Knowledge grows

November 2015

Our Position On

Biofuels

Introduction and background information

Biofuels is the common term for fuels derived from biomass conversion. The use of biofuels has gained a lot of attention and political support over the last decade, and increased use of biofuels has been championed as one of several initiatives aimed at climate change mitigation. However, the environmental gains of many forms of biofuels have increasingly been challenged by life cycle analysis, and the potential conflict between biofuels and food security remains an issue.

Biofuels can be made from any organic substance. With present technologies, the most common way of producing biofuels is by fermenting sugars from sugar cane, or starch from corn, into ethanol. In temperate regions, soybeans and rapeseed are most commonly used for biodiesel, whereas in some Asian countries palm oil is the preferred feedstock. Ethanol and biodiesel production from sugar, starch and vegetable oil are defined as first-generation biofuels. Biofuels derived from lignocellulosic biomass (e.g. non-edible plants,. wood, straw etc.) are commonly referred to as second-generation biofuels. Biofuel from algae is referred to as third-generation.

Yara is a world leader in sustainable agriculture and environmental solutions and is dedicated, through its mineral fertilizer production, agronomic tools and knowledge, to work for increased sustainable agricultural productivity and food security.

The International Fertilizer Association (IFA) reckons that approximately three percent (2009) of global nitrogen fertilizer production is used for biofuel production.

Yara International's position

When producing biofuels, food security issues and environmental impact including fresh water consumption of the entire biofuel value chain should be the key considerations.

The main objective of the agricultural sector is to provide affordable and nutritious food for an increasing population. Ensuring both food security and increased biofuel production is a political responsibility, and national and regional political regulations are imperative to incentivize farmers. Effective production of food gives the opportunity to use additional land for production of biofuel crops and to use crop residues for biofuels.

In a climate-constrained world, efficient use of all resources, including arable land, is a prerequisite for sustainable agriculture. The climate impact of different biofuels varies from being highly beneficial to significantly worse than petroleum-based transport fuels.

A sustainable intensification of the agricultural sector could prevent land use change and increased greenhouse gas emissions, meeting the agricultural demands of producing both food and biofuels. This in turn will mitigate higher food prices and leave more land available for biodiversity.

Yields from agriculture using mineral fertilizer are on average substantially higher than through organic farming. Yara enhances efficient agriculture through research, services, and production of high-quality fertilizers. Efficient and sustainable agriculture through modern agricultural practices is a prerequisite for containing land use change and preserving biodiversity. It is our opinion that a modern agricultural sector can provide biomass for a sound diet for all humans, as well as contributing to cover part of the demand for energy.

Our Position On - Biofuels

Our solutions and knowledge of farming best practices increase biomass production and provide society with better and higher yields of food, feed or bio-energy, produced in the most sustainable and environmentally friendly manner.

Biofuels and food security

Ensuring food security is a global, political responsibility. The market for crops for biofuels can only be allowed to grow if the intensity of agricultural production increases to a level that accommodates the future demand for both food and feed. However, regional differences in production and the lack of global political mechanisms to ensure a healthy balance between food security and biofuel production is a challenge. Providing incentives to farmers is crucial to obtain this balance. This must be solved through political regulation.

It has been argued that the use of biofuels increases food prices and contributes to malnutrition and hunger. The long-term impact of higher food prices on poverty and hunger is uncertain. Increased food prices could drive improved agricultural productivity in many poor rural areas resulting in wealth creation and increased domestic food production and thereby improved food security. However, it is likely that higher food prices could represent a problem for poor people in cities.

It could also be argued that some energy crops can be cultivated on marginal land which is not suitable for food production, and that biofuels could lead to job creation and development, which again enhances food security.

Biofuels and climate

Calculations of biofuel climate effects are complex. It is important to adopt a Life Cycle Approach (LCA) and calculate and consider the carbon footprint through the entire value chain, including production of fertilizers and emission differences due to less carbon uptake in soil and biomass if land use change to agriculture were to occur.

Some research reports suggest that emissions from Indirect Land Use Change (ILUC) can be bigger than all other emissions from the biofuels value chain combined, and that the use of biofuels is likely to increase greenhouse gas (GHG) emissions.

Other reports suggest that most first-generation biofuels yield GHG mitigation in the 20% to 50% range compared to conventional fuels. However, the only first-generation biofuel based on virgin biomass which is universally acclaimed for significant GHG mitigation impact is ethanol from sugar cane in Brazil. In some studies the GHG savings are said to be in the 100% range, due to generation of surplus electricity from bagasse.

The advent of second-generation biofuels is likely to improve the GHG balance. However, for second-generation biofuels the climate impact will also be dependent on ILUC assumptions, conversion efficiency and feedstock. However, when using agricultural waste and biomass which otherwise would have been left on the ground, the savings could be significant.

There is a significant discrepancy in biofuel yield between different plants and types of biofuels. However, it is clear that in an energy input versus output perspective, the energy from a given area of land producing biomass for biofuels is higher when mineral fertilizers are used than if it is produced on comparable land without fertilizers.

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

For further information, please contact:

Yara International ASA
Drammensveien 131
P.O.Box 343, Skøyen
N-0213 Oslo, Norway

www.yara.com