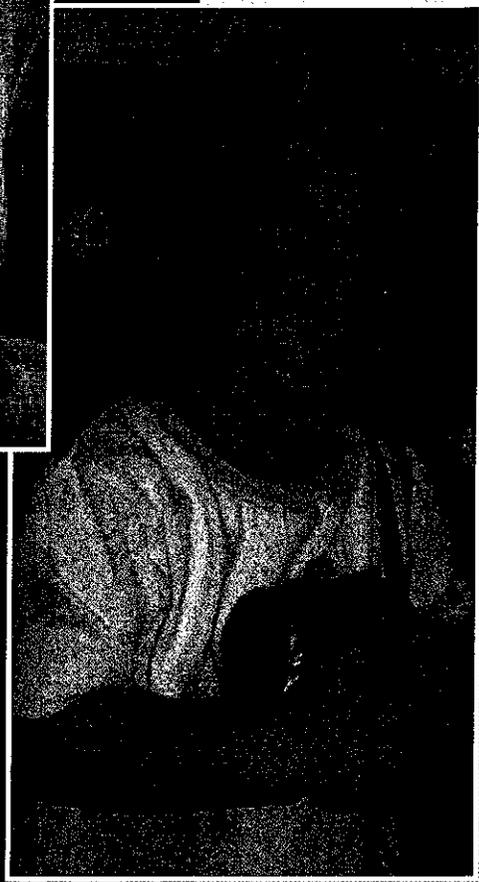
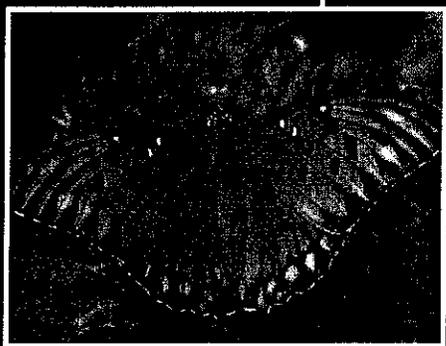
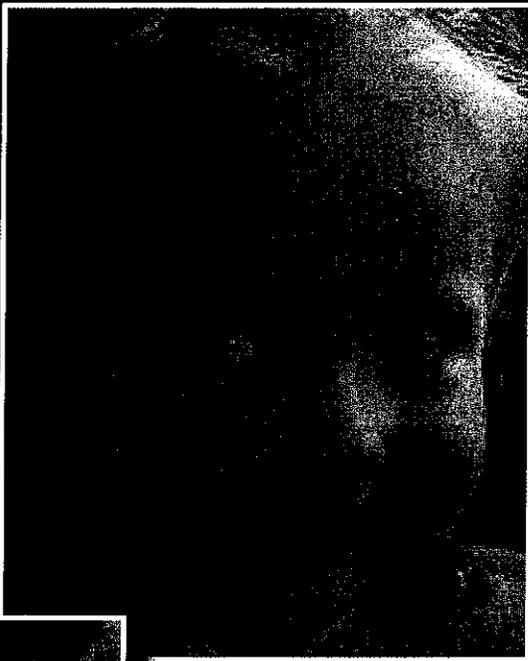


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DATE 1/20/00  
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# Agricultural Biotechnology

New advances in an ancient tradition  
offer promise for the

# uture



## An ancient tradition

The dawn of civilization arrived more than 10,000 years ago, built on what historians call the Agricultural Revolution. It was when our ancestors learned to plant crops and domesticate animals they could grow enough food to live in one place and develop cities, economies, governments, and all the other elements of civilization. In fact, the development of civilization runs parallel with the history of agriculture. Along with developing better ways of tilling the soil, sowing seeds, and harvesting crops, for thousands of years farmers have been altering the genetic make-up of their crops. Modern agricultural biotechnology continues this ancient farming tradition of continually improving crops. In short, agricultural biotechnology has been like a benevolent spirit bringing us new and better crops, foods, fabrics, preserving our soils and waters from ruination, and helping to save millions from starvation.

## 10,000 years of farming progress

Almost all crops species we grow today differ from the wild species from which they were bred. Due to the continual refinement of plant genetics and agricultural techniques, modern farming as we know it today – and most of the foods on our tables and the fibers that go into our textiles – would be nearly unrecognizable to the men and women of 10,000 years ago. In the beginning, plant breeding was a matter of trial-and-error, but that all changed in the 1880s, when the science of genetics was born, and with it agricultural biotechnology. It then became possible to select specific desired characteristics in plants. Some famous names were part of this revolution. **Gregor Mendel**, the father of genetics, was a plant breeder. And as we consider the advances contributed by horticulturist **Luther Burbank** and agricultural researcher **George Washington Carver**, it's clear that agricultural biotechnology has made significant improvements benefiting society.

## The promise of agricultural biotechnology

In a world faced with mounting challenges, agricultural biotechnology offers solutions to a wide array of problems – so much so that it might be said that Ag biotech is the wave of the future that will enable society to flourish. Agricultural biotechnology has and will continue to provide innovative solutions that attack hunger, provide needed nutrition and medicines, improve the environment, enhance the economy, save the family farm and improve the health of individuals and society. In short, agricultural biotechnology is an outstanding example of science in service to humankind and nature.

## Addressing legitimate concerns

As with any new technology, there are legitimate concerns about the safety of agricultural biotechnology, particularly the safety of genetically modified (GM) crops. It is essential that the foods we eat are not just nutritious and tasty, but safe and healthy as well.

### **Fact:**

The United States, Canada, Brazil, Argentina, Australia, China, South Africa and other countries have been producing genetically modified crops for years. More than 100 GM products have been specifically approved for production or consumption in about a dozen countries or economic blocs worldwide.

## ***Agricultural biotechnology offers breakthrough environmental benefits:***

- *Increased crop yields*
- *Reduced use of herbicides and insecticides, yielding safer food and a safer environment*
- *Greater crop resistance to diseases*
- *Improved weed control*
- *Enables small farmers to be economically viable*
- *Reduced run-off of agricultural soils bearing pesticides into surface waters*



People have been consuming foods with some GM ingredients and other products for many years without ill effects. A great deal of research has gone into the study of GM crops and foods. *This research, and our collective experience, has demonstrated the safety of the technology and its products, at both the points of production and consumption.*

Unfortunately, the producers of agricultural biotechnology have not always effectively communicated their findings or allayed legitimate concerns, mistakenly believing that the benefits of their science would be self-evident.

Given the communication vacuum a lot of misunderstandings, urban legends and deliberate untruths have been circulated about crops and foods with GM ingredients. Some of this misinformation is politically motivated and orchestrated by special-interest groups. Interestingly, some of the governments that have been most strident in their opposition to American-produced GM crops and foods are starting to change their position on the subject. This is less an indication that they have suddenly found that foods with GM ingredients are safe, as much as they are catching up with the technology and now want to compete with American products.

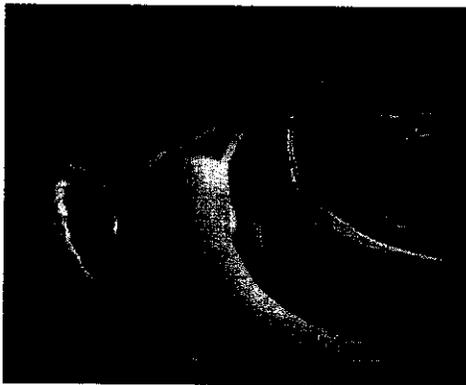
### **A better environment**

It is ironic that environmental groups – such as the Northern Plains Resources Council (NPRC), Greenpeace and others – oppose agricultural biotechnology since many GM crops can and do conserve soil and water, require a lower amount of pesticides, and produce significantly greater yields from the same cultivated acreage.

Misleading criticism of foods with GM ingredients can have grave consequences. For example, who can justify condemning tens of thousands to hunger and starvation, which happened in Zimbabwe, because governments and special interest groups spread disinformation on crops and foods that millions eat safely in our country everyday? Many common foods and fibers – cereals, oils, cotton, confections, ice cream, honey and nutritional supplements – that millions have been eating and using happily and safely for years contain genetically modified ingredients. Instead of treating agricultural biotechnology as a benevolent innovation that can save us from a variety of environmental and social calamities, some argue that it represents a threat to civilization. Strange? History shows that beneficial new technologies, such as pasteurization, are often greeted with skepticism.

### **By 2025:**

- Global population will increase from 5.8 billion today to 8.5 billion people, with the greatest increases taking place in developing countries
- Prime agricultural land will remain the same or decrease
- Worldwide life expectancy will increase from today's average of 68 years to 73 years
- The food gap – the difference between food production and food demand – will more than double to 228 million tons by 2025
- Agricultural biotechnology can minimize these problems



### **Changing attitudes and market acceptance**

Perhaps the most persuasive argument that opponents of GM crops, such as GM wheat, have been able to muster is that legal restrictions in many countries make growing and exporting of those crops a risky business. The global hysteria that these groups have whipped up over GM crops and foods have created a self-fulfilling prophesy. However, attitudes are changing in Europe, Asia and elsewhere around the globe. China and India have embraced the technology and between the two of them, make up one-third of the world's population. On-going education, more enlightened regulatory environments, and effective trade promotion is helping to dismantle some of the trade barriers against agricultural biotechnology and is creating new market acceptance.

### **The spirit of biotechnology: Hope for a better future**

History tells us that agricultural biotechnology has been with us for thousands of years. Just as agriculture formed the basis for civilization, modern agricultural biotechnology can be the basis of a better future for all humankind. But we must be vigilant. History also tells us that there is always resistance to new ideas. In centuries past, ignorant people burned so-called “witches” at the stake. While we have progressed beyond that dark time, today we need to recognize that agricultural biotechnology is a benevolent force that must not be burned at the stake of misinformation like the “witches” of old.

*Our future and the quality of life may depend on it.*



*The spirit of agricultural biotechnology: hope for a better future*

- Enhances the economy
- Improves the health of people and society
- Improves the environment
- Is safe and proven

For more information on the benefits of agricultural biotechnology,  
see the following web sites:

[www.agbioforum.org](http://www.agbioforum.org)

[www.whybiotech.com](http://www.whybiotech.com)

[www.isb.vt.edu](http://www.isb.vt.edu)

[www.colostate.edu/programs/lifesciences/TransgenicCrops](http://www.colostate.edu/programs/lifesciences/TransgenicCrops)

[www.isaaa.org/kc](http://www.isaaa.org/kc)

[www.fao.org/biotech/forum.asp](http://www.fao.org/biotech/forum.asp)