

Since the commercialization of biotechnology in 1996, farmers have used this science to grow plants that yield more per acre with reduced production costs while being resistant to disease and pests and also beneficial to the environment.

In the near future, we'll see crops that will be resistant to environmental stresses like drought and crops that use soil nutrients more efficiently, boosting productivity in areas of the world with inadequate rainfall or poor soil.

Scientists are also looking to use biotechnology to fortify some food plants with higher nutritional content and to produce pharmaceuticals in plants affordably and efficiently.



- ◆ In 2008, 309 million acres (125 million hectares) of biotech crops were planted in 25 countries by more than 13 million farmers.
- ◆ Ninety percent (12.3 million) are resource-poor farmers in 15 developing countries.

Farmers are enthusiastically embracing this technology, especially corn, cotton and soybean varieties, according to USDA. This growing trend is expected to continue, especially at a time when the United States and the world are looking for science-based solutions to rising food and fuel prices.



“Biotech crop commercialization has resulted in significant global economic and environmental benefits and is making important contributions to global food security.”

– PG Economics Limited
“Global impact of biotech crops: socio-economic and environmental effects 1996-2006” (June 2008)
www.pgeconomics.co.uk

Providing Solutions Through Biotechnology

Agricultural biotechnology is already providing solutions for increasing global demand of food and fuel. Biotechnology is benefitting agriculture through:

- ~ Increased productivity
- ~ Disease and pest resistance
- ~ Environmental benefits



With the help of plant biotechnology:

- ◆ corn yields increased more than 30 percent *
- ◆ soybean yields have increased 22 percent *
- ◆ U.S. agricultural production has increased by 8.34 billion pounds on 123 million acres **

**USDA crop production statistics*

***National Center for Food and Agricultural Policy*



Biotechnology is helping food plants resist disease and pests. For example, a genetically enhanced virus-resistant papaya literally helped save the Hawaiian papaya industry for farmers who suffered devastating losses from the ringspot virus, for which there was no other effective treatment.

Scientists have also learned how to fortify some food plants with additional nutrient content. The cassava, for example, is a staple root crop in many developing countries. Biotech cassava can be fortified with enough vitamins, minerals and protein to provide a day's worth of nutrition in a single meal.

Studies also are under way to extend shelf life so foods can be stored longer or shipped further with fewer losses.



Agriculture biotechnology has substantial environmental benefits, because biotech crops require less cultivation and fewer pesticide applications, thereby saving fuel and reducing carbon dioxide emissions into the air. This also improves soil health and water retention.

With the help of plant biotechnology:

- ◆ Pesticide applications have been reduced by 630 million pounds (1996-2006)*
- ◆ No till farming has increased by 35 percent (1996-2002)**
- ◆ Fuel consumption savings equaled 551 million gallons (1996-2006)*

**PG Economics Limited*

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