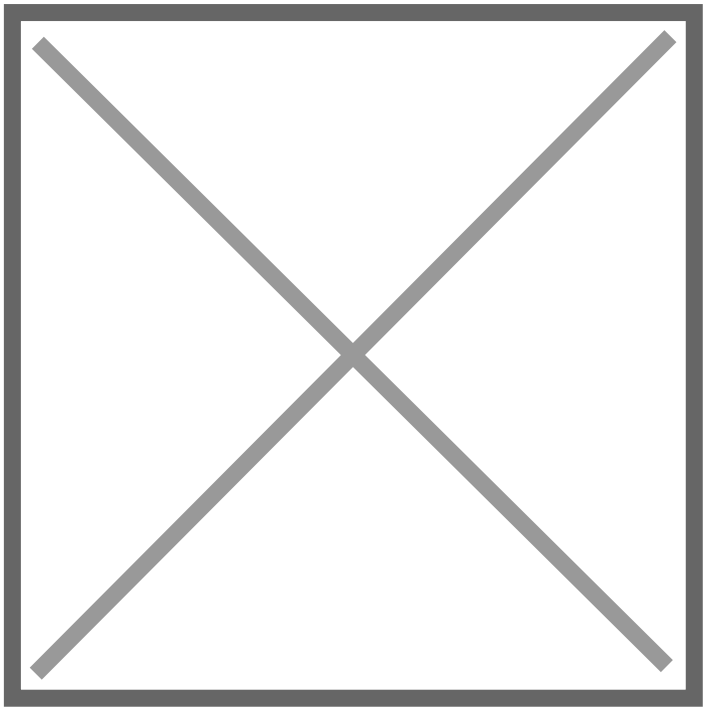
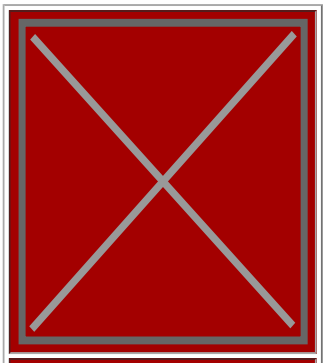
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Feeding the world from India

10 March 2005 | News





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Agriculture is the backbone of the Indian economy. Over two-thirds of our working population is directly engaged in farming. This sector contributes over one-fourth of the total Indian GDP and any change to agricultural growth has an amplified impact on our overall growth. This is not just because of the sheer relative size of the agricultural sector, but due to its indirect impact on the growth of other sectors of the economy as well. However, it is obvious that an Indian engaged in agriculture is, on an average, far less economically productive compared to his counterparts engaged in other activities. This is in sharp contrast to the situation in many other developed economies that have a significant agriculture sector, like the US, Canada, France, Australia and New Zealand. In all these places a far smaller proportion of the working population is engaged in the agricultural sector. And, the proportional contribution of agriculture to their overall economies is far higher than the proportion of working population engaged in farming.

If anyone had a choice of jobs to earn ones living in our country, the last thing one would want to do is farming. Much of the rural population in our country is today engaged in agriculture, not so much out of their own choice, but more out of the force of circumstances. It is therefore not surprising to notice the continuing migration of rural families in very large numbers to urban areas. There is therefore an urgent need to focus on making agriculture a more lucrative profession by increasing the economic contribution of every agriculturist and the agricultural worker in this country. New technologies that can balance sustained growth with industrialization of agriculture so as to increase income generation to farm families need to be developed. Agricultural biotechnology is a very potent tool to achieve this end and in many ways, more relevant in our country as compared to some of the more developed western economies.

Strengths and crying needs

We may be the seventh largest country in the world in terms of total land area, but we rank second in terms of available arable land, with over 163 million ha, next only to the US. Out of this, 57 million hectares are irrigated which is the largest area in any one country. We have the largest areas under many important crops, most notably rice, cotton, groundnut and pulses and a close second in several others including sugarcane, wheat and vegetables. However, in terms of productivity, we may rank among the lowest. This is in spite of the significant gains that have accrued in the last three decades of Green Revolution. In a comparable geography, China, which has approximately three-fourths of our area under rice, produces nearly 60 percent more rice than us, which in terms of productivity is more than double that of ours.

We also have the largest population of cattle and buffaloes and are the largest producer of milk and the fifth largest producer of eggs.

Global growth of agricultural biotechnology

Genetically altered crop varieties came into large-scale cultivation in 1995-96 after more than a decade of careful testing for safety to man and his environment. From a little less than two million ha in the first year to over 75 million ha last year is a growth unprecedented for any other modern technology in agriculture. This growth in adoption of genetically altered crops is ample testimony to the benefits it can confer. Insect-pest tolerance, herbicide tolerance and improved nutritional attributes, are some of the desirable traits in genetically altered crops that are in cultivation today.

Responsible use of biotechnology in Indian agriculture is an imperative for our future food, livelihood and economic security. While we have taken a few tentative steps in this direction, there is still a long way to go. In my opinion, several initiatives need to be taken to make this happen sooner rather than later. Three such initiatives, which need urgent attention, are:

Implement an efficient regulatory system for research and commercialization of transgenic crops

Our country needs a regulatory system, which commercializes safe technologies in a time-bound manner and which has the complete confidence of the general public. The success or failure of our regulatory system should be measured against the number of safe release and use of biotechnology products every year. The system should also have a clearly laid out protocol and administrative machinery for independently monitoring the safe use of approved technologies, prevent cultivation of unapproved transgenic crops and importantly, have a clear, implementable contingency plan to be put in place in times of an unanticipated crisis. Recently a task force headed by Prof M S Swaminathan has recommended the establishment of a National Biotechnology Regulatory Authority and laid out the procedure for commercialization of transgenic crops. These recommendations need to be implemented as early as possible.

Revitalize crop biotechnology research and training

The limited resources that can be made available for crop biotechnology research have to be deployed for those projects that will have an application, if not in the immediate term, at least in the medium-long term. Each project has to have clearly defined milestones or deliverables. The success or failure of a project is to be evaluated based on the achievement of milestones and not merely based on whether the action items have been undertaken or not. It should be possible to change or modify the action items, based on a mid-term review of a project, if it is felt that it not leading to the desired deliverable. In short, the "end" is what is important and not the "means" to the end. Also, in this context it is important to promote more productive public-private partnerships.

Promote agri-biotech business

Over the past decades, it has been recognized that a major component of technology and seed delivery to our farmers has been through the national and state seeds corporations and more recently through privately held seed companies Ã¢â?¬â??both multi-national and Indian. A competitive edge for these seed companies has undoubtedly been performance of their products (varietal seeds, hybrid seeds and transgenic seeds). Seed companies will need to heavily invest in technology to continuously maintain superior product portfolios, to ensure their survival and growth especially in an era where business has been very competitive and farmer expectations of high performance seeds have become very demanding. However, technology investments by Indian seed companies have been far from satisfactory. This has been primarily driven by three factors Ã¢â?¬â??

Ã¢â?¬Â¢ High costs of technology development

Ã¢â?¬Â¢ Uncertainty in time frames of technology commercialization, and

Ã¢â?¬Â¢ Inadequate value capture and protection mechanism for investors in agricultural biotechnology.

A clear impetus needs to be provided to homegrown seed and agricultural biotechnology businesses to meet growing demands of Indian agriculture.

Given the natural resources that our country possesses, and the long agrarian tradition, we could be world leaders if technology in agriculture is adopted in an efficient and responsible way. In this effort, it is important to address the needs of our country and population while at the same time not letting go of any opportunity for exports and earning valuable foreign exchange. These are not mutually exclusive goals and need to be properly balanced in order to ensure a sustained growth of our economy and welfare of our people. n