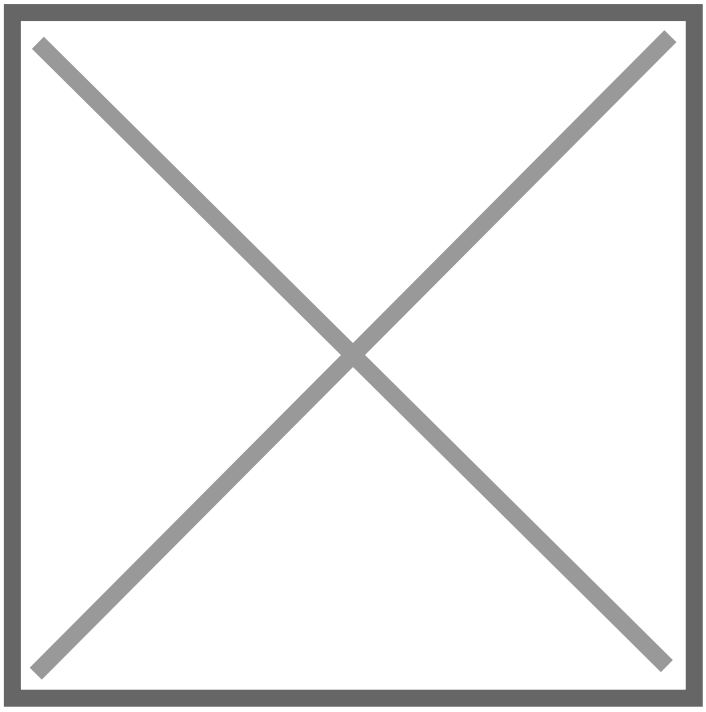
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Plant biotechnology is critical to future of farming

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By **Dr Ravi Khetarpal,** regional director, south Asia, Centre for Agricultural Bioscience International (CABI), UK

Plant biotechnology is successfully impacting the world by helping farmers grow more crops on less land with fewer natural resources. The fact that biotech crops are increasingly being adopted in many countries is a testament to its success.

Biotech food crops have been cultivated for more than 16 years and safely consumed by billions of people worldwide. Biotech crops help farmers protect land for future generations by enabling sustainable agricultural practices. In fact, between 1996 and 2009, global farm incomes have increased by nearly $65 billion due to enhanced productivity and efficiency gains from biotech crops.

In India, Bt cotton, the nation's only commercially approved biotech crop, to date has helped farmers earn an additional $9.4 billion between 2002-10 through a significant reduction in pesticide applications and yield increase.

Biotech crops have helped preserve forests and other wildlife habitats by allowing farmers to increase productivity from available cultivable land. Biotech crops have also helped prevent soil erosion, restore soil quality and reduce greenhouse gas emissions from farm equipment used for ploughing and applying pesticides. Biotech crops can also help in keeping carbon in the soil. In 2010, biotech crops saved carbon dioxide emissions equivalent to removing nine million cars from the road for one year.

Today, agriculture accounts for about 70 percent of global water use-with dwindling resources, it will be imperative for agriculture to become more water-efficient. Techniques and new plant varieties that utilize low-fertility soil and grow under drought conditions will be crucial. As the global population continues to grow, making the most of existing farmland and bringing any new available land under cultivation will be critical.

Poor nutrition accounts for nearly 50 percent of deaths in children under the age of five in India. Investing in research and development to produce nutrient-enhanced crops through biofortification can help increase food quality and security for the masses. With plant biotechnology, researchers have been able to enhance the nutrient content in various crops.

Sustainable agriculture is the need of the hour. It has been defined as Ã¢â?¬Å?an integrated system of plant and animal production practices having a site-specific application that will last over the long-term to:

- Satisfy human food and needs;
- Enhance environmental quality and the natural resource base upon which the agricultural economy depends;
- Make the most efficient use of non-renewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;
- Sustain the economic viability of farm operations; and
- Enhance the quality of life for farmers and society as a whole.Ã¢â?¬?

Plant biotechnology remains one the most promising tools to accomplish many of these goals. Yet, some countries have lagged behind in adopting this technology in spite of conventional approaches to farming reaching their limits. India with its rich think tank need not be one among them as it has the regulatory and technical capacity to largely address the biosafety issues.

About the author

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