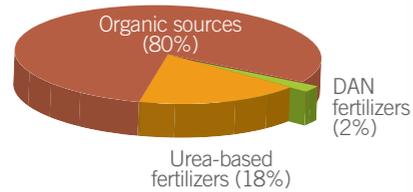


Volatilized ammonia emissions in Europe (EU-27) were estimated at 3.5 million tons in 2010, with agriculture responsible for 94% of these.

The majority, almost 80%, derive from organic sources such as livestock and manure. The remainder comes mainly from the use of nitrogen fertilizers such as urea and urea-based mixtures. The contribution of DAN nitrate-based fertilizers like ammonium nitrate and calcium ammonium nitrate is extremely low.

AMMONIA EMISSIONS FROM AGRICULTURE



Once it is applied, both manure and urea emit ammonia into the atmosphere during their chemical transformation into the nitrate form used by crops. Hydrolysis of urea by soil enzymes first converts it into ammonium, some of which is volatilized into ammonia and escapes into the atmosphere. Depending on the soil conditions and the weather, the volatilization loss may vary from around 10 to 50% of the urea applied.

The official European Emission Inventory (EMEP 2007) assumes an average ammonia emission factor from urea of about 17% on arable land and grassland, compared to an average loss of around 1% for DAN fertilizers.

“Use of DAN fertilizers contributes to more resource-efficient crop production and helps mitigate harmful ammonia emissions for clean air and a healthy environment.”



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.

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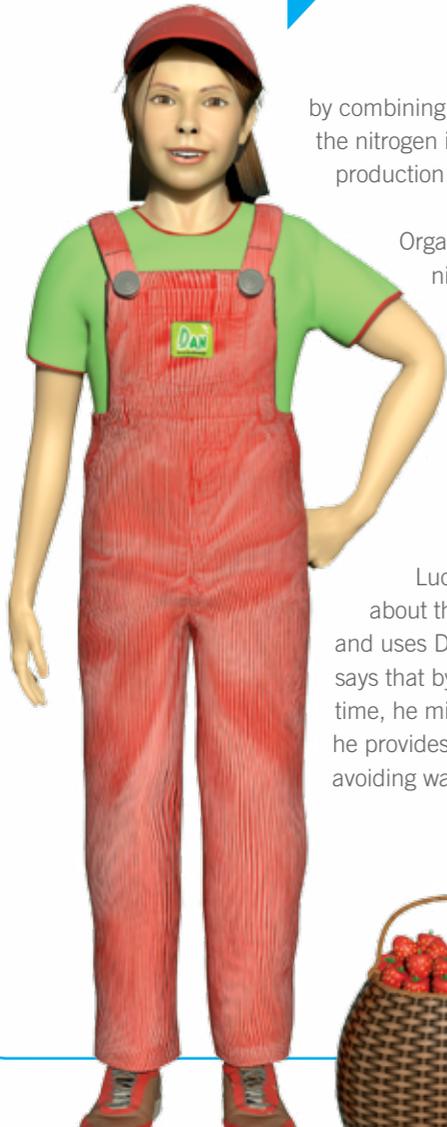
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DAN fertilizers and air quality



“DAN fertilizers minimize the release of ammonia to the air,” Dani.



Last week at school we learnt all about the food cycle and nitrogen, one of the most important plant nutrients. Did you know that nitrogen fertilizers are made by combining nitrogen from the air with natural gas? This turns the nitrogen into a form that plants can use which ensures food production - this is good to know when I am hungry.

Organic fertilizers and manure also provide plants with nitrogen but, together with urea-based fertilizers, they release gases such as ammonia into the air, which can be harmful to humans and the environment.

This worries me when I go outside. And, according to the internet, it also worries many politicians, agricultural experts and scientists like my mum, who discussed the problem in Gothenburg several years ago.

Luckily my dad, who is a farmer, is very knowledgeable about this. He is very careful when he spreads manure and uses Directly Available Nitrogen (DAN) fertilizers. He says that by applying the right type of fertilizer at the right time, he minimizes the release of ammonia and ensures that he provides just the right amount of nitrogen for his crops, avoiding waste and saving us money.

I hope he might still buy me that bike I saw in the shop window, so I can play outside with my friends in the fresh air.



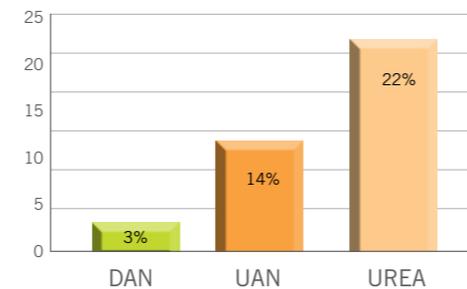
Emissions of volatilized ammonia, ammonia in the gas form, contribute significantly to the formation of microparticles in the atmosphere, an important risk to human health. Indirectly, it also results in emissions of the greenhouse gas nitrous oxide.

Ammonia emissions can also have severe environmental consequences such as the eutrophication and acidification of both land and water, which can damage rivers, lakes, forests and natural ecosystems. This is why it is strictly regulated under European air pollution legislation.

Nitrogen can be applied as a plant nutrient in many forms, such as ammonium, nitrate, urea or a mix of these coming from mineral fertilizers and from organic fertilizers and manures. Depending on their chemical composition, these forms are progressively transformed in the soil into ammonium and then nitrate, the form of nitrogen most readily absorbed by plants.

Ammonia volatilization occurs when the soil conditions convert some ammonium into ammonia, which is then released into the atmosphere. The losses are highest at the soil surface. This happens when manure and urea-based fertilizers are spread but not immediately incorporated into the soil, where the ammonium is absorbed for subsequent transformation into the nitrate form.

VOLATILIZATION LOSSES (%N) FROM ARABLE LAND



Reference : Defra (2004-2005)

“Manures and urea-based fertilizers are the main source of ammonia emissions from European agriculture. DAN fertilizers are a solution,” Daniella.



“With DAN fertilizers, I do not give my crops more nitrogen than they need. Unlike urea-based fertilizers, where I would have to increase the dose to compensate for the losses,” Danny.

how careful I am in applying it, some of the nitrogen it contains naturally ends up as ammonia in the atmosphere.

I then use mineral nitrogen fertilizers to provide most of the nitrogen my crops need. As there are different types, I prefer to use the products that from experience give me reliable yields and good quality crops. In today's economic climate, I need my nitrogen to be efficient and I don't want to lose it in the form of ammonia or other gases that can damage the environment. I choose DAN fertilizers because they give me confidence in the nitrogen I buy.

My supplier also warned me that if I used other types of fertilizer, such as urea-based, I could lose on average 17% of the nitrogen as ammonia. This isn't good for the air quality on the farm or elsewhere. He told me that DAN fertilizers lose very little nitrogen to the atmosphere, so they not only give me predictable crop yields and respect the environment, but they also save us money.

Maybe, I can buy Dani that bike.

To maximize my yield, every year I have to make important decisions about how much nitrogen my crops will need when setting up my nitrogen plan. I also use the farm manure as fertilizer but, no matter