



25 years

MEETING  
EUROPE'S  
FOOD NEEDS

# Moving forward

SUSTAINABLE  
AGRICULTURE  
IN EUROPE

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- Half the world relies on fertilizers for its food.
- Without fertilizers, agriculture would need an additional 1,100 million hectares of farmland world-wide.
- European farmers produce more crops with less fertilizer than they did 20 years ago and lead the world in nitrogen-use efficiency.
- Every euro invested in a fertilizer in Europe provides farmers with an average five-fold return.
- Nitrogen fertilizers create six times more energy than that it takes to make, distribute and apply them.
- Increased agricultural efficiency in Europe has allowed forests to be planted over an area five times the size of Belgium.



# New challenges

This year marks the 100th anniversary of what is widely recognized as the greatest invention of all time – “the harvesting of nitrogen from the air” – and the foundation of the modern fertilizer industry. Since those early days, the industry has become safer, cleaner and more efficient in meeting the needs of European agriculture. However, it now faces new challenges

Fertilizers Europe has also come a long way since its foundation in Brussels 25 years ago. Today the association is justly recognized as the dedicated industry source of information on fertilizers in Europe and its advice and statistics are widely used by European institutions and other international bodies when forming agricultural and industrial policy.

Although the scope of Fertilizers Europe's operations may have changed over the

past quarter century, its objectives largely remain the same. There is a continued need to support and develop the industry so that it can do its part in addressing the demand and supply food gap which is required to feed a global population of more than nine billion. Today, half the world is fed thanks to fertilizers.

We continually strive to set the global standards. Programmes, such as Product Stewardship, have helped raise industry standards to global leadership level and ensure that production takes place observing of the highest standards of production efficiency, safety and environmental performance.

Our relationship with the European farming community has steadily grown closer. As part of our efforts to encourage best agricultural practice across Europe, Fertilizers Europe's DAN (Directly Available Nitrogen) initiative highlights the qualities of our products and the environmental and agronomic benefits of nitrate fertilizers for European farmers and the European climate.



Egil Hogna, President, Fertilizers Europe

The industry's fortunes are, of course, very dependent on the health of Europe's farming sector and are directly influenced by many of the challenges it faces in increasing productivity to meet growing global food and energy needs. A strong European agricultural sector relies on the backing of a strong local fertilizer industry.

For European fertilizer producers, an extremely difficult challenge remains the high price of gas, which we use as key raw material. This challenge is becoming ever more demanding in the light of shale gas development in the USA and low state-fixed prices in other countries. Adding to



## Fertilizers Europe/EFMA past-Presidents



**Eric Tønseth**  
Norsk Hydro, 1988



**Trygve Refvem**  
Norsk Hydro, 1988-1992



**Esa Tirkkonen**  
Kemira, 1992-1994



**Tom Jago**  
Irish Fertilizer Industries  
1994-1997



**Dieter Thomaschewski**  
BASF, 1997-1988



**Tauno Pihlava**  
Kemira, 1998-1999



**Jean-Louis Besson**  
GPN, 1999-2001



**Daniel Clauw**  
Yara International  
2001-2007



**Heikki Sirviö**  
Kemira GrowHow, 2007  
(Acting)



**Renso Zwiërs**  
DSM Agro/OCI Nitrogen  
2007-2011



**Francis Raatz**  
GPN, 2011-2013

this challenge is increasingly onerous industrial and environmental legislation, which many of our global competitors do not face. We need continued dialogue with policymakers and other stakeholders to ensure conditions that make it possible for the industry to continue to develop and innovate.

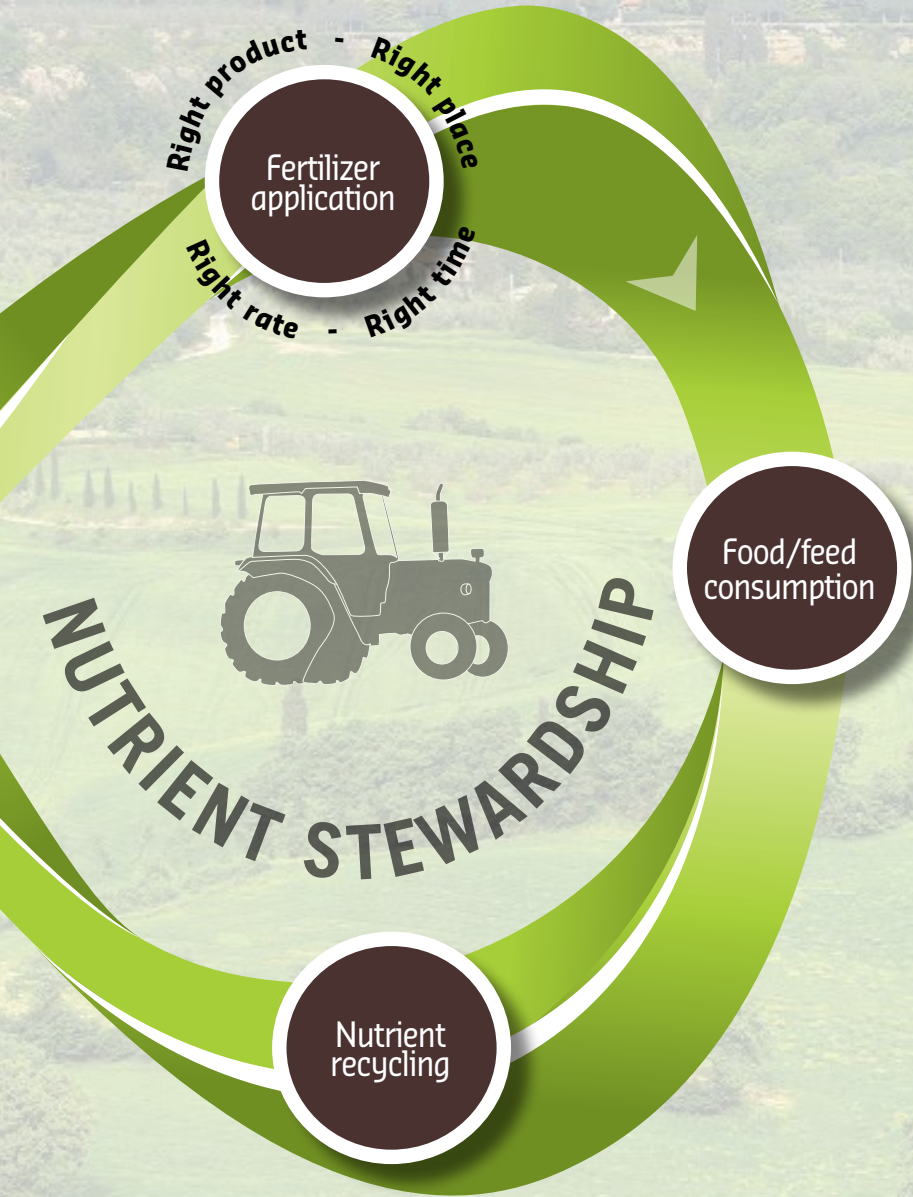
Over the past two years the industry has undergone significant structural change with companies merging and production facilities changing hands. These changes show that the fertilizer industry in Europe is preparing for the challenges of the future.

The activities of Fertilizers Europe and EFMA have been shaped by the vision of the 11 Presidents who have led the association since 1988. They have been made possible through active member participation and significant contributions from numerous delegates serving on the association's committees.

# Infinite fertilizers







## INFINITE FERTILIZERS

Continuing to feed the world

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 and application techniques to maximize the productivity and the sustainability of European agriculture. It combines active product stewardship with close collaboration with the farming community and the entire food chain to maximize nutrient-use efficiency and reduce the carbon footprint of food production.

# At the forefront of change

Our vision of infinite fertilizers is based on our belief that the European fertilizer industry has the responsibility not only to ensure the safe and efficient production of our products but also to influence how they are used to produce a varied range of healthy, high quality food for European consumers. This requires us to consider the entire food production cycle and increasingly close cooperation with all the players involved in it.

## Product Stewardship and fertilizer production

Fertilizer production operates in large numbers. The industry transforms millions of tons of air and rock into high quality plant nutrients and ultimately life on this planet. The fundamental process involves mixing the nitrogen in the air with the hydrogen in natural gas. This so-called ammonia synthesis, while invented 100 years ago, is a process that takes place under high temperature and high pressure and still pushes chemistry to the extreme.

Fertilizer production

Raw materials

Marketing & distribution

While the basic process of fertilizer production has stayed the same, the equipment, control systems and the skills needed have changed dramatically. These changes have allowed European fertilizer

producers to achieve the worlds' highest energy efficiency in production and also the lowest environmental footprint. Improvements in the production process never stop. The scale of production and the production process itself makes it necessary for the industry to focus on achieving a safe working environment with stringent rules on safety, with thorough regard for our neighbouring communities.

In order to make sure that European fertilizer producers live up to this challenge, Fertilizers Europe has developed a management system to ensure that advanced production controls are consolidated and maintained. We call this Product Stewardship. It is compulsory for members of Fertilizers Europe and audited by an independent auditor. At the same time it sets the highest industry standards globally for this type of program.

Our Product Stewardship program thus encompasses the industry aspirations for efficient, safe and environmental production.



The production part of the cycle, however, starts with our raw materials. Apart from air and natural gas, key fertilizer raw materials include phosphate and potash rock. While natural gas and phosphate and potash rock are all relatively abundant globally, they are only found to a limited extent in Europe.

The industry is therefore very dependent on imports from outside the continent. This makes it a challenge to be very efficient in the use of our raw materials.

At the same time, it is important to carefully select the highest quality raw material to attain the highest quality end product. This is especially relevant for phosphate and potash rock.





Jacob Hansen, Director General, Fertilizers Europe

Outside the plant gate, the scale of production makes it an industry responsibility to take transportation and distribution of fertilizers into account. We therefore work closely with the fertilizer supply chain to ensure the efficient and secure distribution and storage of our products on their way to Europe's farmers.

### Nutrient Stewardship and fertilizer application

Food production starts with the crop and fertilizers play a vital role in enabling farmers to replace the nutrients lost from the soil after crops are harvested.

Balanced fertilization programmes that offer a predictable supply of essential and other nutrients to meet changing crop requirements over their growth cycle ensure the most productive growth.

The main thrust of the industry's activities with farming communities across Europe has been to encourage the best agricultural practice by increasing farmers' knowledge of the correct selection and use of our products and the adoption of the latest application technology.

Our basic rule of thumb to optimise yields and minimize environmental impact is the application of the right product, at the right place, at the right rate, at the right time.

We have focused on developing practical guidelines for best practice in on-farm nutrient management for several years and have built up a comprehensive range of publications that address the issues of productivity, energy efficiency and the management of emissions.

New technology, such as GPS-based soil and biomass mapping, can now precisely define nutrient demand at field level. This enables more targeted fertilizer application with small coefficients of variation, increasing nutrient-use efficiency and limiting the risk of losses.

Other agricultural techniques such as crop rotation, minimum tillage and cover crops also help to maintain the structure and nutritional quality of the soil.



Most recently, our DAN fertilizers campaign, which explains the environmental impact of different types of nitrogen fertilizer, has been well received by farmers in 16 countries across Europe. The initiative has now been expanded to highlight the issues of air quality and productivity. More information on this can be found on the DAN website: [www.danfertilizers.com](http://www.danfertilizers.com).

This campaign is part of the response to pressure for a reduction of direct atmospheric emissions from agriculture, such as ammonia, methane and nitrous oxide. The vast majority of these results from livestock production or organic sources but the application of certain types of fertilizer also has an impact.

The main thrust of our current emission mitigation efforts is on the promotion of nutrient-use efficiency. Life-cycle analysis

of emissions from fertilizer use is an important input into assessing the carbon footprint of agriculture. Farmers can now make use of our recently launched fertilizer carbon footprint calculator in conjunction with tools such as the Sustainable Food Laboratory's Cool Farm Tool to check the overall impact of their operations.

It is widely accepted that global food production needs to increase significantly to keep pace with projected food needs. The FAO calculates an increase in agricultural production of some 70% above current levels by 2050.

Environmental pressure against further extension of the existing agricultural area means that this increase primarily needs to be provided through better productivity. Measures to reduce waste between farm and market can also help.

Europe is lucky in that it has the resources, climate and technology to produce more than enough food for its own needs. Our agricultural policy should incentivise our farmers to increase their production in a sustainable way to reduce our current dependency on food imports. The 30 million hectares of farmland outside Europe currently devoted to meeting our food needs could be more effectively used for local food production.

The "sustainable intensification" of European farming is readily achievable with more widespread adoption of best agricultural practice, use of modern crop science, precise crop nutrition and the latest cultivation and soil management techniques.

The reduction of waste and the recycling of nutrients derived from non-renewable resources are becoming increasingly important.

To date, the primary focus has been on on-farm recycling measures such as crop waste composting, anaerobic digestion of manure and the more efficient use of organic material in the overall fertilization strategy.

On an industrial scale, schemes to capture and concentrate nutrients, such as the incineration of manure with the resulting ash being recycled as a fertiliser, have been successful in several regions. Research continues into viable nutrient recycling options.



### Coming full circle with product development

European fertilizer producers continuously need to innovate and develop their products in order to take into account the experience and possibilities open along the food chain. In close cooperation with the entire food chain, producers continue to be focused on new product types and application technology to allow more efficient crop nutrition and a correspondingly lower environmental impact.

Products are increasingly being targeted at specific crops, with new technologies offering a variety of release profiles and at the same time taking account of limited resources like water.



# Fertilizers Europe today

The association's membership is made up of individual corporate members and representatives of national industry associations. It accounts for the majority of Europe's nitrogen and phosphate fertilizer producers.



**AB Achema**  
Lithuania



**Anwil SA**  
Poland



**Azomures SA**  
Romania



**BASF**  
The Chemical Company  
**BASF AG/Fertilizer  
BU Europe**  
Germany



**Borealis AG**  
Austria



**Hellenic Fertilizers  
ELFE SA**  
Greece



**Eurochem  
Antwerpen BV**  
Belgium



**Fertiberia SA**  
Spain & Portugal



**GrowHow UK Ltd**  
United Kingdom



**Grupa Azoty SA**  
Poland



**ICL Fertilizers Europe BV**  
The Netherlands



**Lovochemie as**  
Czech Republic



**Nitrogénművek Zrt**  
Hungary



**OCI Nitrogen BV**  
The Netherlands



**Petrokemija Plc**  
Croatia



**Yara International ASA**  
Belgium

## National Associations



**AIC**  
Agricultural Industries Confederation  
United Kingdom



**ANFFE**  
Asociación Nacional de Fabricantes de  
Fertilizantes, Spain



**ASSOFERTILIZZANTI**  
Associazione Nazionale Fertilizzanti, Italy



**BELFERTIL**  
Belgium



**IVA**  
Industrieverband Agrar e.V., Germany



**PIPC**  
Polish Chamber of Chemical Industry  
Poland



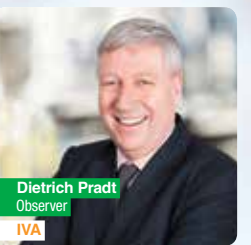
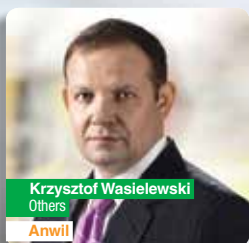
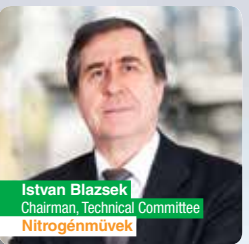
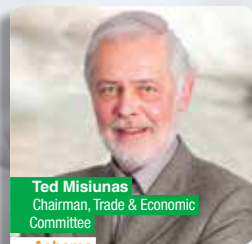
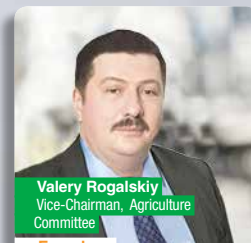
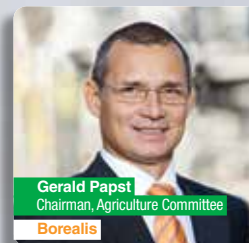
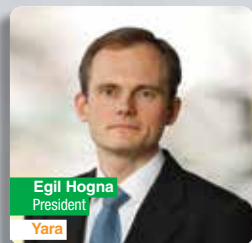
**UNIFA**  
Union des Industries de la Fertilisation  
France



**VKP**  
Vereniging van Kunstmest Producenten  
The Netherlands



# Fertilizers Europe Board



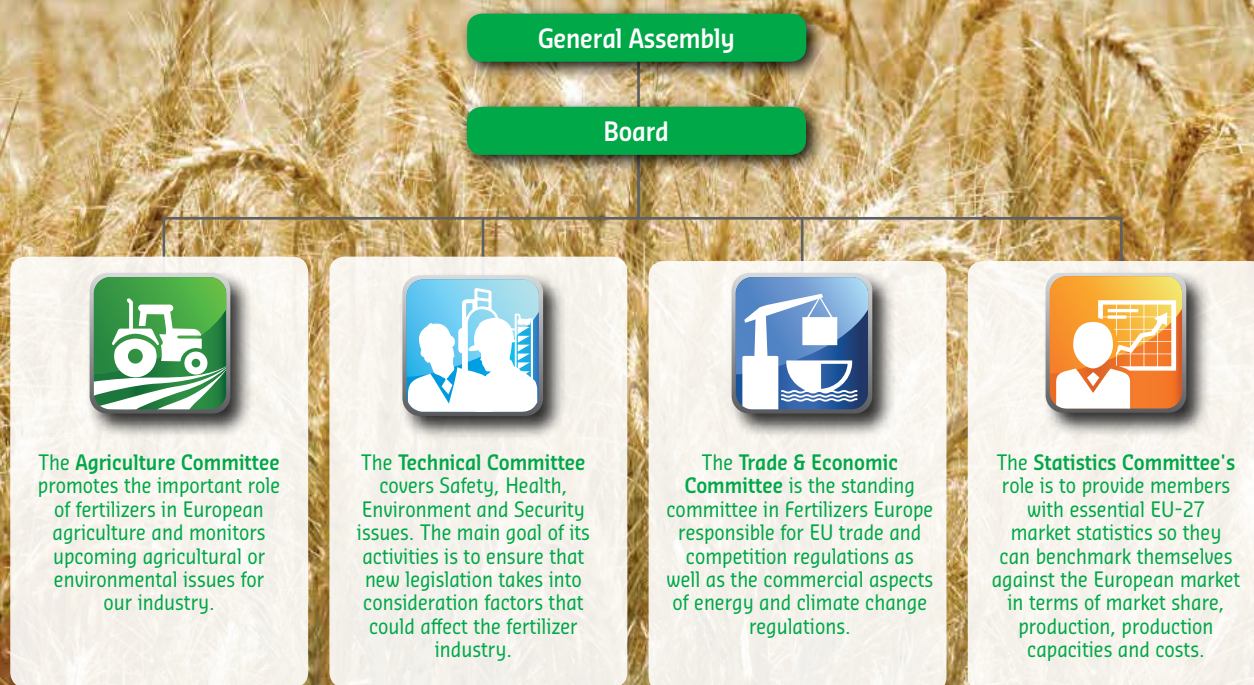
# Fertilizers Europe structure

The association's increasingly broad range of activities are governed by its General Assembly and Board and carried out through its four committees - Agriculture, Technical, Trade & Economic, and Statistics. Various working groups and task forces support the work of these committees.



## Communications & Advocacy

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



**Mark Cryans**  
Head of  
Communications

**Charlotte Prestini**  
Web & Communications  
Officer



Communications  
& Advocacy



**Jacob Hansen**  
Director General



Agriculture



**Ermis Panagiotopoulos**  
Agriculture & Environment  
Policy Officer



**Christian Pallière**  
Agriculture & Environment  
Director



**Laetitia Six**  
Technical Analyst

**Antoine Hoxha**  
Technical Director



Technical



Trade &  
Economic



**Sean Mackle**  
Trade & Economic  
Director



**Carmen Turcu**  
Trade & Business  
Analyst



Statistics



**Gabor Marton**  
Data & Statistics  
Analyst

**Michał Wendołowski**  
Statistics Manager



Administration



**Jenny Wahlman**  
Office Manager

**Patricia Everaert**  
Senior Secretary



*“Farmers need better seeds, fertilizers and technologies, as well as companies that can connect them to export markets,”* Hillary Clinton

*“It’s possible to change communities through simple innovations, such as providing access to high-quality fertilizer,”* George Clooney

*“Proper farming techniques and fertilizer use can produce enough food to keep villagers alive on land that has failed to yield sustainable crops for generations,”*  
Angelina Jolie with  
Dr Jeffrey Sachs

*“Food is the moral right of all who are born into this world,”*  
Norman Borlaug

*“Farmers in Africa are trying to farm on soils that are depleted of all the nutrients you need to grow a proper crop,”* Dr Jeffrey Sachs

*“A few billion people would have to die if we hadn’t come up with fertilizer,”* Bill Gates



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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 Group Fertilizers Europe

 [twitter.com/FertilizersEuro](https://twitter.com/FertilizersEuro)

 [www.youtube.com/fertilizerseurope](http://www.youtube.com/fertilizerseurope)

[www.danfertilizers.com](http://www.danfertilizers.com)

[www.productstewardship.eu](http://www.productstewardship.eu)

[www.fertilizersforum.com](http://www.fertilizersforum.com)