA PLANTS WORLDWIDE (REGIONAL AVERAGES, 2011)

# is the best in the world.

Potash ores are usually rich in both potassium and sodium chloride. Typically, the ore is dissolved in hot water and the sodium chloride separated out, before the resulting muriate of potash fertilizer is concentrated by evaporation. This may then be further treated with nitric or sulphuric acid to produce nitrate or sulphate of potash fertilizers.

#### Environmental efficiency

While the basic ammonia synthesis process (Haber-Bosch) has remained unchanged since its invention 100 years ago, the equipment, control systems and skills have changed dramatically. Today, the European fertilizer industry's ammonia plants are the most energy efficient worldwide and its nitric acid plants are equipped with advanced greenhouse gas (GHG) emissions reduction technology.

Europe's strict environmental legislation means that the fertilizer industry has invested steadily to reduce its emissions of GHGs by more than 50% since the introduction of the emissions trading scheme. Further environmental targets should now focus on encouraging investment in the industry and avoiding carbon leakage.

#### Industry competitiveness

While deposits of natural gas, phosphate and potash rock are all relatively abundant globally, they can only be

found to a very limited extent within Europe. The European fertilizer industry is therefore highly dependent on the quality and availability of imported raw materials.

This challenges the industry to be highly efficient in its raw material use but also makes it vulnerable to the supply and pricing policies of countries outside Europe. In particular, the high price of gas in Europe makes it very difficult for the industry to remain cost-competitive in a global market. Restoring Europe's energy cost-competitiveness is a priority for fertilizer industry profitability, as well as for safeguarding jobs.

#### Product stewardship

The industry's aspirations for efficient, safe and environmentally-friendly fertilizer production has led Fertilizers Europe to develop an industry-wide management system to ensure its advanced production controls are consolidated and maintained. Its Product Stewardship program (www.productstewardship.eu) is compulsory for all Fertilizers Europe members and sets the highest global standards for programmes of this type.

The program also ensures that the industry oversees the transport, distribution and storage of its products, working closely with the supply chain to ensure the secure handling of fertilizers on their way to Europe's farmers.



Restoring energy cost competitiveness is a priority for industry in Europe.





# How fertilizers WOrk

### EFFECTIVE CROP NUTRITION IS THE KEY TO INCREASING CROP YIELDS AND MAXIMIZING PRODUCTION.

rop nutrition requires sunlight, water and a balanced supply of the primary nutrients nitrogen, phosphorus and potassium that support a plant's essential metabolic functions and enable it to grow.

The sun's energy combines with water and the nutrients, which are primarily absorbed from the soil via the plant's root system, to allow it to develop to its full potential and provide the maximum nutritional value. When the plant is harvested, the nutrients it has absorbed are therefore lost from the soil.

Unless the nutrients are replenished, the soil's productive capacity declines. Natural processes that break down crop residues and organic matter replace about half of the nutrients in the soil but the remainder needs to be provided by fertilizers and other organic sources such as manure.

#### MINERAL FERTILIZERS CLOSE THE GAP BETWEEN THE NUTRIENT SUPPLY FROM THE SOIL AND ORGANIC SOURCES AND THE DEMAND FOR OPTIMUM CROP DEVELOPMENT

#### Supply of crop residues and organic fertilizer Mineral fertilizers NPK harvest Organic substances humus (crop residues Κ Ρ are decomposed to minerals) S Ca Mg mineralisation

#### Predictable nutrient supply

The main fertilizers are based on one or more of the essential nutrients, which are delivered in a form that can be readily assimilated by the plant. They enable farmers to offer a specific crop a predictable, balanced nutrient supply, as well as important secondary elements, such as calcium, magnesium and sulphur, and other micronutrients. The nutrient content of manures and other organic sources are far less predictable.

Effective fertilization programmes aim to closely balance the composition and availability of the nutrients in the soil with a plant's changing requirements over its growth cycle. Targeted application maximizes plant nutrient uptake and ensures healthy and productive growth. It also minimizes nutrient losses from the soil, either to the atmosphere or waterways.

> The nutrients in the soil absorbed by a crop need to be replenished after it is harvested.

Export of nutrients with the harvest

#### Main fertilizer types

Nitrogen-based fertilizers account for the majority of fertilizer use (67% of total consumption in Europe).

Most European farmers find DAN Directly Available Nitrogen fertilizers, such as ammonium nitrate (AN) and calcium ammonium nitrate (CAN), to be the most effective sources of crop nitrogen with European climatic conditions. By jointly combining ammonium and nitrate, the two forms of reactive nitrogen most readily absorbed by the plant roots, they offer the highest nitrogen-use efficiency.

Other nitrogen fertilizers, such as urea and ureaammonium nitrate solution (UAN), are also available in Europe and are widely used in other parts of the world, most notably in the USA and South America. However, nitrogen losses to the atmosphere can occur when these fertilizers are progressively transformed into the nitrate form in the soil. This increases field emissions of greenhouse gases and also reduces their nitrogen-use efficiency.

Phosphate and potash-based fertilizers provide crops with essential phosphorus and potassium to balance the nutrient supply. They respectively account for some 16% and 17% of European fertilizer consumption and are often applied in combination with nitrogen fertilizers.



Directly Available Nitrogen fertilizers offer European farmers the highest nitrogen-use efficiency.



# How fertilizers are used

#### THE CORRECT USE AND APPLICATION OF FERTILIZERS ARE KEY TO SUSTAINABLE AGRICULTURE AND EUROPE'S FOOD SECURITY.



ustainable agriculture relies on providing the necessary growing conditions for optimal crop production over the long term. It requires Europe's farmers to adopt the best agricultural practice to optimize crop yields and reduce the environmental impact of agriculture. Fertilizer selection and use are an integral part of this process.

Agricultural experts, legislators and providers of agricultural inputs all have a role to play in ensuring the availability of suitable fertilizers and in promoting good agricultural practice. The European fertilizer industry plays an active role in explaining the specific attributes of its products and in the development of advanced farm management strategies.

Techniques such as crop rotation, minimum tillage and cover crops can help maintain the structure and nutritional quality of the soil, while the basic rule of thumb for the correct selection and application of fertilizers is given by the right product, at the right place, at the right rate, at the right time.

#### Product innovation

Modern fertilizer products are increasingly tailor-made to meet specific crop requirements and cater for different locations and soil types, as well as for the different weather conditions encountered in Europe.

Best practice in fertilizer application takes advantage of these characteristics to optimize nutrient-use efficiency. Modern application machinery is often equipped with satellite technology such as GPS soil and biomass mapping, which can define nutrient demand down to within a few metres on a particular field.

Smart sensors enable highly targeted application patterns, with small coefficients of variation, improving crop productivity and greatly reducing nutrient losses.



While investment in the very latest farm equipment takes time to become a reality, the fertilizer industry continues to focus on developing practical tools, including GSMbased mobile applications, for improving on-farm nutrient management.

Over the years, it has also built up a comprehensive range of information for farmers that addresses the issues of productivity, energy efficiency and the management of emissions.

#### Climate change: reducing emissions

Recent climate change predictions and the EU's continued focus on the environment mean that reducing both atmospheric and water-borne emissions from agriculture remains a priority.

Atmospheric emissions include the GHGs methane and nitrous oxide (N<sub>2</sub>O), as well as ammonia, which can directly affect human health and also cause soil acidification and the eutrophication of waterways. They primarily result from livestock production, organic sources of nitrogen and the application of certain types of fertilizer.

Mitigation measures include a variety of techniques that include low-nitrogen feeds and low-emission housing for livestock, covered slurry storage and more targeted application of slurry and solid manures, as well as the recommendations for fertilizers as outlined in the Gothenberg protocol and the EU Air Quality package.

Leaching of nitrate or phosphate in the soil to waterways can also lead to their eutrophication and excessive algal growth. Leaching usually occurs when the soil is saturated with water and the nutrients are washed beyond the plant

New technology helps farmers produce more crops and reduce greenhouse gas emisions.

root zone. As most losses occur outside the cropping period, good agricultural practice aims to minimize excess concentrations in the soil at the end of this period.

For winter cereals, application of nitrogen fertilizer at the economic optimum rate has been shown to not only to maximize nutrient-use efficiency and crop productivity but also to significantly decrease excess nitrate concentrations in the soil after the harvest.

Other agricultural practices to limit soil erosion and nutrient run-off include maintaining a porous soil structure, immobilizing residual nitrogen and phosphorus with catch-and-cover crops, and the synchronization of fertilizer application with crop growth cycles. More ecologically appropriate application methods for spreading manure, such as soil injection, can also have a significant impact.

#### Carbon footprint of fertilizers



European farmers can now use the 'Cool Farm Tool' carbon footprint calculator application to check the overall environmental impact of their operations.

With the availability of new fertilizers that limit soil emissions, the main focus of current GHG mitigation efforts is on the promotion of nitrogen-use efficiency. This has increased by 45% in Europe since 1985, but there still is further scope for improvement.





#### Nutrient use and recycling

Recent attention has focused on "closing the fertilizer loop" through the more effective use of on-farm waste and nutrient recycling strategies. These primarily involve recycling crop waste through composting, anaerobic digestion of manure for energy or fuel generation, and its more efficient use within the overall fertilization strategy.

On an industrial scale, incineration of poultry waste for energy generation, with the resulting ash being recycled as a fertilizer, has been successful in several regions. Research continues into other viable nutrient recycling schemes. Combined with better nutrient-use efficiency, these can lead to major improvements in overall resource use.

#### **Product innovation**

European fertilizer producers are continuously improving their products and processes based on feedback from farmers and exploring possibilities that open up within the food production chain. The focus is on new fertilizer compositions and structures, as well as application technology, to enable more efficient crop nutrition.

Products are increasingly being targeted at specific crops, offering a variety of release profiles and taking into account increasingly limited resources like water.

In line with its vision of infinite fertilizers, Fertilizers Europe cooperates closely with farmers' organizations and other players within the food production chain to develop a coherent approach to Europe's agricultural, environmental and economic challenges and to advance best agricultural practice within the farming community.

New fertilizers and application technologies such as fertigation are increasingly targeted at specific crops to make the most productive use of resources.



# Fertilizers Europe structure and operation

fertilizers 2013 19



# Fertilizers Europe members

#### FERTILIZERS EUROPE REPRESENTS EUROPE'S MAJOR MANUFACTURERS OF NITROGEN. PHOSPHATE AND POTASH FERTILIZERS AS WELL AS NATIONAL FERTILIZER ASSOCIATIONS.



# Fertilizers Europe board

#### THE FERTILIZERS EUROPE BOARD IS ELECTED BY ITS GENERAL ASSEMBLY AND OVERSEES THE VARIETY OF ACTIVITIES UNDERTAKEN BY THE ASSOCIATION.











































## Fertilizers Europe Structure

FERTILIZERS EUROPE'S BUSINESS IS PRINCIPALLY CARRIED OUT BY FOUR COMMITTEES AND VARIOUS WORKING GROUPS AND TASK FORCES.THEY ARE SUPPORTED BY A SMALL, PROFESSIONAL SECRETARIAT IN BRUSSELS WHO, TOGETHER WITH THE COMMITTEE CHAIRMEN AND VICE-CHAIRMEN, MANAGE THE ASSOCIATION'S DAY-TO-DAY ACTIVITIES AND ACT AS ITS MAIN INTERFACE WITH STAKEHOLDERS.



Fertilizers Europe's communications and advocacy activities operate across its committee structure to achieve internal synergy and to make the most efficient use of common information and ideas in addressing broad-based issues with EU institutions and the food production chain.

## Fertilizers Europe team





**Charlotte Prestini** Web & Communications Officer



& Advocacy



Agriculture

Jacob Hansen Director General

Ermis F

Ermis Panagiotopoulos Agriculture & Environment Policy Officer Christian Pallière Agriculture & Environment Director



Technical Analyst

**Gábor Marton** Data & Statistics Analyst



Antoine Hoxha

Technical Director







**Sean Mackle** Trade & Economic Director

Carmen Turcu Trade & Business Analyst



Michał Wendołowski Statistics Manager



Jenny Wahlman Office Manager

Patricia Everaert Senior Secretary



# Fertilizers Europe principal activities 2013



### **Statistics**

Chairman: Mihai Anitei, Azomures Vice-Chairman: Andrzej Skolmowski, Grupa Azoty

Manager: Michał Wendołowski Analyst: Gábor Marton

#### THE STATISTICS COMMITTEE HAS CONTINUED TO FOCUS ON FACILITATING FERTILIZERS EUROPE MEMBERS' ACCESS TO RELIABLE INDUSTRY INFORMATION TO SUPPORT THEIR FORECASTING AND BENCHMARKING ACTIVITIES.

he committee's principal activities during 2013 were directed at upgrading the Fertilizers Europe database, which allows members to monitor EU fertilizer trade and consumption data. All Fertilizers Europe statistics are produced in strict compliance with European competition law.

The committee also continued to support other Fertilizers Europe activities, contributing the most recent fertilizer consumption figures to its annual ten-year "Forecast of Food, Farming and Fertilizer use in the European Union" and providing data to support its trade defence cases.

#### Industry statistics

Industry statistics were distributed to Fertilizers Europe members throughout the year. Regular publications include figures relating to European fertilizer consumption, plant capacities, production, deliveries, exports and imports, as well as the "Membership Profile" highlighting industry turnover, investment and employment.

In addition, the committee produced its annual Fertilizers Europe survey of members' production costs, covering the main fertilizer products. This survey identifies trends within the industry as a whole and serves as a benchmarking tool for members. The annual meeting of the full Statistics Committee in Madrid in November gave members the opportunity to review the activities undertaken during 2013 and discuss forthcoming projects. During 2014, the committee will continue to work towards further increasing the accuracy and timely delivery of its industry data.

#### Fertilizer trade

At 2.7 million tonnes, European (EU-28) imports of nitrogen fertilizers in 2012/2013 increased by 0.4 million tonnes over the previous year. These accounted for 21% of total European nitogen fertilizer consumption, compared to 19% in 2011/2012.

#### Nitrogen fertilizer trade balance (million tonnes of N)

	2011/2012	2012/2013	% change
Import to EU-28	2.3	2.7	17%
Export from EU-28	2.0	1.9	-7%

#### Nitrogen fertilizer consumption in EU-28 (million tonnes of N)

	2011/2012	2012/2013	% change
Agricultural use	10.5	11.0	5%
Technical use	1.7	1.7	2%







## Trade & Economic

Chairman: Ted Misiunas, Achema Vice-Chairman: Ken Hayes, GrowHow Vice-Chairman: Jean-Paul Beens, Yara Director: Sean Mackle Analyst: Carmen Turcu

THE COMBINATION OF EUROPEAN AND INTERNATIONAL FERTILIZER MARKETS MOVING INTO THE DOWNWARD PHASE OF THE BUSINESS CYCLE TOGETHER WITH THE EU'S DESIRE TO START UP OR CONCLUDE MAJOR FREE TRADE AREAS MEANT AN ESPECIALLY ACTIVE YEAR FOR THE TRADE AND ECONOMIC COMMITTEE.

rade controls and trade sanctions also reached new prominence on the external and internal trading scene. The year started with toughening sanctions on Iran and ended with them being softened, only for sanctions on Ukraine and Russia to move up the agenda in early 2014.

The EU's new 2030 strategy for the Internal Energy Market (the single market) was characterized by a welcome new emphasis on international competitiveness.

Nevertheless, the reality emerged that the EU's climate change package was still the political priority, while its solutions for energy competitiveness remained unchanged - full implementation of the 3rd Energy Package, more interconnections and infrastructure, and the development of gas hubs throughout Europe - eventually even in Turkey and Ukraine.

#### Trade defence

2013 was again dominated by ammonium nitrate (AN) anti-dumping proceedings. The stand-out factor for the fertilizer business was the opening of the EU's anti-dumping AN sunset review in July 2013 and Russia's subsequent WTO consultation request in January this year (2014) for dispute settlement on the EU's basic anti-dumping regulation and its "gas adjustment".

Pleading that the gas adjustment used in this case in the dumping margin is unjustified, Russia hopes that its local domestic



fertilizer prices will be used in any future anti-dumping proceedings. Currently, the EU (strongly backed by a Luxemburg Court ruling in February 2013) maintains that the artificially low gas price for Russian fertilizer manufacturers, which impacts Russian domestic fertilizer pricing, results in a nonmarket distortion that should be corrected by using the price of Russian gas at Waidhaus on the German/Czech border.

As Germany is by far the largest EU domestic market for Russian gas, this market benchmark is considered an appropriate replacement for the state-fixed Russian gas price.

The EU sunset investigation and proceedings are set to end in October 2014, using the current well established calculations and rules for the gas adjustment. Up to now, Russia has not made a formal complaint at the WTO and these consultations continue. However, it now seems likely that a full Russian WTO complaint is awaiting the outcome of the EU proceedings.

#### Other potential disputes

Fertilizers Europe and the European Commission also continued to press for Russia's full compliance with its commitment in the WTO Accession Treaty to price its domestic gas to cover the "full costs of production, a normal profit, and an allocation for future investments". Russia's noncompliance with this commitment may well lead to an EU complaint at the WTO's dispute settlement panel.

#### Free trade areas

#### EU-Ukraine Partnership & Cooperation Agreement

The EU political event of the past year has been the rejection by Ukraine's President at the Vilnius Summit in November 2013 of the EU-Ukraine Partnership and Cooperation Agreement II (PCA II), which contains a Deep and Comprehensive Free Trade Area Agreement (DCFTA).

Equally important for natural gas-based fertilizer industries in the EU and Ukraine is the landmark energy chapter, outlawing statefixed and dual gas pricing.

For the EU, the current end result of the Ukraine-Russia crisis has turned out to be the almost immediate autonomous reduction in April 2014 in EU tariffs to assist Ukraine and the likely conclusion of PCA II by November 2014. Fortunately for the European fertilizer industry, the EU has recognized the sensitivity of fertilizer tariffs and most of these are on a slow 7 year, yearly reduction schedule.

#### Trans-Atlantic Trade & Investment Partnership (TTIP)

Adoption of the TTIP between Europe and the USA, potentially creating an enormous free trade area between the world's two largest economies, accelerated over the year, with up to four rounds of negotiations completed by March 2014.

Fertilizers Europe was invited to present its views on the energy chapter at the joint USTR-EC civil society consultation in March 2014. In parallel with measures seeking to secure American LNG exports to the EU, the European fertilizer industry requested sensitive status for tariffs on UAN and urea fertilizers.

Such is the size and complexity of the TTIP that it is now unlikely that the FTA will be finalised within the current Obama Presidency.

Nevertheless, as both the EU and the USA recognize the challenge of state capitalism arising in Russia, China and elsewhere, there is growing support for an agreement which reflects the standard liberal economic system.



#### Other EU free trade areas

At the Vilnius summit in November, Moldova and Georgia signed off on formalizing a full treaty with the EU by August 2014. It is notable that Russia has expressed considerably less concern over these FTAs than with Ukraine. Other FTAs on course for completion in 2014 include Canada.

#### Single gas market

One of the Fertilizers Europe Gas Working Group's highlights in 2013 was its first formal meeting with ACER (the European Agency for the Cooperation of Energy Regulators) in June. This relatively new Agency, created as part of the 3rd Energy Package, is a principal player in the completion of the EU Internal Energy Market.

Another highlight was Fertilizers Europe's presentation to the European Energy Forum, a 50-strong audience including 15 MEPs, on the necessary conditions for a competitive gas supply for the European fertilizer industry and European agriculture.

The EU's 2030 Energy & Climate Change strategy, however, emerged as more to do with the 40% reduction in greenhouse gases under the forthcoming international Paris treaty due for agreement at the end of 2015. The gas and energy challenges for the EU fertilizer industry therefore remain considerable.

Conversely, new impetus for a more diversified and competitive gas supply took hold over the year, as difficulties arising from the Ukraine-Russia crisis refocused political attention.

Europe now seems set on a full course towards alternative and diversified gas supplies. Short term, there are already new LNG terminals planned in France, Poland and Lithuania, while Croatian and other Mediterranean terminals are being considered in the medium term.

There is also a realization that local indigenous sources of gas in Cyprus, the North Sea and wherever shale gas can be found will need to be commercialized if Europe is to fully achieve a secure and competitive supply of natural gas.







## Technical

Chairman: István Blazsek, Nitrogénmüvek Vice-Chairman: Radomir Věk, Lovochemie

Director: Antoine Hoxha Analyst: Laetitia Six

#### THE TECHNICAL COMMITTEE'S WORK HAS INCLUDED MAJOR INITIATIVES UNDER THE BANNER OF PRODUCT STEWARDSHIP, AS WELL AS IN THE AREAS OF NEW FERTILIZER REGULATION AND CLIMATE CHANGE.

#### **Product Stewardship**

The Fertilizers Europe Product Stewardship program has been the umbrella for the industry's environmental, safety and security initiatives for more than 10 years.

The program is recognised by the International Fertilizer Association (IFA) as operating at the highest global level and, on the international side, it has agreed to take the security measures defined in the program as the model for IFA's own Product Stewardship "Protect and Sustain" program.

All Fertilizers Europe members are being audited in 2014 under the Fertilizers Europe program, with new Product Stewardship certificates awarded to members that qualify. In view of the forthcoming audits, during 2013 the Committee organised a dedicated training session on the specifics of the program.

#### Safety

Since 1997, the Fertilizers Europe Safety Seminar has provided a regular platform for members to freely discuss safety issues and related subjects and to exchange experience.

The 2014 Safety Seminar was held in Vienna, Austria, in April and was combined with a plant visit to the Borealis plant at Linz. This event attracted a total of 58 participants.

The Fertilizers Europe database now holds more than 800 safety incidents that have taken place since 1920. The database is a very useful on-line tool for member companies and the safety recommendations provided in the accident reports serve as a learning tools.

#### Security

Fertilizers Europe closely monitors developments in Europe and internationally relating to the malicious misuse of fertilizers. It has closely collaborated with the European Commission in preparing guidelines for the implementation of the EU legislation on explosive precursors. Moreover, it has proactively proposed that the Commission extend the reporting of suspicious transactions to include all nitrogenous fertilizers within the entire supply chain.

Fertilizers Europe has also actively participated in several EU-funded projects aimed at reducing the threat of fertilizer misuse. In 2014, it will continue to cooperate with the Commission and other stakeholders in defining and implementing measures to further reduce the risk. It will also review and issue new versions of several of its guidance documents on the safety of fertilizers.



#### ETS and climate change

The committee has closely followed the evolution of EU Climate and Energy policy over the year, working in close cooperation with the Trade & Economic Committee.

In 2014, the European Commission will review the industry sectors at risk of carbon leakage under ETS III and it is of the utmost importance to the industry that it is recognised as being at high risk. The committee has therefore prepared a comprehensive dossier of the specific risks for our sector.

The Commission is now also laying down the foundations for ETS IV (2020-2030), so the committee will be preparing and defending a sectorial-based approach advocating a full exemption for gas used as feedstock for ammonia production.

The committee's Carbon Footprint Task Force has developed a calculator for the carbon footprint

of the production of fertilizers. This clearly demonstrates that fertilizers made in the EU have a significantly lower carbon footprint than



those originating from other parts of the world.

In 2014, the calculator will become available on-line. New features will be developed, including the calculation of reference carbon footprints for other regions.

#### New fertilizer regulation

The Technical Committee has also been actively involved, together with the Agriculture Committee, in consultations with the European Commission on preparing the new fertilizer regulation.

Fertilizers Europe favours fully harmonized legislation covering organic fertilizers, organomineral fertilizers, soil improvers, growing media and biostimulants, where the same safety, security and quality requirements are applied.



It is expected that the Commission's proposal for the new regulation will enter the legislative process in 2015. The Technical Committee will play an important role in defending the industry's position on a series of important issues, such as limits on contaminants.

#### Decadmiation workshop

Fertilizers Europe's Decadmiation Workshop was held in Brussels in October, attracting 70 key players concerned with cadmium (Cd) in fertilizers from knowledge institutes, the European Commission, national regulatory authorities and the fertilizer industry.

With the new fertilizer legislation taking form, the workshop provided valuable insight to the latest scientific data on cadmium levels in European agricultural soils and available 'de-cadmiation' technologies.



Predicted change in soil Cd in European agricultural soil after 100 years application of inorganic phosphorus fertilizers at different Cd levels. Image: Prof. Erik Smolders, KU Leuven, IFS Proceedings 724.



#### Phosphate recycling workshop

Environmental pressure has led to an increasing focus on phosphorus recycling or recovery. The committee therefore organized a phosphate recycling workshop in February 2014, which took a closer look at the available phosphorus-rich waste streams in terms of quality and quantity and also investigated recycling technologies.

Fertilizers Europe believes the fertilizer industry can play an important role in reusing these secondary phosphorus sources as a raw material for the production of high quality final products.

#### Processing at Mining and Farm Food/feed benefication fertilizer plant production use Waste Recycle In-farm cycle towards Health risks? Plant availability? high quality Innovation products

PHOSPHATE RECYCLING OPPORTUNITIES



### Agriculture

Chairman: Gerald Papst, Borealis Vice-Chairman: Valery Rogalskiy, Eurochem Director: Christian Pallière Policy Officer: Ermis Panagiotopoulos

# THE AGRICULTURE COMMITTEE HAS CLOSELY FOLLOWED THE FINAL CAP NEGOTIATIONS, AS WELL AS MAKING IMPORTANT ADVANCES IN MEASURING GHG EMISSIONS FROM AGRICULTURE AND PROMOTING THE BEST AGRICULTURAL PRACTICE.

#### Common Agricultural Policy

After almost two years of intense negotiations, in September 2013, the European Commission, Parliament and Council finalized a deal on the Common Agricultural Policy (CAP) 2014-2020.

The European Parliament formally approved the new CAP regulations in November, closely followed by member states in December. Transitional arrangements have been agreed for 2014.

In a nutshell, there will be significantly less money available (-13%) to fund CAP 2014-2020 than there has been over the past seven year period. There will be a progressive transition to a "fairer" allocation of aid payments, both among and within member states. For the first time there will also be a "greening" element in the aid payments linked to delivering specific environmental benefits.

#### Allocation of direct payments

There will be a partial redistribution of direct payment allocations among member states between 2014 and 2019. Direct payment envelopes will be progressively adjusted, so that countries with an average payment currently below 90% of the EU average will see a gradual increase in their envelope.

The difference between their current rate and that of 90% of the EU average will be closed by one-third by 2019. All member states must also reach an average rate of €196/hectare by 2020.

As part of the general move to introduce more equity into the farm payments system, all member states will move towards a uniform payment per hectare at national or regional level. This move away from a historical basis for direct aid and towards a regional basis will start in 2015.

#### Greening

30% of each farmer's support payment will be made conditional on meeting three EU-wide "greening" measures aimed at benefitting the climate and the environment. Organic producers and very small holdings will qualify automatically.

After intense negotiations, the EU institutions agreed on the three basic criteria with which farmers have to comply in order to receive the remaining 30% of their payments:

➤ Crop diversification: farmers with 15-30 hectares of arable land must cultivate at least two crops, with no crop constituting more than 75% of the total. Farmers cultivating more than 30 hectares of arable land must grow at least three crops, with the main crop covering a maximum of 75% and the two main crops a maximum of 95%.

> Permanent grassland: Farmers may convert no more than 5% of their permanent grassland to cropland, although they need not apply this limit if there is less than a 5% conversion at national level.

Ecological Focus Areas (EFAs): These will have to be established on at least 5% of a farmer's arable land area by 2015, increasing (subject to legislative review) to 7% by 2017. Holdings of less than 15 hectares, excluding permanent grassland, are exempt.

#### Our view

Fertilizers Europe believes that sustainable intensification of farming in Europe is the way to improve agricultural competitiveness, provide income stability for farmers and increase Europe's self-reliance in food production, as well as to improve its contribution to the global food supply.

Furthermore, increased productivity will ensure that no additional land is required for agriculture, safeguarding Europe's natural areas and biodiversity. Fertilizers Europe also actively encourages the promotion of integrated farming practices and fertilization based on selection of appropriate fertilizers according to crop and soil characteristics (right product, right place) and precision application techniques (right rate, right time).

#### **Emissions from agriculture**

Until recently, neither farmers nor food companies had the possibility to investigate greenhouse gas (GHG) emissions from their production or supply chains and so help mitigate climate change. Without the ability to measure these emissions, they were unable to set targets or track their progress.

#### 'Cool Farm Tool'

The 'Cool Farm Tool' (CFT) now fills this gap. It enables farmers to immediately assess the GHG emissions from their crop production and allows food companies to evaluate and reduce emissions in their supply chain.



The t ool has been tested and adopted by a range of

multinational companies who now use it to work with their suppliers to measure, manage, and reduce their GHGs. For farmers, the CFT provides instant feedback on the impact of different farm management options. The newly developed online version is simple to use but scientifically robust in the complex arena of carbon accounting. Its clean interface supports data entry and the easy interpretation of results.

The success of the CFT at this early stage relies on its key partners who are committed to addressing the challenge of climate change. The CFT team, comprising the developers and first users of the tool, have decided to create the Cool Farm Institute (CFI) to ensure its maintenance and future development.

CFI partners and members currently include the Sustainable Food Laboratory and University of Aberdeen's Agricultural College, food and drink companies Unilever, McCain, Heineken and PepsiCo, and retailers Marks & Spencer and Tesco, as well as Yara and Fertilizers Europe.

Once the CFI secures a critical mass of members, it looks set to become a significant global force in helping reduce the environmental impact of agriculture. Fertilizers Europe is committed to this mission and is an important contributor to the process.



#### Fertilizer consumption

Over the 2012/2013 growing season, 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 in Europe (EU-27).

By the 2022/23 season, Fertilizers Europe expects annual nitrogen, phosphate and potash fertilizer consumption to reach 10.6, 2.6 and 3 million tonnes respectively, applied to 133 million hectares of farmland. This implies an increase in consumption over the period of 1% for nitrogen, 6.7% for phosphate and 11.8% for potash.

The combination of a recovery in phosphate and potash consumption from recent exceptional lows and significant increases in the newer EU member states accounts for their relatively fast rates of growth.

#### DAN fertilizers Fertilizers Europe's DAN campaign, aimed at

raising awareness of the benefits of Directly Available Nitrate-based fertilizers, continued to be promoted through various European and national events. The experience so far has indicated that the campaign has gained momentum and the interest of stakeholders and officials has grown.

At a national level, many Fertilizers Europe members have organized, or co-organized, sessions at large agricultural events, where Fertilizers Europe staff have assisted by making presentations on the campaign. These activities have brought the campaign to a wider audience and the interest in the subject shown by the participants has proved the worth of the campaign.

During the year, new publications under the DAN banner included leaflets on air quality and productivity. A further publication on DAN fertilizers and climate change is planned for 2014.

### 2013 FORECAST OF FERTILIZER CONSUMPTION IN THE EUROPEAN UNION BY NUTRIENT (MILLION TONNES)







Head of Communications: Mark Cryans Web & Communications Officer: Charlotte Prestini

THE COMMUNICATIONS AND ADVOCACY FUNCTIONS ARE AT THE HEART OF FERTILIZERS EUROPE'S ACTIVITIES. WORKING WITH THE COMMITTEES, THE COMMUNICATIONS TEAM HAS UNDERTAKEN A VARIETY OF INITIATIVES AIMED AT MEMBERS AND EXTERNAL AUDIENCES INCLUDING THE EUROPEAN INSTITUTIONS AND OTHER LOCAL AND INTERNATIONAL STAKEHOLDERS.

Uring 2014, Fertilizers Europe has continued to update and expand its website and social media platforms, as well as its range of electronic and printed publications. These work together to reinforce the prominence of Fertilizers Europe's communications activities with stakeholders and play a major role in its advocacy activities with the European and other institutions.

Fertilizers Europe belives in extending its message by whatever medium stakeholders wish to receive it and it is increasingly followed on Twitter, Facebook, LinkedIn and You Tube.

The Fertilizers Europe Members Lounge has evolved steadily as the focus of communications with members and the LIFE magazine is now established as a well regarded source of regular information with them. The new Fertilizers Europe Communicators' Web has also been active throughout the year, harnessing communications and public affairs expertise from around the industry network to ensure that members deliver a comprehensive and common narrative.

#### The Fertilizer Forum

An integral part of Fertilizers Europe's advocacy work has been its "Forum on Fertilizers and Nutrients for Growth" in the European Parliament (www.fertilizersforum.com). The forum was established in 2013 to provide a platform for stakeholders to discuss all issues relevant to the fertilizer industry.

Two sessions of the forum were organized during the year, which provided the opportunity for informal dialogue and debate between MEPs, the European Commission, scientists and the





industry on the important issues of agricultural emissions and industry innovation and research. Further sessions of the forum are planned for this year.

#### **DAN** fertilizers

The DAN initiative has seen the DAN family further spreading the message of DAN fertilizers throughout Europe. Together with members, the Communications function has been at the heart of the DAN initiative and instrumental in extending the DAN message.

Two new DAN leaflets on "Productivity" and "Climate Change" have been produced. After the successful release of the first DAN video introducing the initiative, the team is now working on a follow-up.

#### Publications

As well as the specific materials for the DAN initiative, several other publications were released or updated throughout 2013 with the purpose of supporting the work of the committees.

In the agricultural domain, the yearly "Forecast of food, farming and fertilizer use in the European Union" has been redesigned and new publications "Comparison of the environmental impact of three forms of nitrogen fertilizer" and "Energy efficiency and greenhouse gas emissions" produced.

A new updated "Guidance for compatability of fertilizer blending materials" was prepared on behalf of the Technical Committee. The Trade and Economic and Statistics Committees were not left out, with numerous updates and adaptations being made to a variety of documents.

#### 25th Anniversary

Finally, 2013 marked the 25th anniversary of the foundation of Fertilizers Europe. The milestone was celebrated in appropriate fashion at the annual meeting in Vilnius in June 2013 and was attended by many of the association's past-Presidents. This celebration was followed up later in the year by a reception for Fertilizers Europe's friends in Brussels in November.









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. 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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