

# Growing together

European mineral fertilizer industry provides extensive benefits to Europeans farmers



## Quality Products

Delivers the best nutrients and best value. European fertilizers are premium products ensuring yields and quality of the harvested crops.



## Tailor-made solutions

Develops new products and services equipping EU farmers with tailor-made solutions that meet specific crop requirements, soil types and climatic conditions.



## Environmental benefits

Provides solutions contributing to safe food, environmental compliance and a more sustainable environment for European farmers and citizens.



## Supply security

Guarantees timely and undisturbed supply when farmers pressingly need fertilizers.

# Hand-in-hand with European Farmers to Deal with Multiple Challenges

European farmers are expected to produce the highest quality food, farmed in an increasingly sustainable way, by minimizing environmental impact and preserving the countryside - all at the same time and from limited land resources. This is not an easy task but it can be achieved through close partnership with EU fertilizer industry.



## High Quality Nutrients for High Quality Crops

All plants, including arable crops, pasture or specialty crops, need nutrients to grow. There is in total 17 essential nutrients from which the 3 mains are Nitrogen (N), Phosphate (P) and Potash (K). Mineral fertilizers are used to apply those nutrients to the crop either alone or in combination (NPK). By using these fertilizers, the farmers can provide a specific crop with a predictable, balanced nutrient supply. Mineral fertilizers can also cover the plant needs for other essential nutrients, such as calcium, magnesium and sulphur as well as other micronutrients.

The majority of nitrogen fertilizers applied in Europe are straight fertilizers. The main products are nitrate-based fertilizers, such as ammonium nitrate (AN) and calcium ammonium nitrate (CAN), which are well suited to most European soils and climatic conditions. Urea ammonium nitrate (UAN) aqueous solutions are widely used in other parts of the world. All mineral fertilizers have a reliable release profile and precise application characteristics. This greatly improves nutrient uptake efficiency and reduces environmental losses. European fertilizer manufacturers provide information about the physical and agronomic characteristics of their products and advice how they can be used to ensure maximum nutrient use efficiency.

There are three main essential nutrients:

**N** Nitrogen    **P** Phosphate    **K** Potash

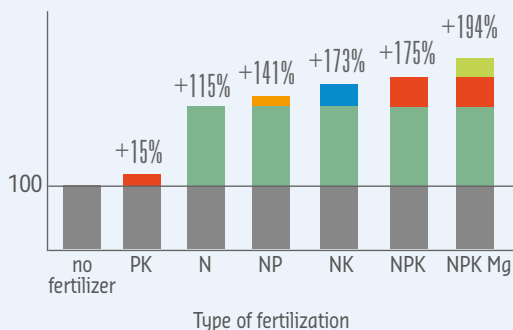
### Mineral and organic fertilizers working together

Organic and mineral fertilizers are complementary products. Farmers first use the manure or slurry they have available to meet the nutritional needs of their crops. They then employ mineral fertilizers to make good any nutrient shortfalls, and to ensure the most efficient application of fertilizers.

Mineral 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. Furthermore, mineral fertilizers ensure optimal plant growth in regions with limited available manure or slurry. Some crops have specific nutrients requirements that are much easier to supply with targeted application of mineral fertilizers (e.g. calcium applications for apple trees).

### EFFECT OF A BALANCED FERTILIZATION ADAPTED TO THE NEED IN A LONG TERM EXPERIMENT ON WHEAT

Yield in % of unfertilized control



PK fertilization without nitrogen gives only 15% extra yield compared to the unfertilized control. On the contrary, balanced application to the need with an NPK+Mg (magnesium) fertilizer improves the yield by almost 80% compared to nitrogen alone.



## Partnership with Farmers for a more Sustainable Farming

Farmers in the EU face a complex set of demands. They are asked to farm in an ever more sustainable way, but without loss of productive potential. Increasingly this requires the right combinations of mineral fertilizers, suited to European conditions. European fertilizer producers, working with scientists, are continuously developing innovative products, new ways of applying existing ones, and also customized services to help achieve the best results for farmers.

Increasingly, EU producers are offering European farmers tailor-made fertilizers designed to meet specific crop requirements as well as suit different soil types and climatic conditions, for example nitrogen fertilizers containing sulphur to enhance yield as well as protein content of milling wheat.

EU-made products, professional advice and customised service enable farmers meeting the environmental challenges of clean air, soil protection, water quality and climate change mitigation.



## Optimizing the Uptake by the Plant

Mineral fertilizers producers are investing in developing new technologies and new application tools in order to minimize the losses to the environment, including ammonia to the air. Advanced technologies such as the use of inhibitors can reduce emissions and minimise environment impact. These types of products can straightforwardly be integrated into normal farm practices as they do not require investment in special equipment.

On the other hand, tools like modern fertilization equipment can offer real-time control over fertilizer application and GPS-based accounting of the nutrient supply. Despite higher investments, practical experience with advanced equipment demonstrates significant economic and environmental benefits: increased nutrient-use efficiency, more uniform crop, better ripening, easier harvesting and higher yields. Several field trials have demonstrated that with sensor technology yields increased by up to 7% and nitrogen inputs decreased by about 12%. Smart farming can thus facilitate the compliance of European farmers with EU's stringent environmental rules.



## NITRATE FERTILIZERS ARE A PREMIUM PRODUCT - WITH MULTIPLE BENEFITS FOR EU FARMERS:

### Economic

- > Efficient uptake by plants leads to major savings compared to other products
- > Easy to handle and apply
- > Better yield results

### Environmental

- > Lower carbon footprint than other nitrogen products
- > More sustainable as produced to high EU regulatory standards

### Agronomic

- > Early season application possible
- > Immediate uptake by plants means better nitrogen use efficiency
- > Most suitable fertilizer for pasture

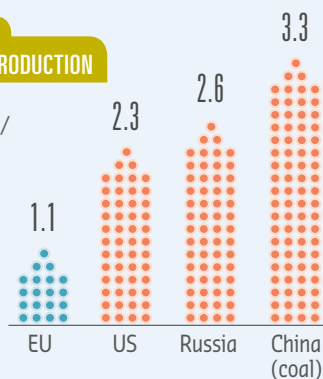
### Social Health

- > Much lower ammonia emissions compared to other nitrogen products
- > Proficient fertilizer use is an essential part of growing high quality food



## CARBON FOOTPRINT OF AMMONIUM NITRATE PRODUCTION

Tonne CO<sub>2</sub>-equivalent/  
tonne product



Source:  
Fertilizers Europe,  
Carbon Footprint  
Calculator



## Low environmental footprint of European fertilizer producers

On the production side, the EU fertilizer industry invested in the production process allowing to meet stringent EU legislation. As a result, producers are capable to provide customers with products that have the lowest greenhouse gas emissions in the world.

In order to help farmers to better understand the environmental footprint of their practices, the EU fertilizer industry has included these values in the **Cool Farm Tool** (<http://www.coolfarmtool.org>). This practical online tool allows growers to quickly assess, among other parameters, emissions from their crop production, providing instant feedback on the impact of different fertilization choices, as well as farm management options.



## European Fertilizers for Europe's Farmers

The European fertilizer producers see themselves as the natural partner of EU's farmers and growers therefore are committed to prioritize supplying products and solutions to them.

Rooted in Europe, our industry is integrated into the distribution chain to ensure that farmers have the products they need in a timely way. In the future, due to increased consumption of mineral fertilizers in the rest of the world, new market opportunities will emerge and imported products may not always be available when needed by European farmers.

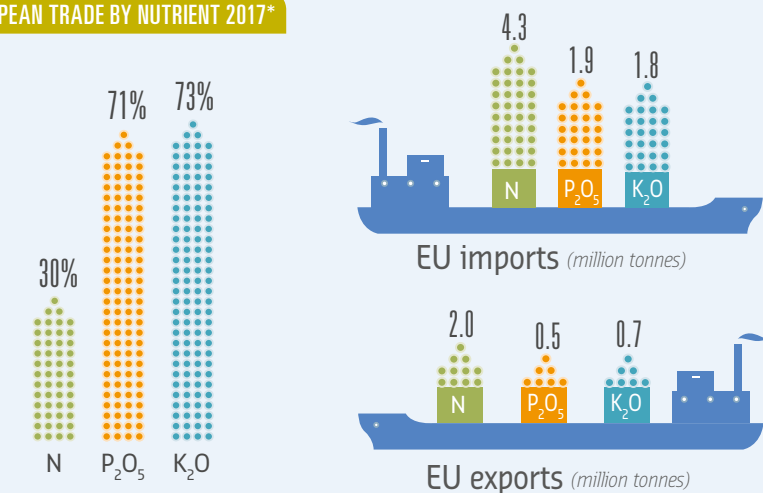
<http://www.coolfarmtool.org>



## DID YOU KNOW?

European Fertilizer market is part of the global market. Imported products play an integral part in the European Fertilizer market reaching up to 73% of the EU consumption share\* (\*K<sub>2</sub>O).

## EUROPEAN TRADE BY NUTRIENT 2017\*



Imported products' share  
of EU consumption

Total EU  
consumption\*  
**20 M**  
tonnes

\* Includes products for agricultural and industrial use

# Meeting Future Food Needs

In order to provide European consumers with high quality, nutritious, diverse and sustainably-produced food, the highest quality plant nutrients are required.

In Europe, we have the expertise to provide these. We make the products best suited to our crops while minimising the impact on our air, soil and water. The EU fertilizers industry has always been a leader in the development of new products aimed at supporting

European farmers deal with multiple challenges. We have an ambition to remain at the forefront of developing new products and solutions to enable European farmers meeting the food needs of the future.

## Fertilizers Europe represents European mineral fertilizer manufacturers.

Our members help 11 million EU farmers feed over 500 million consumers in Europe and many more beyond. In 2018 Fertilizers Europe is celebrating 30 years of service to the farming community and has an ambition to be a strategic long-term partner for Europe's farmers in the future.

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million  
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Infinite fertilizers guides the European fertilizer industry's initiatives to ensure that Europe's farmers have access to a variety of safe, high quality, locally produced products, as well as information on their use, environmental impact and nutrient recycling opportunities.



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