

**N**itrogen (N) is a vital element for plant life and an essential nutrient in crop production. As plants grow, they absorb nitrogen from the soil and this nitrogen, in the form of protein, is exported from the field at harvest. Nitrogen levels in the soil therefore need to be restored by means of organic or mineral sources, applied either as manure or as mineral fertilizer.

“DAN fertilizers contribute to resource-efficient crop production, higher yields and better crop quality.”

Several sources of mineral nitrogen are available to farmers including DAN, urea and urea-based fertilizers. Due to the differences in their chemical composition, they interact with the soil in different ways and have a different impact on crop yield and quality and the environment.

Use of the right fertilizer at the right rate, at the right time, at the right place is essential for achieving high crop yield and quality. When used in combination with best farm practice, DAN fertilizers offer European farmers the highest efficiency and reliability to meet the agronomic and environmental imperatives of modern agriculture.

**Maximum productivity can only be obtained by using DAN fertilizers.**



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



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.

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

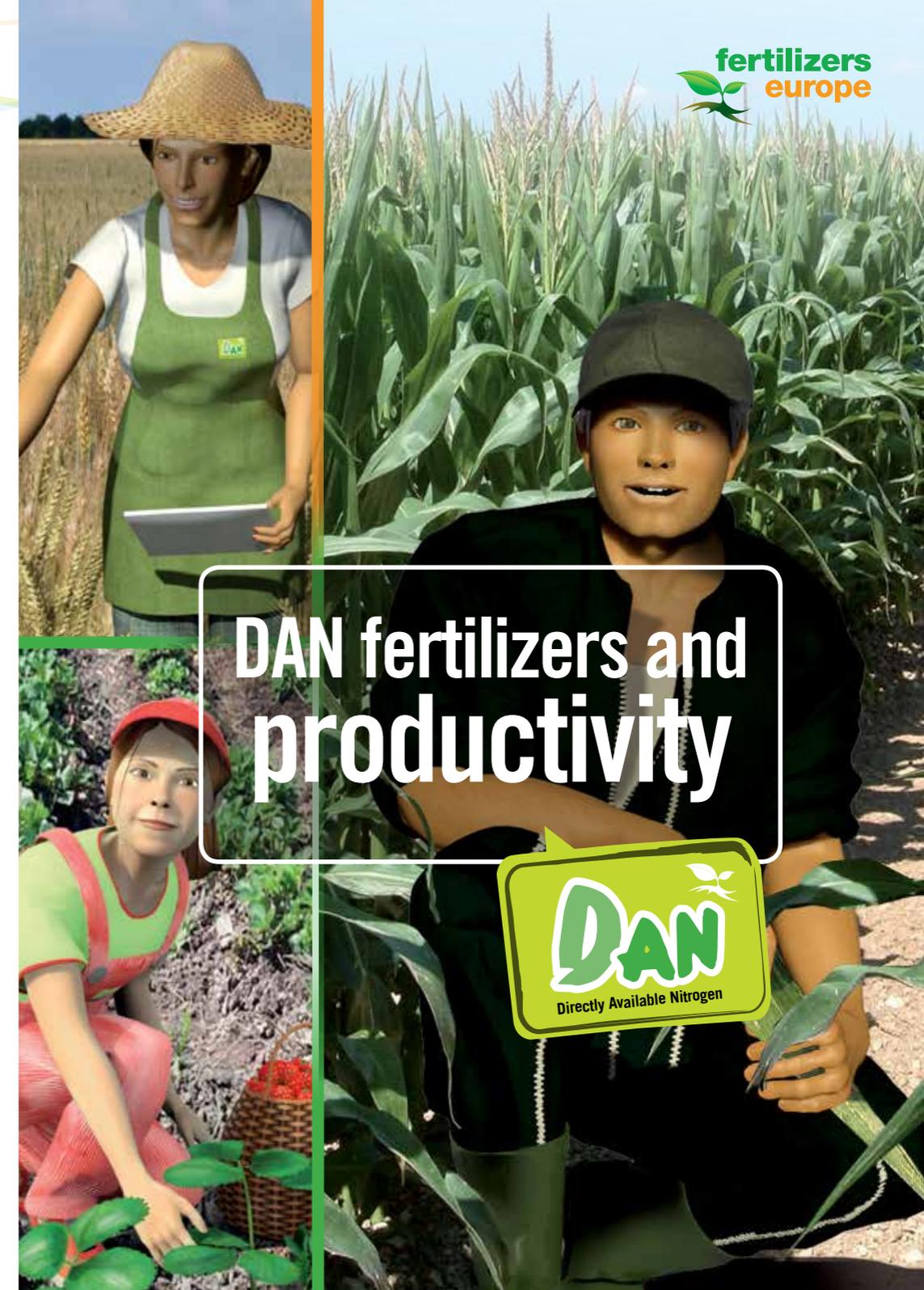
[www.fertilizerseurope.com](http://www.fertilizerseurope.com)

[www.facebook.com/fertilizerseuropepage](http://www.facebook.com/fertilizerseuropepage)

Group Fertilizers Europe

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

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



fertilizers  
europe

**DAN fertilizers and  
productivity**



“DAN fertilizers mean that we have better food and more of it,”

Dani.



I saw on the TV recently that farmers around the world will have to almost double their crop production by 2050 in order to feed the earth's growing population.

Luckily we eat well in Europe and I like my food. But it's important that we play our part in the global food effort so that there is enough to go round when I'm grown up. We also need to protect the planet for my children to enjoy. All my school friends agree with me.

My mum's an agronomist. Her job is to look at the best way of getting the most out of the crops we grow with good farming techniques and the most efficient crop nutrition. As my dad's a farmer he is also very interested. I know he spends a lot of time studying best farming practices.

He uses DAN (Directly Available Nitrogen) fertilizers. He says that they give him the highest yields and the best quality crops and that they are more environmentally-friendly than other nitrogen fertilizers. Some of his wheat goes to our local bakery, so I can taste the difference.



Improving the agronomic efficiency of different types of nitrogen fertilizer mainly involves reducing environmental losses, particularly to the air. For example, the transformation of urea and urea-based fertilizers in the soil often leads to emissions of ammonia ( $\text{NH}_3$ ) to the air, which can be harmful to humans as well as the environment.

Losses are one of the key reasons for lower fertilizer efficiency and are often further aggravated by not matching the nitrogen supply available from the fertilizer and the plant's demand at a particular time. Applying nitrogen in the ammonium nitrate (DAN) fertilizer form provides crops with a directly available nutrient.

Field tests carried out throughout Europe show that DAN fertilizers return consistently higher crop yields and quality at a similar N-supply compared to urea-based ones (UAN) and urea. Farmers usually compensate for this underperformance of urea by using a higher nitrogen dosage, although this increases the fertilizer's environmental impact.

#### CROP YIELD AT IDENTICAL N APPLICATION RATE



Source: Defra (UK Government Department for Environment, Food and Rural Affairs) 2003-2005

The agronomic benefits of using DAN fertilizers are:

#### Higher

- efficiency
- protein content
- yield
- reliability.

“Improving the efficiency of nitrogen fertilizers reduces their impact on the environment,”

Daniella.



“I regularly try to update my technical knowledge to improve my yields and meet environmental concerns,”

Danny.

I produce cereals on my farm, providing flour for local bakeries as well as grain for cattle feed. I'm proud of doing my job well but it's also important that I make a sufficient economic return to ensure that my operations are sustainable and that I can provide for my family.

Recently, my technician showed me the results of some long-term agronomic trials. They demonstrated that not all nitrogen fertilizers have the same efficiency. The difference is mainly due to ammonia ( $\text{NH}_3$ ) volatilization and other losses.

I want the nitrogen I apply to feed my wheat, rather than stay in the ground or be lost to the atmosphere. DAN fertilizers allow me to obtain the same productivity per hectare with significantly less nitrogen than with urea. This is good for the environment and my pocket. The means of application is also important and the physical characteristics of my fertilizer ensure best spreading accuracy. I also regularly use a sensor to measure the crop's nitrogen needs so I can apply just the right dose at the right time.

My wheat's protein content is higher when I use DAN fertilizers. This means the quality of the flour is better, the bakery makes better bread and Dani enjoys it more.

