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Cotton economics in India is confused

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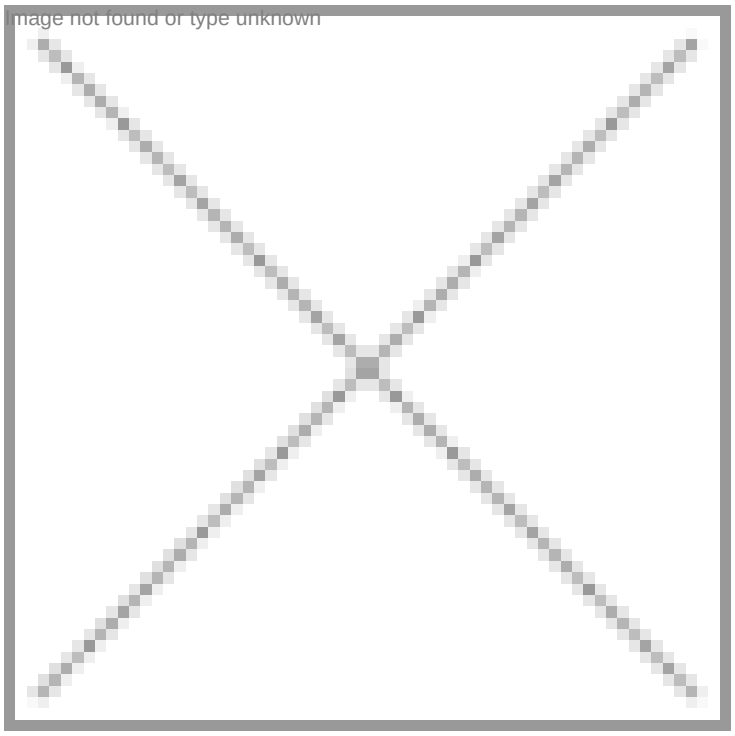

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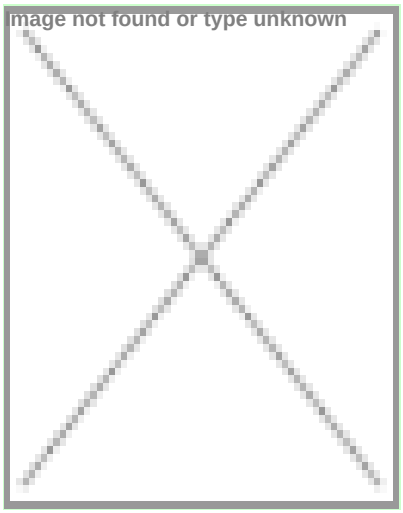

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The Bt cotton example should teach us that the social, economic and political impact of this technology needs to be understood in order to better identify the path of technology adoption that developing countries should follow when expensive transgenic technologies are on offer.

Bt cotton is so far the only genetically engineered crop to be given permission for commercial cultivation. It has been cultivated in India since the agriculture season of 2002- 2003 when three Bt cotton varieties owned by the company Mahyco-Monsanto Biotechnology were given approval for commercial cultivation. The three Mahyco-Monsanto Biotechnology (MMB) varieties, MECH 12, MECH 162 and MECH 184 were given provisional permission for three years for cultivation in six states, Andhra Pradesh, Tamil Nadu, Maharashtra, Gujarat, Madhya Pradesh and Karnataka. Of these, some are irrigated and others like Andhra Pradesh and Maharashtra are dry land areas.

However, before the approval for the MMB varieties, for a period of at least three agriculture seasons, Navbharat Seed Company in Gujarat, had already sold Bt cotton seeds to farmers in the state. This Bt cotton did not go through the biosafety regulatory system and is therefore illegal, but it is a strong player in Bt cotton cultivation in the country. The regulatory system has failed to control the spread of illegal cotton nor taken a policy decision on it. Although a case has been filed against Navbharat, it is dragging in the courts, plagued with serious procedural lapses on the part of the government. No action has been taken yet, seven years after the illegal cotton was detected.

The performance of the MMB varieties has been controversial, there being reports of failure of the cotton in many parts of the country, chiefly in the dry land states of Andhra Pradesh and Maharashtra. Data on Bt cotton performance has been collected by a number of agencies, which has included state agriculture departments, civil society organizations, academic institutions and media persons. The consensus appears to be that the MMB cotton has largely failed. The provisional permission granted to MMB in 2002 has not been renewed. Other Bt cotton varieties have done poorly in the dry land areas and better in the irrigated zones. There is no authoritative assessment of the performance of Bt cotton in India despite all the controversy surrounding it, yet the GEAC continues to approve Bt cotton varieties without pause and without review.

Bt cotton technology adoption has been inconsistent in India and most farmers have not maintained the mandated insect management refuges needed to keep the technology effective. Pesticide sprayings have continued partly because of lack of awareness and partly because pest attacks have been heavy and have required large numbers of pesticide sprays, leading to insignificant savings on pesticide use, the main claim of the Bt technology package. In addition to this, Bt cotton was found to require far more water than its non-Bt counterpart. Bt cotton seeds are expensive, priced at approximately four times the cost of high performance non Bt cotton hybrids. This raises input costs for the farmers and if yield and pesticide savings are not substantial, the farmer gets into an unprofitable situation.

Currently 62 varieties of Bt cotton have been approved for commercial cultivation. These are approved for the six original states as well as the new states of Punjab, Haryana and Rajasthan, which are the states in northern India, where cotton cultivation is in irrigated lands. As of today, Bt cotton varieties have been approved for all the cotton growing regions in India. The new Bt cotton varieties are from Indian seed companies but almost all incorporate the Cry 1Ac gene licensed from Monsanto. Only Nath Seeds has incorporated a Bt gene developed by the Chinese. No public sector institution has yet brought a Bt cotton variety to the market although several have been conducting research these past several years.

Legal dispute over Bt cotton

The controversy over the performance of the Mahyco Monsanto Bt cotton has escalated into a legal dispute with the company being charged with exorbitant pricing and establishing monopolies in the field of Bt cotton. Mahyco Monsanto had priced its Bt cotton at Rs 1,650 per bag of seeds, which they later raised to Rs 1,800 per bag. Of the Rs 1,650, Rs 1,250 went to Monsanto as license fee for use of the Bt technology. The license fee was increased when the price was hiked to Rs 1,800. This is the highest license fee charged by Monsanto anywhere in the world. They charge about one-tenth this rate in China and Brazil.

MMB produces its Bt cotton in India as a hybrid, not as a true breeding variety. The other companies have followed this trend as well. This consolidates their monopoly. Farmers cannot save seed from hybrids and must buy fresh seed every season. In the case of true varieties, they can save seed from their harvest and plant the next crop. The financial burden on the farmer is lower. Besides, the Bt cotton strategy for pest control works better in a variety which contains two Bt genes, than a hybrid which contains only one Bt gene and is therefore only half as effective as the true variety.

The Andhra Pradesh government had banned the sale of MMB Bt cotton in the state following the company's refusal to pay compensation to those farmers who had suffered losses because their Bt cotton had failed to perform as claimed. The Andhra Pradesh government subsequently asked MMB to reduce the exorbitant license fees they were charging to something more reasonable, so that the seed could be more affordable to farmers. The steep price of GM cottonseeds was

recognized by the government's investigative agencies as a major reason why the economics of Bt cotton was not working for many farmers. When MMB refused to reduce their seed price, the Andhra Pradesh government and two farmer organizations moved the Monopolies and Restrictive Trade Practices Commission (MRTP C) against the company in January 2006 for charging "exorbitant" royalty for Bt Cotton.

On the instruction of the Monopolies and Restrictive Trade Practices Commission, the matter was investigated by the Director General of Investigation and Registration (DGIR). The DGIR report stated that MMB had failed to provide any rationale for the exorbitant license fees it charged. As there was no competition, the company was in a position to charge for the technology arbitrarily and unreasonably, thus establishing a monopoly. In an interim ruling the MRTP Commission had directed Monsanto to reduce its technology fee in India to the rate it charges in China. Anticipating this MMB had unilaterally reduced its license fee to Rs 900 per bag but the MRTP Commission ruling could require Monsanto to cut down its license fee still further.

Having been indicted by the MRTP Commission, MMB has moved the Supreme Court challenging the order of the MRTP Commission directing it to fix a reasonable price for Bt cotton. The matter is sub judice.

In the meantime, the number of farmer suicides has been on the rise in cotton growing states, particularly Maharashtra and Andhra Pradesh. Indebtedness has been identified as the major cause for farmers taking their lives. Bt cotton is a very expensive technology, which has not worked in dry land areas, adding to the debt burden of farmers. Many believe it has made a bad situation worse, leading to the ultimate tragedy of suicides.

The cotton economics in India is confused and the government's cotton policy is not clear. At the time of approving Bt cotton, GEAC had said this technology was not recommended for small farmers, yet it did nothing to enforce this requirement nor did it make any effort to generate awareness among farmers to explain why this expensive technology was too risky for them, particularly in the rainfed areas. Instead of protecting the small farmers' interests, the GEAC approved Bt cotton varieties for the entire cotton belt and allowed small farmers to suffer irreversible financial losses.

The confusion on Bt cotton does not stop there. On the one hand the government is promoting cotton cultivation and on the other hand, it imports cheap cotton from China even as domestic stocks lie unsold. The social and economic impacts of Bt cotton in such a situation are many and need to be studied. The advent of Bt cotton technology in an agriculture situation where a large number of cotton farmers are small, resource poor farmers in dryland areas who have low literacy levels, needs to be examined systematically in order to assess the relevance of this technology to Indian agriculture and its small farmers. The Bt cotton example should teach us that the social, economic and political impact of this technology needs to be understood in order to better identify the path of technology adoption that developing countries should follow when expensive transgenic technologies are on offer.