Knowledge grows

November 2015

Our Position On

Organic Farming

Introduction

Organic farming commonly features the use of crop rotation, manure, green manure and compost as practices for crop nutrition. Organic farming bans the use of most mineral fertilizers and agro-chemicals.

Arguments about environment, climate change, food quality, food security and social justice are used to lobby towards more organic-friendly policies, and to induce a market pull amongst consumers who can afford to pay more. Since food from organic farming is generally more expensive because crop productivity is lower, it serves a small market segment.

Also, proponents often suggest global food demand will be met by reducing meat consumption and food losses, while productive farming should be reduced or abandoned altogether.

As the organic farming organizations ban the use of most mineral fertilizers, food produced using Yara's fertilizers cannot be labeled as organic. However Yara's customers, business partners and employees regularly encounter the debate on organic farming. The goal of this position paper is to use a science based approach to define Yara's position in the debate on organic farming. Organic fertilizers as such are not addressed in this paper.

Yara International's position

Yara finds the Food and Agriculture Organization of the United Nations (FAO) scenarios the most credible baseline for discussions. Notions that mankind's food preferences should change on a massive scale is not credible.

Yara supports efforts to reduce food losses, but this strategy comes on top of growth strategies – it does not replace the need for increased production.

Organic farming cannot sustain the present global population, nor the population projected to live on this planet in the decades to come. About half of the global food produced comes from the use of mineral fertilizers[i]. Food production needs to increase 60% by 2050 to feed a growing population[ii].

Organic yields are on average substantially lower. Large scale transition to organic farming would lead to cropland expansion. Consequences are a net increase in greenhouse gas (GHG) emissions, reduction of untouched areas available for biodiversity and higher food prices.

In terms of effects on the environment, both organic and productive farming face challenges. Improving environmental performance is not a matter of choosing organic or productive farming, but rather to use best practice on-farm management, using knowledge to optimize the resource use efficiency.

Farmers should first use all nutrients available on the farm such as plant residues or manure and compost. Mineral fertilizer should then be added to a level necessary to optimize the use of farmland, to achieve high crop yields. Nitrate based fertilizers are the most efficient, providing an optimal crop nutrition both in terms of yields and environment.

Current evidence does not support claims that organic food is of superior quality. Both for nutritional content, food safety and taste there are ambiguous results, suggesting that there is variance between farms, seasons and soils rather than variance dependent primarily on the farm management system in itself.

Improving knowledge of agronomy, including organic practices, can help to improve the livelihood of the rural poor. The most viable route towards improved standards of living, however, is to include more efficient agronomic practices to build profits and increase resilience.

Our Position On - Organic Farming

Below follows a review of some main elements from the debates.

Dietary changes and food losses

On a technical level, changing mankind's food preferences on a massive scale would contribute greatly to future food security. However, Yara does not find it likely that such a strategy would succeed. Improved affluence will drive diet diversification in developing countries , and for most debaters, this represents a positive development.

Reductions in food waste and spoilage can be an important contribution. However, there are already strong economic incentives to reduce losses. Yet, perhaps as much as half the food grown is lost. Increasing primary food production is paramount to meet future demand regardless of efforts to mitigate losses.[v]

Organic yields – the claims

There are persistent claims that organic yields are at least as high as conventional ones, and that organic farming can indeed feed a growing population. Such reports have been repeatedly dismissed in critical agronomical reviews. Misuse or misinterpretation of data, or lack of statistical methodology, are common flaws.[vi], [vii]

Yield levels

In a global perspective, scientific literature displays organic yields levels typically at 50-75% of conventional farming[viii]. Another report points at organic farming needing an additional 65% - 200% land area to make the same produce.[ix]

The primary concern is the yield levels for the major cereal crops and livestock. Wheat is grown on ca 215 million ha worldwide and is one of the primary food staples. Organic yields in wheat production are approximately 2/3 of conventional farming.[x]

Consequences of lower yields

In a macroanalysis performed at Stanford University, Burney et al. provided documentation on the net effect of agricultural intensification from a 1960 baseline. To obtain the food supply of 2005 at 1961 yield levels, cropland would have had to expand by an area the size of Russia.

By increasing yield levels, GHG emissions of 590 billion tons have been avoided.[xi] Expanding cultivated land area also has obvious negative impact on biodiversity, wildlife and price levels.

Environmental effects

Agricultural activities have other environmental impacts than GHG emissions and consumption of land area; mainly leakage, which can cause eutrophication. Both mineral fertilizers and organic farming will cause leakage.

Field trials demonstrate that crops produced with mineral fertilizer, using updated knowledge, cause substantially less runoff per ton of produce than do organic crops.[xii] With current farm practice in UK for example, the eutrophication effect from organic wheat production is three times that of conventional production.[xiii]

Yara acknowledges that fertilizers are not always used in an optimized way. Yara provides farmers advice on how to increase precision in fertilization. Precision farming is more environmentally friendly and also more cost efficient than traditional practices.

Nutritious and healthy food

Proponents of organic products have stated that moving to organic food is like "eating an extra portion of fruit and vegetables every day".[xiv] In several comprehensive reviews of scientific evidence, these claims are thoroughly dismissed.

"On the basis of a systematic review of studies of satisfactory quality, there is no evidence of a difference in nutrient quality between organically and conventionally produced foodstuffs."[xv]

Another key claim from organic advocates is that organic produce contains less nitrates. This is justifiable, however, scientific evidence points at nitrate intake as safe. Several recent studies even conclude that nitrates in fruits and vegetables are beneficial to health. [xvi]

Rural poverty

Improving agronomical knowledge can clearly help improve standards of living among the rural poor. Low-input farming with updated methods can provide improved yields and greater resilience to adverse weather conditions.

However, Yara firmly believes that bringing smallholder farmers to a productivity level where their produce is competitive in the local, regional or global marketplace will provide a more substantial improvement in living standard and food security.[xvii]

While agricultural practices with low efficiency can contribute, they will not drive investments into the sector, nor help build a profit base to leverage off in seasons with severe conditions.

Driving investment into agriculture can e.g. provide irrigation systems and dry storage, which in turn will improve yields, help off-set effects of lack of rain and reduce post-harvest losses.

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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.
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