Biotechnologists Too Are Bound by Scientific Methods

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Suman Sahai and Shakeelur Rahman have sought to bring out that the first genetically modified crop in India has been, in general, a failure. ('Performance of Bt Cotton', *EPW*, July 26, 2003). The authors find fault with the performance of the official Bt seed on all counts – number of bolls, incidence of pest attack, yield, expenditure and investment.

Suman Sahai is a highly respected biotechnologist and stands out for her objectivity and graceful articulation amongst a crowd of cantankerous and often uncouth opponents of biotechnology. It was, therefore, hurting that her article did not cover the results of Bt seed that have not received official permission.

The experience in Gujarat, as brought out by a survey that was carried out by the Kisan Coordination Committee (KCC) on November 11 and 12, 2002 (see table), shows that a particular unofficial GM seed performed very well, whereas the performance of the official seed was less happy.

The a-'sarkari' seed gave good results and the 'sarkari' seed faltered. The gene involved, it is universally admitted, is the same CRY1 Ac. Clearly, the lacklustre performance of the 'sarkari' GEAC approved seed could not be blamed on the gene. The mistake must lie with the vehicle that was used for carrying the gene. Mahyco applied for approval of its three hybrid varieties Bt MECH12, Bt MECH162 and Bt MECH184 years back and the GEAC took years to clear them. In the meanwhile, Indian breeders have produced a number of hybrid seeds that

Table: Results of Survey Conducted by KCC on Bt Cotton of Various Varieties on Farms in Different Districts of Gujarat
(Survey dates: November 11, 2002 - Sr Nos 1 to 6 and November 12, 2002 - Sr Nos 7 to 13)

Sr No	Name and Village	Farm Area Owned Acres	Area under Variety in Acres							Sprays Done	Cost of Sprays Rs Per Acre	Expected Yield Qtls Per Acre	Remarks
			Navabharat					Bol Guard (Mahyco)					
			F_1	F_2	F_3	Vishnu	Chamatkar	MECH 162	MECH 184				
1	Manubhai Patel Vil Malanpur Teh Hansukh Dist Bharuch	15	3.5			2.5				5-endosulphan, Nuacron, Estap, etc	700 700	15 15	Bollworm not seen A few bollworms seen
2	Manubhai Joshi Vil Malanpur						4 acres (3039 selection)			5-actified, endosulphan, etc	700 approx	18 -19	2 pickings done - 9 qtl Fertiliser bags: urea 2, MOP 1, Dia 2
3	Natwarbhai Chunilal Vil Kata Saya Tal Hansukh Dist Bharuch			3.0					4.5	7- according to schedule. Thiodan, confide(!5 ml @ Rs 3600/lit 5-sprays	1400 700	8 16	Boll not opened yet. Refuge 3 lines, may be 50 per cent DAP-1 bag MOP-20 kg Urea-2 bags Farmer says, he will prefer 151, if available
4	Ambaram Bhai Patel Vil Kata Saya Tal Hansukh Dist Bharuch				2.5 selection					5	650	8-10	Sowing late by 30 days Crop not well cared
5	Jagdevsin Wansia Vil Karasad Tal Walia Dist Bharuch	21	3	2.5	5.0					3 sprays Metasystox, Actified, etc	Less than 700	15-16 14-15 13-14	4 per cent salty water First 2 pickings 8-9 qtls
6	Harindersin Gohi Vil Karasad Tal Walia Dist Bharuch		2.0							3 sprays	Less than 700	18	Farmer says Bt has also benefited tuer crop because worms could not multiply on cotton An insecticide dealer present at farm says his sale has dropped from 60 lakh to 2 lakh because of Bt

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7	Narsin Bhai Chhitta Bhai Patel Vil Vermar Tal Karzan Dist Baroda			5.0						5 sprays Estop, confidol, etc	700 approx	19-20	DAP-1, MOP-1, Urea-2 A cane grower, this farmer has sown cotton after 15 years,after seeing Bt potential. Watering after 25 days Staple length 3.5 cm
8	Mahadev Bahi Patel Vil Vermar Tal Karzan Dist Baroda			4.5						6 sprays Confidor Metaseystox, etc	700 approx	20-21	First two pickings-11 qtls Watering after 20-22 days
9	Dr Rakesh Bhai M Patel Vil Awakhal Tal Sinour Distt Baroda							3.0		10-12 sprays according to schedule. Etheon, Monocrotophos, jarvin, etc	3000 approx	6-7	Boll Worm infested Sprays according to recommendation of 20 count worm Seems seed problem
10	Name of farmer withheld, Vil Awakhal Tal Sinour Distt Baroda								3.0	Sprays could not be confirmed	6-7 approx		Worm infested
11	Suresh Bhai Vil Karyana												Could not visit the farm because water had spilt on way to the farm, which was far off.
12	Hasmukh Bhai S Patel Vil Rodh Tal Amod Dist Bharuch			2.5						4 sprays	500	5	Salty water Late sowing
13	Bhai Lal Bhai N Patel Vil Rodh, Tal Amod Dist Bharuch								2.5	Sprays according to schedule		Less than 5 qtls	Some plants were wilt affected. 4-5 plants in rows at different lines Salty water under ground

Note: Presented at a workshop held at Neelkanth Mandir in Bharuch from November 11-14, 2002.

are superior to the seven-year-old varieties Mahyco used at that time. The scientific community is agreed that the Mahyco hybrids had certain unhappy traits that express themselves only in certain circumstances. During the last year, there was large-scale incidence of wilting in Mahyco seeds while the unofficial seed gave very promising results even in F_1, F_2 and F_3 (see table).

A scientist like Suman Sahai should have immediately put the accusing finger on the GEAC rather than on the Bt seed.

The GEAC had no business to get into the business of approving the vehicle's hybrid. It should have confined itself to approval of the gene and then let the various seed producers, in arrangements with the patent-holder of approved genes, bring on the market their own GM hybrids suitable for various climes and soils.

In a recent decision in the case of RASI seeds, the GEAC has decided that further trials of a GM seed were unnecessary since the gene had already been approved. The GEAC is now trying to profit from its failures by searching to expand its mandate to cover even the trials of yields and incomes.

If the GEAC had a useful purpose when it began, it has shown that it cannot fulfil it. It has created a shroud of non-transparency in the whole matter of entry of biotechnology in India and delayed the entry of biotechnology in India by almost a decade. The vigilance commission ought to have a look at the affairs of the GEAC as also of those who played cheerleaders to its performances. The simple solution proposed by the KCC is, "scrap the GEAC, have a body which will monitor only the public health, public morals and environment hazards of the gene and leave it to the competent ministry to approve and register the host seed".

Most scientists support the existence and strengthening of governmental bodies, so did the tribe of economists who went all out in the socialist era to support massive proliferation of state economic institutions. These people know which side of their bread is buttered. I really wish Suman Sahai distances herself from this pseudo-scientific, quasi-socialist company. EPW