

## Exposing the rot in science

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The Bt cotton controversy refuses to die down. Environment Minister TR Baalu refuses to accept that the genetically modified (GM) crop - in the very first year of its commercialization - has failed in many parts of the country. The Andhra Pradesh Agriculture Minister, VS Rao, on the other hand has gone on record saying that farmers have not experienced very positive and encouraging results. At the same time, irate farmers have demonstrated at many a places demanding adequate compensation from the seed company - Mahyco-Monsanto.

While the government as well as the company refuses to acknowledge the failure, and for obvious reasons, it is the failure of the scientific community to stand up and be counted that has been the biggest fallout of the unsavory debate. That the scientific community, more importantly the Indian Council of Agricultural Research (ICAR) - has preferred to maintain a silence over the Bt cotton debacle casts serious doubts about the kind of research claims that are being made.

At the heart of the debate is a dubious research paper published in the distinguished American journal Science. David Zilberman and Matin Qaim, the authors of the controversial paper "Yield Effects of Genetically Modified Crops in Developing Countries" (Science, Feb 7, 2003, Vol. 299), have shown a stupendous increase in Bt cotton yields - averaging an increase of 80 percent or more - and have even gone to the extent of extrapolating this "phenomenal growth in production" to cover the entire range of GM crops for the developing countries. The authors accept that they used the official-trial record for pest infestation. The data about yield (and inputs) was based on personal interviews with farmers. This unfortunately is not the way to conduct agricultural research analysis.

Personal interviews are not the way to determine crop yields in agricultural research. The entire basis for this research was

therefore faulty. But not even one agricultural scientist (from the public sector) stood up to challenge. The industry too is quiet. No wonder, they are clamoring for a single-window clearance for GM crops so that all rubbish in the name of improved technology can be thrust upon gullible farmers.

What the authors did not mention was that, the data they talk about actually comes from Mahyco-Monsanto, who conducted the trials. They have a vested interest in promoting Bt cotton and how can the results be therefore called "independent and free of any commercial interests?"

The entire exercise shows how scientific research was manipulated to show 'significant' higher yields. Before 2001, all trials were being conducted by Mahyco-Monsanto on small plots. In 2001, the ICAR also did trials - it makes a mockery of scientific research. Anyway, if the yields increases were so high, no one is willing to tell us why did the crop fail at various places in the very first year of commercialization? And that too when the cotton areas were faced with an unprecedented drought which means that the insect incidence was very low? How come Bt cotton faced an attack of American bollworm, the insect against which it is supposed to be resistant, in the very first year of commercialization?

Bt cotton episode has surely exposed the rot in modern science. The rot is not only confined to Indian science but is global in extent and reach. Pro-biotechnology scientists have spared no effort to uphold the shoddy research findings. This only goes onto prove that what is being pushed in the name of science and technology has other powerful commercial interest that scientists have begun to cater. To restore the credibility, there is a need to ensure that scientists are not allowed to be 'loudspeakers' for the multi-billion biotechnology industry. Scientists should speak for science and not for the industry.

Accountability in science has to begin from the top. The silent majority among the scientific community is indicative of the fear that prevails in the corridor of scientific establishments. Scientists know that the only way to get a higher promotion is to sing the virtues of genetic engineering. And herein lies a grave danger.

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