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Further information on residues of crop protection products can be found in the publication "Gaining Consumer Confidence", available from Syngenta.

Syngenta is a world-leading agribusiness, providing growers with products and services that ensure a safe, affordable, and abundant food supply.

The company is committed to sustainable agriculture through innovative research and technology. Syngenta employs more than 20,000 people in over 90 countries. Further information is available at www.syngenta.com.

Organic Farming Making an Informed Choice



Introduction

Advances in agriculture have become increasingly successful in meeting the global demand for food. Over the past 50 years, the world's total food production has doubled, while many consumers have seen their food expenditure halved.

Organic farming has grown in popularity in recent years, especially in Europe, although it still represents less than five per cent of the total crop area. Organic agriculture only uses naturally occurring chemicals or traditional remedies to control pests and diseases. For this reason, the best control technologies are not always available to the organic farmer and yields can be 30-40 per cent lower than with other farming methods. Consequently, the cost of organically grown produce tends to be higher.

Syngenta promotes the concept of sustainable agriculture, which aims to optimize the use of resources, while protecting the long-term economic viability of farming. This is achieved through modern crop protection technologies and advanced plant varieties, including those developed using biotechnology. It results in sustainable production of healthier, stronger crops and contributes to abundant, high quality food and animal feed.

Accordingly, Syngenta believes that the judicious and targeted use of modern crop protection technologies plays a vital role in food production. However, a choice for both farmers and consumers is also important and organic farming has a role to play in providing this choice.



Some consumers choose organic food on the basis of claims that it is healthier and safer to humans and the environment. In many countries, organic farming even receives special government support in the form of subsidies and there is a move to increase this as agricultural policies come up for review.

As a science-based company, Syngenta is convinced that some of the claims made about organic crops cannot be scientifically supported. It is essential for consumers to make informed choices about the food they eat, with claims being scientifically proven and the same rules and regulations applied to organic food production that apply to food produced with the aid of modern, sustainable agriculture technologies.

Here, some of the popular claims about organic food will be addressed.

In July 2000 the UK advertising watchdog, The Advertising Standards Agency, ruled that most of the claims made in a leaflet by the UK Soil Association for organic produce and its production were unsupported¹. The Soil Association replied that “the nature of this market is not well understood and the use of science in the debate is, paradoxically, obscuring reality”.

¹ See www.asa.org.uk



What are the main claims about organic food?



Claim - Organic food is healthier and safer than food produced conventionally. This belief is largely based on the fact that no synthetic fertilizers or pesticides are used in its production, and therefore, there is an assumption that there are no pesticide residues in organic food

First, the truth is that organic farmers are allowed to use certain pesticides. The difference between pesticides used in organic farming and other crop protection technologies is not their toxicity, only their origin. Pesticides used in organic farming are extracted from natural plants, insects, or mineral ores and not by chemical synthesis. In fact, two of the most popular organic-approved pesticides, oil and sulfur, are used more than any other pesticide, by volume, in the USA.

Second, it is important to understand that manufacturers of synthetic crop protection products must generate enormous amounts of detailed experimental study information to be able to register a product for sale. They have to demonstrate extensive margins of safety before approval is granted by governments. Therefore, within such margins, no consumers are exposed to harmful levels of residues in food. In fact, government monitoring programs indicate that the residue levels in food that consumers are exposed to are only a fraction of the established safety levels. The European Commission's report for 2000 found that 61 percent of food samples tested contained no detectable residue at all and a further 35 percent contained residues at levels below the set legal limits.

It is important to note that governments have been hesitant to tout the health benefits of organic produce because there is no conclusive scientific evidence to show any significant difference between food produced organically and that produced conventionally.

"USDA makes no claims that organically produced food is safer or more nutritious than conventionally produced food. Organic food differs from conventionally produced food in the way it is grown, handled, and processed."

US Department of Agriculture

"On the basis of current evidence, the Agency's assessment is that organic food is not significantly different in terms of food safety and nutrition from food produced conventionally."

UK Food Standards Agency

"An extensive literature review of over 150 studies comparing organically and conventionally grown foods found no evidence of better tasting properties or improved nutritional value. In fact, organic produce often had a lower nitrate and protein content."

Woese, K, et al.

J. Sci Food Agric, 74, 1997

What are the main claims about organic food?

Claim - Organic farming is more friendly to the environment

There is a widespread belief that organic farming is more environmentally friendly and more sustainable than conventional systems. It is argued that biodiversity is promoted and higher levels of plants, insects and birds are found and soil health is improved.

In reality, every kind of agriculture has an impact on the environment, so it is important that any kind of farming is carried out in the most environmentally sustainable way.

For example, the use of herbicides has enabled “no-till” practices, which reduce disruption of the soil and minimize soil erosion. With organic farming, most weed control is done by mechanical cultivation methods. Mechanical cultivation disrupts the soil structure, releases carbon into the atmosphere, removes valuable moisture, damages earthworms and soil wildlife, and increases soil erosion.

“It is true that organic systems tend to produce a greater biodiversity than conventional agriculture, but this is not always the case. For example, organic farmers keep their fields clear of weeds by frequent mechanical cultivation, which can damage nesting birds, worms and insects, and actually damage soil structure.”

Trewavas A, 2001

“Conservation or reduced tillage (one or no cultivation together with one application of herbicide) is often used in integrated systems, which greatly benefits wildlife. In addition, integrated farming methods can produce more food from less land than an organic system, hence land can be taken out of cultivation and used to encourage wildlife.”

Holland et al, 1994



What are the main claims about organic food?

Claim - Crop yields from organic farms can be similar to those from conventional farms

In certain rare environments where there are few pests, similar crop yields can be obtained without the use of synthetic pesticides. However, in the vast majority of cases where crops are at risk from pests and diseases, crop protection technologies significantly boost yields.

Indeed, organic agriculture cannot, on a large scale, be adopted in a sustainable way and still be expected to produce enough, high quality food at a reasonable price. For Europe to feed itself organically, it has been estimated that an extra 28 million hectares would have to be ploughed up – equal to the entire forest cover of France, Germany, Denmark and Britain. On a global scale, if all food production in the world were to go organic, an estimated two billion people could be at additional risk of starvation.

"In Europe the relative yield in organic systems compared to conventional ones averaged 68% for cereals and 73% for potatoes. However, for individual countries these figures can range from 55-78% and 45-100% respectively."

Zanoli R, 1999

Claim - Organic farming is better because it does not allow the use of genetically enhanced crops

Over the seven years in which they have been widely grown, genetically enhanced crops have proven their safety and worth, in terms of contributing to more efficient and sustainable agriculture. Genetically enhanced crops able to protect themselves from pests and diseases can increase productivity and enable more efficient and targeted use of synthetic pesticides. Food derived from these crops have to go through rigorous safety testing and approval processes.

Despite the benefits and proven safety record, the principles set out by organic farming organizations call for zero tolerance of genetically enhanced material found in organic crops.

While this "zero tolerance" approach may appear to present a choice for consumers who wish to avoid these products, such an absolute threshold presents practical difficulties for farmers and the food supply chain.

In fact, the difficulty of achieving 100 per cent purity has been recognized when setting organic standards, some of which have allowed for many years up to a five per cent content of "non-organic" food.

To maintain a choice for farmers and consumers, high purity levels are achievable using existing management systems. These provide a proven balance between practical, realistic thresholds and cost to the consumer.

"The available information on GM foods and feeds already on the market indicates that they can be considered as safe as conventionally bred crop plants."

Noteborn H J P M et al
Department of Food Safety and Health, The Netherlands, 2001.

Food production for the future: the choices

Thanks to advances in agricultural technology, total food production has largely been able to keep up with global demand. However, maintaining this balance will be extremely challenging, as population growth outstrips land and water availability.

Whilst organic farming offers consumers in affluent countries an additional choice, it is not a viable solution for feeding an ever-increasing world population. At the same time, it is also clear that the over-use of chemicals is not acceptable in sustainable farming systems.

Therefore, many agriculturalists and environmentalists are promoting systems of Integrated Pest Management (IPM) to provide the best social, economical, and environmentally sustainable solution for crop production globally.

This involves the management of the whole farming system to produce economic yields of high quality produce in an environmentally sustainable way. The overall principle for the judicious use of synthetic crop protection products within IPM is: "as little as possible and as much as necessary". In IPM, pests are managed using the most appropriate techniques, including cultural, biological, biotechnological, mechanical and chemical measures.

Syngenta firmly believes that a truly sustainable agriculture can be achieved through such a system, using the most appropriate technologies, both old and new. This kind of integrated system has significant advantages over organic agriculture.

