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Sustaining growth momentum

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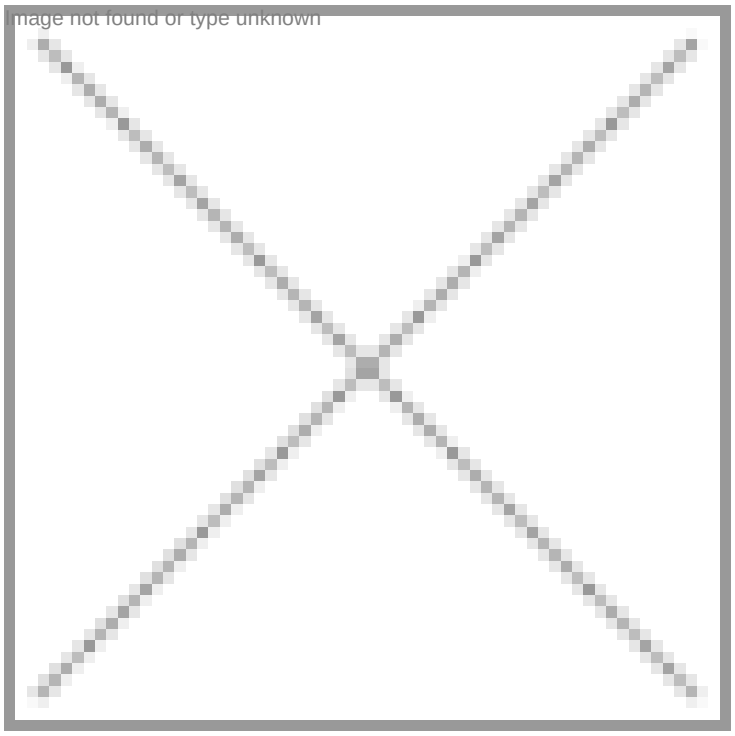

Sustaining growth momentum

It is high time the Plant Variety Protection and the Farmer's Rights Act of 2002, is effectively enforced

Agricultural biotechnology continues to be the fastest growing biotech sector in the country with over 80 percent growth in the last one year. This growth is primarily fuelled by the increasing acreage under Bt cotton, the only transgenic crop, approved for commercial cultivation in the country. Since its first commercialization in 2002, the area has increased almost 30 folds, from 44,500 ha to 1.3 million ha last year. While the global average for the annual increase in area under transgenic crops last year was 11 percent, the Bt cotton area in India rose by 160 percent. In just four years, India has emerged as the seventh largest grower of transgenic crops, with over one million farmers cultivating Bt cotton.

Dr KK Narayanan Managing Director, Metahelix

In the last count, 58 hybrids from 16 companies have been approved for commercial cultivation in the country. Most of these hybrids carry the Bollgard-I technology from Monsanto, that has been sublicensed to over a dozen Indian seed companies through the joint venture between MAHYCO, a Maharashtra-based Indian seed company and Monsanto. Earlier this year, Bt cotton hybrids carrying two competing technologies, one developed by JK Seeds Pvt Ltd in collaboration with IIT Kharagpur, and the other sourced from China and developed by Nath Seeds Pvt Ltd were approved for commercial cultivation. Along with these new Bt cotton hybrids, three hybrids of MAHYCO, carrying the second generation insect protection technology from Monsanto, Bollgard II has also been approved for commercial cultivation.

Bt cotton yield

Since the introduction of Bt cotton, there has been an increase in the total cotton production in the country without a

commensurate increase in area of cultivation. In 2002, the total cotton production was 10.6 million bales which increased to 19 million bales last year. While some of this increase can be attributed to other factors, a careful analysis underlines the role of technology, particularly the Bt cotton hybrids as a significant contributor to the productivity increase. States like Andhra Pradesh where the Bt cotton area increased by 250 percent, the highest in the last one year, and Maharashtra where the increase was 195 percent, are also regions where cotton productivity has increased most significantly. Gujarat, which also saw a significant jump in cotton productivity, appears to buck this trend. Here the area under Bt cotton is reported to have increased only by 15 percent. But this state has seen the largest spread of unapproved varieties of Bt cotton, some say it is almost 85 percent of the total cotton area in the state. If this area, which is obviously not accounted in the official figures of Bt cotton acreages, is factored in, then Gujarat also reinforces the correlation between Bt cotton and increased productivity.

Benefits of Bt cotton

In addition to increased productivity, growing of Bt cotton has also resulted in significant reduction in the use of pesticides and realization of better quality, which have all resulted in increasing incomes to the farmer. There are, however, continuing attempts to highlight isolated cases where Bt cotton failed to deliver the expected benefits or project unsubstantiated reports of adverse effects on farm animals. Such efforts can be seen as a last ditch battle against the growing popularity of Bt cotton, and only go to accentuate the real benefits conferred by the technology to the large section of cotton farmers in this country. The debate in now clearly shifting from issues around the safety and efficacy of the technology, to issues like how the technology benefits should be shared. The most recent example is the controversy over the pricing of the Bt cotton seeds and the government intervention in limiting the seed price. Such interventions, not only go against the principles of free market, but are also unwarranted at this time, when farmers have a choice of new technologies that can give a fair competition to existing ones.

Adopting Bt crops

The promise of biotechnology in agriculture, especially for an agrarian economy like India is now widely accepted. This is also reflected in the large-scale efforts, both in the public as well as the private sector to develop and commercialize genetically modified crop varieties. As of 2005, 14 genetically modified crops were under advanced stages of regulatory field trials. These include field crops like rice, mustard, maize, sorghum and ground nut; pulses like chickpea and pigeonpea, vegetables like tomato, okra, cauliflower, cabbage, tubers like potato and of course, cotton. The traits under development are insect resistance, virus resistance, male sterility, resistance to fungal pathogens and nutritional enhancements.

Though relatively late in adopting biotech crops, India has done well for a start. It is now important to sustain the momentum of this initial growth so that this technology quickly brings a better life to large sections of our society. Towards this goal, two initiatives are important; one, promote innovative research in the country and two, regulatory reforms.

Promoting innovative research

The availability of scientific talent in crop biotechnology, combined with the low cost of innovation can significantly reduce the cost of product development. It is notable that many of the multinational corporations are setting up their own research centers here if they do not have one already, or are partnering with local institutions for research and development of agricultural biotechnology products, not just for India but for the global market as well. It must be understood that in the context of a big agrarian economy like ours, there could be short-term gains in promoting research outsourcing but the really big and long-term value is in developing products tailored to the needs of our agricultural sector.

We have many public institutions that have the competence to develop genetically altered crop varieties using all the modern tools that plant biology has to offer. However, very few useful products have been commercialized by these institutes over the years. Often times it has been the lack of product-focus that leads to the wasteful dissipation of the limited resources that has resulted in this situation. While project funding needs to be increased, there must be an immediate review of the projects to bring about a focus on products or solutions to specific agricultural problems. There should also be a thrust on networking and meaningful collaborations between the public and private institutions. Support for applied research projects should be based on "outcome-oriented" reviews based on clearly laid out, measurable milestones.

Government support

In recent years the private sector has also made significant investments into agricultural biotechnology research. Such investments are beginning to bear fruits. However, resource constraints, and the high risk perception, especially in value capture for agricultural biotechnologies in this country, have made the private sector take a rather cautious approach towards research. Innovative ideas which are usually attended by a high risk of failure are often not pursued. There must be more government support directly to the private sector to mitigate the risk of such research projects so that the capacity and experience of the private sector is leveraged appropriately for development of novel products in agriculture.

A key driver of technology innovation is an appropriate intellectual property (IP) protection system. It is high time the Plant Variety Protection and the Farmer's Rights Act of 2002, is effectively enforced. There is also a need for clarity on whether

genes and such transgenic technologies can be protected under the new patenting regime.

Regulatory reforms

The testing and approval process for commercialization of transgenic crops, though continuously improving, is still prone to unreasonable delays and uncertainties, all of which add significant costs and indirectly stifles competition. The involvement of multiple agencies and multi-tier committees often leads to unnecessary delays and duplication of efforts. For e.g., the testing of agronomic performance both in the Large Scale Trials (LST) and in the Indian Council of Agricultural Research (ICAR) trials is unnecessary duplication of efforts. It can even be argued that the regulatory testing should be limited to assessing the bio-safety and efficacy of the transgenic product. With increasing choices, it should be left to the farmer's wisdom to choose the variety that best suits his/her growing conditions.

The formation of the proposed National Biotechnology Regulatory Authority (NBRA) as envisaged in the National Biotechnology Development Strategy document prepared by the Department of Biotechnology could be a single window agency to clear the commercialization of transgenic crops. Further, the implementation of certain policy changes in the regulatory process like gene/event based approval instead of the present variety/hybrid based approval will go a long way in avoiding unnecessary costs and generally in hastening the dissemination of approved technologies.