
India: New Products and Opportunities

VIJAY VIJAYARAGHAVAN
Sathguru Management Consultants
Hyderabad, India

India's economy is among the fastest growing in the world. During the past 10 years, it has grown consistently at 6% to 8% annually. However, although growth in the industrial and services sectors has been above the national average gross domestic product growth rate, the rate of growth in agriculture in the recent past has been less than 2%. A national mission is to revive the under-performing agriculture sector by:

- Enhancing farm production and food quality
- Reducing waste.

The strategy involves:

- Attracting investments that will trigger high growth in agriculture and in the processed-food industry
- Partnering in global research initiatives that will help India to acquire as well as provide technologies
- Nurturing innovation that will help to create competition and provide opportunity for development of commercialization of new products.

EMBRACEMENT OF AGRICULTURAL BIOTECHNOLOGY

Early on, India realized the need to apply tools and techniques of agricultural biotechnology to enhance agriculture and increase food production. Accordingly, the country has permitted growing of bollworm-resistant transgenic cotton since 2003, with wide adoption of the technology by farmers. During the year 2006, about 3 million hectares of transgenic cotton are expected to be planted, making the country the second-largest grower of genetically engineered cotton in the world.

Some fourteen crops are currently being developed with various traits incorporated for mitigating biotic and abiotic stress factors. There are also efforts to enhance nutrition that can provide relief to mal-nourished children.

The fruit- and shoot-borer-resistant eggplant is an early food crop being tested in farmers' fields in 2006. The fruit and shoot borer can cause crop losses of 30% to 60%.

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CONSORTIUM APPROACH

This single transgenic event in eggplant has the potential to bring economic gains of over \$300 million for the region. This project is supported by the Cornell-managed Agricultural Biotechnology Support Project II (ABSPII), funded by USAID and regionally supervised by Sathguru, a consortium partner within ABSPII. The project aims for the first time to provide technologies to the public sector by delivering transgenic seeds to resource-constrained farmers who would otherwise be denied such access. ABSPII has also facilitated transfer of technologies to other Asian countries including Bangladesh and the Philippines.

Scientists in India, the United States, Bangladesh, Indonesia and the Philippines have combined their efforts and expertise to develop drought- and salinity-tolerant rice, virus-resistant groundnut and sunflower, late-blight-resistant potato and virus-resistant papaya.

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The consortium approach now being adopted by many Indian research enterprises—sharing technologies and co-operating in product development—has resulted in conserving precious resources, enhancing ability to develop products and sharing research outcomes for public-good application.

SOCIO-POLITICAL ISSUES

While transgenic technologies are certain to provide gains for Indian agriculture, to maximize these gains it is essential to address certain currently prevailing constraints. Extensive creation of public awareness, educating science writers and journalists appropriately in terms of risk and benefit factors and harmonizing the regulatory framework will help to ensure systemic adoption of the technology.

A KEY PLAYER REGIONALLY AND GLOBALLY

India will be a key player in harnessing and applying agriculture biotechnology inventions, tools and techniques to enhance food production and also to contribute to alleviating global poverty by providing access to invaluable technologies to other needy nations. Young, multi-faceted talent provides the opportunity for India to be the research destination of the world.



VIJAY VIJAYARAGHAVAN is a certified management consultant and a fellow of the International Council of Management Consulting Institutes (ICMCI). He holds a masters and fellowship in public accounting and management consulting, with focus on strategic and technology management consulting.

Mr. Vijayaraghavan is the chief executive of Sathguru Management Consultants Pvt Ltd, based in Hyderabad, India. Sathguru advises government organizations, multilateral and bilateral development institutions, private enterprises and NGOs in several countries across the Asian region. He is engaged in shaping number of policy initiatives in life sciences for India and is a member of national committees constituted for this purpose.

Sathguru is associated with the Cornell-in-India program, of which Vijayaraghavan is a director. The program encompasses several countries in Asia. Vijayaraghavan is also regional coordinator of the South Asian (India and Bangladesh) activities of the Agricultural Biotechnology Support Program II.