Knowledge grows

November 2015

Our Position On

Genetically Modified Organism (GMO)

Introduction and background information

A Genetically Modified Organism (GMO) is an organism that has been altered through genetic engineering techniques. Typical genetically modified crops are soybean, corn and cotton. The first food products made from GMOs entered the market in the mid-1990s and have mostly been used in western countries like the USA, but since 2010 also increasingly in developing countries such as Brazil.

Pro-GMO companies argue that this technology will improve food security and contribute to healthier crops, whereas critics contend that GMOs have a negative effect on the ecosystem, that there are serious health related concerns, and that the technology is driven by corporations hunting for profits rather than a desire to solve the food crisis.

Yara is a world leader within sustainable agriculture and environmental solutions and is dedicated, through its mineral fertilizer production, agronomic tools and knowledge, to work for increased food security. We view the issue of GMOs in this context.

Yara is not involved in R&D projects related to GMOs and has no direct investments in this area. However, farmers growing GMO crops are among our customers. In addition, we sometimes cooperate with companies that produce GM seeds. This cooperation is not about GMOs, but about contributing to solving the broader challenge of global food security and climate change.

Yara International's position

Global food security is a major challenge, and Yara believes there is huge potential to increase food production through existing methods, such as the use of best farming practices in the developing parts of the world. By best practice we mean, for example, precision farming, balanced fertilization and optimal use of nutrients.

Yara firmly believes that sustainability has to be the guiding principle for all agricultural activity, and that agricultural R&D should be targeted to improve resource and nutrient efficiency as well as to improve the environmental performance of agriculture.

So far GMO has played an insignificant part of the food security issue in the developing world. It still has to be proven whether GMOs have benefits when it comes to, for instance, water efficiency and nitrogen efficiency. However, we believe that genetic modification of crops is a scientific tool that may prove to be useful in solving future challenges if applied correctly.

GMO and food security

According to the Food and Agriculture Organization (FAO) of the United Nations (UN) global food production will have to be increased by 60 percent by 2050 due to a growing population, diet changes and increased urbanization. With limited new arable land available the most significant part of this growth in food production will have to come as a result of increased yield and crop intensity on existing land.

There are still large regions in the world with so-called subsistence farming, i.e. where the farmers produce for their families only. With the use of modern best farming practice there is a huge potential for increased food production in these areas. Mineral fertilizer has the ability to increase crop yields and replenish the soil as the nutrients follow the harvested crop. The use of modern farming techniques will contribute to higher yields and lower environmental impact.

Our Position On - GMO

GMO foods have, for the most part, focused on crops such as corn and soybeans in the developed part of the world, although increased GMO use has been seen in emerging countries such as Brazil in recent years. This has so far played no role in the food security issue. Research still has to demonstrate how GMOs can be utilized for improved water- and nutrient efficiency.

Further arguments

Pro
According to the FAO, the main arguments being used by pro-GMO players include:

- Better resistance to stress
- More nutritious staple food
- More productive farm animals
- More food from less land
- Longer shelf lives

Another argument is that GMO farmers can use less agro-chemicals. A 2010 study from the US National Academy of Science concluded that GMO crops have resulted both in less agro-chemical application and reduced soil erosion from tilling.

Yield increase is another potential benefit. Scientists Qaim, Matim and Zimmerman showed in 2003 that GMO BT cotton in India had a yield increase of 60% from 1998 to 2001 inclusive.

Con
Some of the arguments listed by the FAO against GMOs are:

- Gene escape, i.e. genes ending up in unexpected places
- Gene mutation
- Interaction with wild and native populations
- Transfer of allergenic genes
- Mixing of GMO foods in the food chain
- Transfer of antibiotic resistance
- Intellectual property rights could slow R&D

The argument against yield increase has also been made. A 1999 study by Charles Benbrook of the Organic Center showed that GMO round-up ready soybeans did not show increased yields.
There is also widespread concern about so-called superweeds as a result of GMOs. This is weed resistance to glyphospate.

About Yara

Yara's knowledge, products and solutions grow farmers and industrial customers' businesses profitably and responsibly, while nurturing and protecting the earth's resources, food and environment.

Our fertilizers, crop nutrition programs and technologies increase yields, improve produce quality, and reduce environmental impact from agricultural practices. Our industrial and environmental solutions reduce emissions and improve air quality from industry and transportation, and serve as key ingredients in the production of a wide range of goods.

Founded in 1905 to solve emerging famine in Europe, Yara today has a global presence with more than 12,000 employees and sales to more than 150 countries. www.yara.com

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