EDITORIAL

Genetically Modified Plants Benefit Everybody

We consume approximately one gram's worth of genes in every meal. This may not seem like very much, but each of our meals contains trillions of individual genes. The transfer-genes contained in genetically modified food-stuffs are chemically speaking identical to any other genes -- including our own. Why then fear GM food? Genes are not poisonous, but a natural part of the nutrition nature provides.

For the average consumer, plants are the most important organisms when it comes to genetic engineering. For the time being at least, all GM food in the market originates from plants. GM foods from animal sources do not figure in the market as yet.

In the European Union countries GM food for human consumption is generally not for sale yet, but is expected to be common in twenty years time. Large scale cultivation of genetically modified maize and soya was launched in the United States in 1996.

The area of farmland devoted to growing genetically modified crops increases every year by a rate of approximately ten percent, and was 125 million hectares in 2008, about the size of France and Germany together. Altogether, 13.3 million farmers in 25 different countries grew GM crops, a fact that speaks to the farmers´ confidence in gene manipulation.

Each country growing genetically modified crops has increased its income derived from farming. The fear that seed prices charged by giant multinational companies would drive developing countries into deeper financial distress has not been realized.

Revenues rise as crops improve, harm from weeds and insects is reduced and the plants are not damaged by growth period spraying. Energy is also conserved when spraying is limited to just what is necessary.

Moreover, harvesting is cheaper, because crops are cleaner with fewer weeds and insects. The cultivation costs of gene-modified crops are thus lower than ordinary plants. Not only farmers but also the food industry and consumers benefit.

The objectives of gene manipulation of plants are the same as traditional breeding. It aims to increase the yield of crops and, above all, to strengthen the ability of those crops to withstand diseases, insects and weed-killers. The objective may also be to produce plant species that are resistant to unusually acidic or salty soil or drought.

The majority of the characteristics transferred to cultivated plants through gene-manipulation improve disease and insect resistance.

Herbicide resistant cultivated plants form the largest single group among genetically modified plants. Growing them does not increase the spraying of herbicides despite commonly made claims to the contrary. Biodegradable herbicides have a short life span, which means that growing resistant crops leads to a reduction in the use herbicides that last longer and cause more damage to nature. The plants can also be sprayed at an early stage of development and the number of sprayings during the growth period reduced.

Contrary to what is sometimes claimed, growing insect resistant plants does not increase the use of insecticides. As the plant itself is poisonous to insects (but not to humans), there is less need for insecticide spraying.

Above all, genetic engineering makes plant breeding significantly faster. A breeding program, which under traditional methods would require several plant generations to complete, can often be carried out in the course of one plant generation.

Genetic engineering is also an accurate method of plant breeding. It is possible to transfer just the one gene with the desired characteristic. In traditional breeding, which relies on cross-fertilization, tens of thousands of genes are usually transferred at the same time, some of which may be detrimental to the objectives of the breeding program.

It is estimated that more than two billion people have at least tasted and 1.3 billion people regularly eat food prepared from genetically modified crops: maize, soy or rice. In the United States and Canada, three hundred million people have consumed GM food-stuffs for longer than ten years without a single negative effect. Still, in many European countries, genetically modified foods provoke attitudes that run contrary to common principles: Guilty until proven otherwise.

Under European Union legislation, the presence of gene-modified elements must be stated on food packaging if any ingredient contains more than 0.9 per cent of gene-modified components. The consumer must have - and under the regulations, does have - the freedom of choice.

1874-7612/09

Human consumption of gene-modified food has not led to undesirable health effects. The obligation to mark their use is extremely strict, bordering on zero-tolerance. In practice, the obligation is the only one imposed on substances not known to damage human health. Moreover, no scientific risk analysis has found that genetically modified food could potentially harm humans.

This special issue of The Open Ethics Journal, devoted to the ethical aspects of genetically modified food and its production contains three articles on the topic written by Finnish philosophers and biologists involving different points of view of the theme. The papers include considerations on environmental risks of the cultivation of herbicide-resistant GM plants, research on public opposition and acceptance of GM-food compared with GM-medicine and a review dealing with ethical compatibility of the values of farmers planning to use GM-crops.

Petter Portin
(*Guest Editor*)
Department of Biology
University of Turku
FIN-20014 Turku
Finland
E-mail: petpor@utu.fi