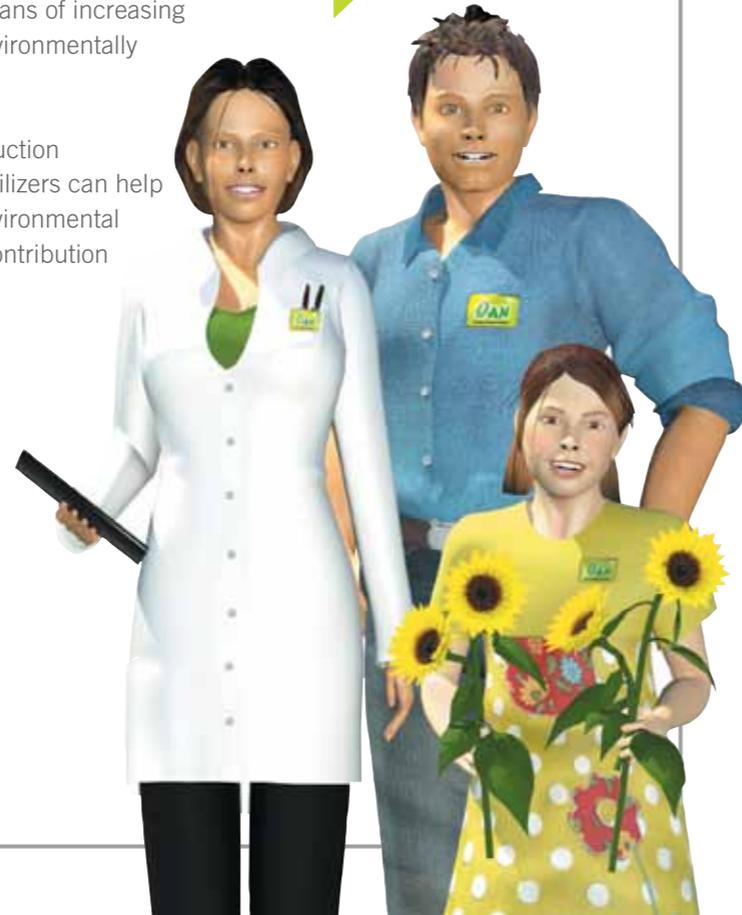


**M**ineral nitrogen fertilizers can play an essential role in feeding an increasing world population and limiting climate change. Having led agriculture's "green revolution", today they are estimated to contribute to more than half of the world's food and protein supply.

Directly Available Nitrogen (DAN) fertilizers, based on nitrate and ammonium, combine the characteristics of the two simplest forms of reactive nitrogen used directly by plants. They offer European farmers and agronomists a precise and reliable means of increasing food production in an environmentally acceptable way.

Increasing our food production sustainably with DAN fertilizers can help us meet our food and environmental goals and increase our contribution to the global food effort.



**“With the FAO expecting the world population to be 9.1 billion by 2050, global food production will need to increase by a further 70%.”**



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



Fertilizers Europe represents the majority of nitrogen 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.

Fertilizers Europe  
Avenue E. van Nieuwenhuyse 4/6  
B-1160, Brussels, Belgium  
Tel: +32 2 675 3550  
Fax: +32 2 675 3961  
info@fertilizerseurope.com

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

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**Towards smart agriculture...**



“Directly Available Nitrogen (DAN) fertilizers will put enough food on my table. Even when I am grown up,” Dani.



**W**e are lucky in Europe. Most people have enough to eat and our farming is efficient and productive.

But we have somehow also become the world's largest importer of food. Our imports now exceed our exports by an amazing 65 million tons every year! It takes almost 35 million hectares of farmland outside Europe to produce these crops. This is almost the size of Germany!

Luckily our farmers have a way of reversing this - DAN fertilizers. They are ideally suited to our climate and are essential to make the most efficient use of our farmland. They will help us increase our food production to ensure that we grow enough.

And, by taking the pressure off other parts of the world, DAN fertilizers will protect natural forests and grassland from being converted into farmland and the environmental emissions that involves.

**N**itrogen is a vital element for plant life. But it needs to be processed from its natural state in the air into a form that plants can easily absorb. This is mostly as nitrate.

Mineral fertilizers are generally a very efficient way of providing nitrogen. But, depending on their composition, they may need to undergo transformation in the soil. While nitrate is taken up directly by plants, uptake of ammonium is much lower and, like urea, usually requires progressive transformation into nitrate. In this transformation process, environmental losses occur.

DAN fertilizers combine the characteristics of the two simplest forms of nitrogen - nitrate and ammonium - used by plants. This increases their efficiency and reduces their carbon footprint which, over their life-cycle, is lower than that of urea.

Furthermore, the volatilization losses associated with urea and its lower nitrogen efficiency need to be compensated by a higher dosage, adding to its carbon footprint.

“Use of the right form of nitrogen fertilizer is of great importance as different products have different environmental impacts,” Daniella.



“Combining good agricultural practice with DAN fertilizers enhances my nitrogen-use efficiency and minimizes my environmental losses,” Danny.

**F**or many years, European farmers have found DAN fertilizers to be an effective and efficient source of nitrogen for their crops. Even so, adopting basic

procedures to reduce emissions and control leaching on the farm can also greatly cut down environmental impact.

It starts with selection of the right nitrogen fertilizer to match particular crop needs, as well as to meet local climate and geographic conditions.

The golden rule for fertilizer use remains simple. Apply the right product, at the right rate, in the right place, at the right time. DAN fertilizers' reliable release profile and precise application characteristics help improve crop uptake of nitrogen and minimize losses.

