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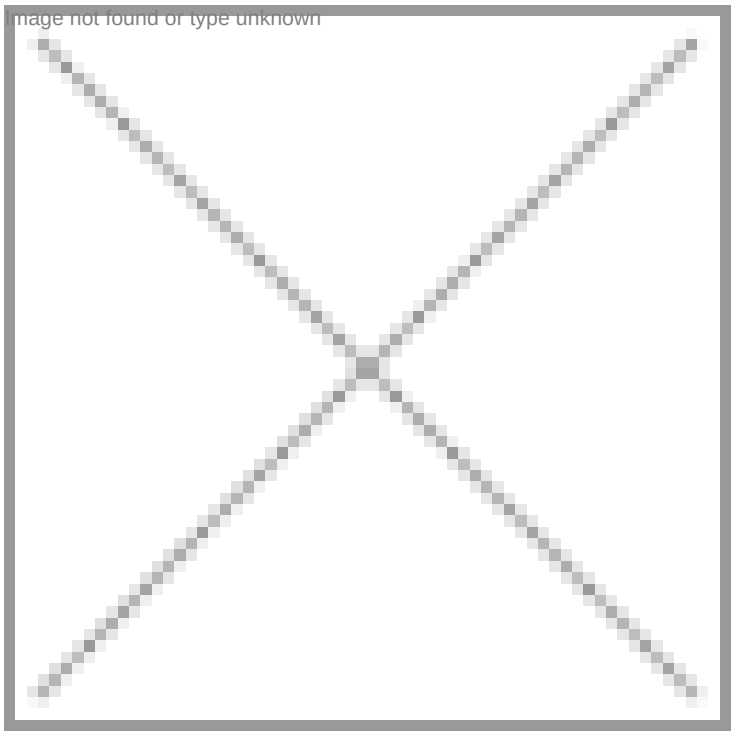
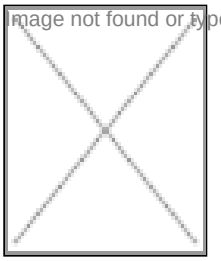
Bt cotton fiasco: Turning a blind eye

20 October 2003 | News





Two years back, a British radio journalist had asked me "isn't it like sending a soldier to the battle front and then asking him not to use the latest sophisticated assault rifle"? He was referring to the Indian government's initial decision to burn down the illegally grown genetically modified cotton on some 10,000 acres of farmland in Gujarat. Since then, Bt cotton was allowed to be commercially grown in the southern and central states of the country.

"It will certainly be tragic to deprive a soldier of the latest weapon. But it will be more sinister and criminal to provide the soldier with an AK-47 gun and then deliberately make him step onto a 'booby' trap," I had replied. Further adding that Bt cotton containing a gene from a soil-borne bacterium, Bacillus thuringiensis (Bt) is an attractive biological trap, more potent than the toxin it produces that kills the dreaded bollworm pest.

"But then a majority of cotton growers are happy with the standing crop even if the seed was clandestinely supplied," asked the journalist, stating that there is a growing demand that the genetically modified crop, which has proved to be effective against the bollworm insects should not be destroyed. "Yes, you are very right," I replied. "This is exactly what had happened when the fourth generation pesticides, synthetic pyrethroids, were introduced in the country less than 20 years ago. And since then over 10,000 cotton growers have committed suicide."

I had explained this elaborately in one of my columns. Friends of biotechnology industry however would not accept this. They went on harping about the significant economic returns that the farmer would get by cultivating Bt cotton. They talked of the benefit to the environment given the pesticide reduction figures that were very conveniently churned out. The Department of

Biotechnology (as well as Mahyco-Monsanto) had claimed that despite the extravagant price of the modified seed, the net gain to farmers would be in the range of Rs 10,000 from an acre.

Such was the desperation to push the risky technology that two researchers from the University of California at Berkeley and the University of Bonn in Germany were drawn in to justify the crop research trials that Mahyco-Monsanto had carried out. They did a remarkable job, painting such a rosy picture that embarrassed even the multinational giant Monsanto. Their paper published in the reputed journal Science in Feb 2003 extrapolated the flawed findings to all the crops, concluding that GM crops would increase crop yields in the developing countries by 80 percent!

Bt cotton failure and that too in its very first year of planting has already been documented and much written about. So much so that even a Parliamentary Committee had put its stamp over the monumental scientific blunder. An official report prepared by the Andhra Pradesh government on the performance of Bt cotton in 2002â€"the first year of its commercialization showed that "in North Telengana region the net income from Bt varieties was five times less than the yield from local non-Bt varieties. In Southern Telengana, the income from Monsanto's Bt crop was nearly seven times less than what was obtained from the indigenous non-Bt cotton varieties demonstrating the resounding failure of the Monsanto variety."

What does this report card indicate? Nothing.

But surprisingly, no uncomfortable questions were asked, no heads have rolled and no one has been held accountable for the biggest scientific fraud to hit Indian science since independence. Neither the farmers have been compensated nor has the industry been blacklisted.

Such is the lack of governance that the seed industry continues to multiply the sub-standard seed with impunity and is looking for a fortune from the torn pockets of the small and marginal farmers. Such is the callous apathy towards the farming community that the apex committee, Genetic Engineering Approval Committee (GEAC), has instead of persecuting the erring firms and officials, further allowed the seed companies to incorporate the Bt gene into any cotton variety.

Let us try to understand the reasons behind the introduction of Bt cotton. The approval to Bt cotton stems from the fact that intensive cultivation practices and indiscriminate use of conventional as well as fourth generation pesticides like synthetic pyrethroids have created resistance among some of the key pests, including the American bollworm.

Dependence on chemicals has in some cases been so heavy that farmers often resort to a mix of several pesticides, the so-called pesticides cocktail and it is not uncommon to spray more than 30 times per season. It is also true that if the crop fails because of weather conditions and/or pest resistance, a rising number of farmers have been known to consume the same chemicals to end their lives and escape the humiliation that comes with mounting debts.

Simply for the sake of pest resistance, Bt cotton in any case was a faulty prescription. For it is widely accepted that in case of Bt cotton the third generation of the pest is the most problematic. But then you will ask how come the southern China farmers have been growing this variety and not encountering any problems? What is not known (or they don't want it to be known) is that Chinese farmers have to spray more pesticide to control third and fourth generation of American bollworm insects.

At a recent international workshop at the Institute of Development Studies, University of Sussex (UK), I asked the representative of the Chinese Academy of Agricultural Sciences to explain as how should we believe the veracity of the official claims. He looked at me as if he had not even understood what I said. He was again quiet when asked as to what would the Chinese farmers do if the Bt crop failed. Would they demonstrate to show their anger?

From the data presented, it becomes clear that the Chinese experiment too was nothing but sheer propaganda. In 1999, the first year of Bt cotton cultivation on a commercial scale, the pesticides usage had dropped to 7 kg. The next year in 2000-01, pesticides application had increased to 14 kg per hectare, a clear indication that the insect resistance had failed to sustain in the first two years.

Asked about the results for 2002 and 2003 crop season, the answer is that such studies have yet to be undertaken. The reason is obvious. Pesticides applications have jumped up and the Chinese scientists and officials do not want to put their heads on the chopping block.

Doesn't the rate at which pesticides applications have grown in the first two years indicate that pesticide usage has now multiplied to something around 28 kg per hectare (or even more)? If that be so, where is the gain? What has been the advantage of passing on this risky and expensive technology to farmers and at what cost?

Isn't it a fact that the entire gain has been to the seed industry, which has walked away with huge profits leaving the farmers and the environment in deep crisis? Where is the Rs 10,000 per acre advantage that the Indian Department of Biotechnology

had promised to cotton growers?

In Australia too, farmers have now been advised to go in for more sprays because of a drop in expression levels. In India too, reports of breaking down of resistance against the bollworm pest have been widely
reported. With the insect increasingly developing immunity against the Bt toxin in the plant, scientists are now trying to introduce genetically manipulated varieties with two Bt genes. It may then be the turn of a gene from scorpion, and then from a snake. The "biological circle of poison" is certainly going to be more dangerous than the chemical cycle that farmers have been forced to live with. It is a heavy price that the Indian farmers have paid and are more likely to pay in future with the introduction of Bt varieties.

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