Knowledge grows

October 2015

Our Position On

Water Use Efficiency

Introduction and background information

Yara believes that good crop nutrition management practices can substantially reduce the impact of food production on the use of freshwater resources.

Agriculture today uses 11% of the world's land surface, but accounts for 70% of the water withdrawals worldwide. If current water consumption patterns continue, 2/3 of the world's population will live in water-stressed countries by 2025. By 2050, demand for water will increase by 55%. These trends indicate that water-smart agriculture is key to meet future food demand without compromising freshwater resources.

On more or less the same land area, by 2050, world agriculture will need to produce 60% more food globally. Irrigated agriculture currently accounts for 20% of the total cultivated land, but contributes 40% of the global food production. So while irrigated agriculture is 2-3 times as productive as rainfed agriculture, its impact on water resources is much larger.

Some of the increased food supply might have to come from further expansion of irrigated land, but most of it could be obtained through improved agricultural practices such as balanced crop nutrition. Water use efficiency in both irrigated and rainfed agriculture has to improve, and crop nutrition plays an important role in achieving this.

Yara International's position

In the debate about sustainable agricultural water use, attention is mainly focused on issues such as irrigation technology, water retention of the soil and drought tolerant varieties.

In addition to those issues, Yara sees a potential in exploring new knowledge and innovative technologies to advance water use efficiency through optimized crop nutrition.

There is a fundamental and close relationship between crop nutrition and crop water consumption. If crops are not optimally fertilized, more water is needed for every kilo of final produce.

Yara's on-going research convincingly demonstrates positive effects of crop nutrition on water use efficiency (WUE). Proper crop nutrition management can substantially improve agronomic water use efficiency.

The nutrients nitrogen (N) and potash (K) in particular have a positive impact, with also the form of N supplied being significant favoring nitrates above other options especially under water-stressed conditions.

Therefore, we conclude that crop nutrient supply with respect to proper amount, timing and also nutrient forms can be adapted to improve the improve the efficiency of water use by the crop. This is valid for both rainfed and irrigated agriculture.

Yara has decided to be part of the solution, developing knowledge, products and tools to support improved WUE as well as nutrient use efficiency (NUE) in agriculture. We believe that resource use efficiency can best be obtained by accurately measuring the crops' needs for both nutrients and water.

Our solutions include:

- Fertigation systems, in which nutrients are mixed into the irrigation water, providing the most precise and staged application of nutrients with the highest WUE, applying nutrients Just-In-Time according to the crop's needs. Therefore advanced fertigation practices lead to the highest efficiencies of both nutrient and water usage, optimizing yield and quality of the crop.
- The handheld N-Tester and the tractor mountable N-Sensor in order to measure instantaneous nitrogen demand of the crop.
- An innovative crop water sensor technology capable of measuring the crop water stress level and hence water demand, allowing the farmer to optimize water supply to site-specific demand.
- Yara supports the development of a standardized and internationally-accepted method to calculate the water use footprint of food products, taking into account the effects of proper crop nutrition. We seek active cooperation on the concept with all interested stakeholders.

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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