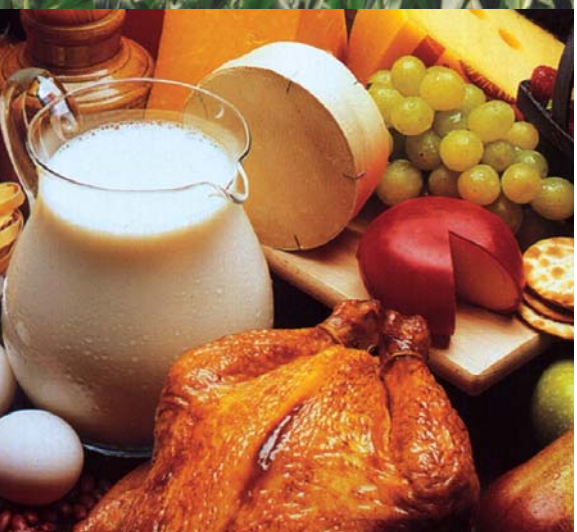

Ensuring Safe Food from the Farm

The Irish Potato Famine: A Cautionary Tale

In 1845, a strange disease struck the potatoes growing in the fields of Ireland. Almost one-half of the crop was destroyed. What later became known as potato blight was caused by a fungus. At that time all farming was "organic," and there was nothing to be done to save the essential food crop. Today, potato blight can be prevented by using modern pesticides which greatly decrease the crop's vulnerability to massive losses. This is a clear case where modern agricultural practices increase the reliability and security of our food supply.

LET'S TALK ORGANIC

What are "natural" or "organic" foods?

All unprocessed food is natural. The question is how it's produced.

Generally speaking, the organic food movement is supported by farmers and consumers who want to conserve soil and water, enhance beneficial biological interactions, and promote biodiversity, without the use of synthetic fertilizers, pesticides, medicines or genetically engineered materials.

Most "conventional" farmers share these goals: sometimes we are talking about a question of approach.

Organic farming isn't easy and has its own unique challenges. Farmers need to have a lot of information, available skilled labour, and time. Protocols dictate which pesticides and fertilizers they can and cannot use. Yields tend to be lower or less reliable and more labour-intensive than with non-organic techniques. Third-party auditing may also be required. These extra costs are recovered through premium prices on organic products.

Are organically produced foods healthier or safer?

There is no evidence that organic food is healthier or safer than non-organic. All food must meet the same inspection and food safety standards. However, it appeals to consumers who may have concerns about pesticide use or the companies that produce pesticides and are willing to pay more for organic foods. Organics serve a niche market and some farmers are benefiting from this niche through the premiums they are paid.

Organic food production is a different philosophy. It is not intended to become the only way to produce food. Most of the world's population could not afford organic food, nor would there be sufficient production to feed it.

THE ROLE OF SCIENCE IN PRODUCING OUR FOOD

Most of the spectacular gains in productivity in the past century had their origins in a laboratory. Plant genetics, soil management, pest and disease strategies, even weather forecasting—every aspect of farming has benefited.

Society has been the winner too, as more nutritious, more abundant, more reliable and less expensive food is produced using less farmland.

Many of these technologies, such as commercial fertilizers, are reaching their limits. More and different advances will be needed to keep moving forward.

For some people, scientific progress is a mixed blessing. Words like biotechnology and genetic engineering can strike fear. Let's take a closer look.

One thing is certain: if we are to feed growing human populations while preventing damage to ecosystems and natural processes upon which all life depends, agriculture must continue to make advances.

WHAT IS GENETIC ENGINEERING?

Genetic engineering (GE) is a form of biotechnology. It refers to the precise alteration of an organism's genetic makeup by adding or removing specific genes. The result is a "genetically modified organism" (GMO). For some farmers, GMO crops provide another option to pesticides for managing infestations. They can reduce pesticide use which is good for the environment and the bottom line. Herbicide-tolerant canola has taken the market by storm: over 70% of all canola planted in Canada is from GMO varieties. Herbicide-tolerant plants are not killed by certain types of herbicides, and therefore the farmer can apply the herbicide to the crop to control weeds, without killing the crop.

Plant biotechnology will mean that crops will be grown for their value as "functional" foods or neutraceuticals—appearing in vaccines and nutritional compounds to prevent or treat disease. Croplands could be the new pharmacies.

For consumers, benefits like "herbicide resistance" may be hard for anyone other than farmers to appreciate, but upping the wellness quotient is another matter. Here's a sampling of possibilities:

- tomatoes that contain more lycopene, an antioxidant that reduces the risk of prostate cancer
- nuts without sometimes deadly (to some) allergenic proteins
- tobacco plants to produce therapies to fight Crohne's disease
- crops that can grow in drought conditions.

HOW DOES CANADA'S GOVERNMENT SAFEGUARD ME?

Testing and more testing. Any proposed product of biotechnology is carefully assessed and regulated by Agriculture and Agri-Food Canada, the Canadian Food Inspection Agency and Health Canada. Additional departments may also be consulted. It has to be safe for people and the environment.

WHAT IS BIOTECHNOLOGY?

Biotechnology involves bringing desirable traits from organisms and biological substances to another. Bread, beer and wine, which are produced with the help of yeast, are early versions of this science. More recently vaccines, antibiotics, and other medicines have been produced using biological agents.

When biotechnology is applied to food, the goal is to influence biological processes in ways that increase the supply, consistency, durability and quality of the plant and animal products we use.

Some types of corn have been modified to protect it from devastating insects, (like this European corn borer) without the need for insecticides. For more info, see www.agcare.org

USDA

For more information about environmental initiatives farmers are undertaking, please visit

www.caringfortheland.com

Caring for the Land

Canada

Agricultural Adaptation Council

Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

AG Care

Produced by: Agricultural Groups Concerned About Resources and the Environment Inc. www.agcare.org agcare@agcare.org

Funding for this project was provided through Agriculture and Agri-Food Canada's (AAFC) Advancing Canadian Agriculture and Agri-Food (ACAAF) program, which in Ontario is delivered by the Agricultural Adaptation Council. AAFC is pleased to participate in this project and is committed to working with industry partners to increase public awareness of the importance of the agriculture and agri-food industry to Canada. Opinions expressed in this document are those of AGCare and not necessarily those of AAFC.