

Desi Bt cotton set to blossom in farms this year

Harish Damodaran

10,000 acres to come under in-bred Bikaneri Nerma variety.

The Bikaneri Nerma-Bt in view of it being an in-bred variety can be stored and multiplied by farmers themselves.



New Delhi, June 5 Seven years after the commercial launch of Monsanto's Bt cotton, Indian farmers are about to plant the first publicly bred genetically modified (GM) seeds of the crop.

The current kharif season will see around 10,000 acres being sown under Bikaneri Nerma-Bt, an in-bred variety, and 2,000 acres under a hybrid, NHH 44-Bt – both developed by the Indian Council of Agricultural Research's Central Institute for Cotton Research(CICR).

Foreign genes

Bt/GM cotton basically contains foreign genes isolated from a soil bacterium, *Bacillus thuringiensis* (Bt) that produce proteins toxic against various bollworm insect pests. "We are making available 13,000 packets of the Bikaneri Nerma-Bt and 2,000 packets of NHH 44-Bt this year, which we plan to raise to three lakh packets and one lakh packets respectively in kharif 2010," Dr K.R. Kranthi, Director of the Nagpur-based institute told *Business Line* here on Friday.

Each packet of Bikaneri Nerma, containing 2 kg of the Bt seeds, is being priced at Rs 200. The maximum retail price of the NHH 44 hybrids, having 750 grams of Bt seeds, has been set at Rs 400 a packet. In both cases, along with the Bt seeds, 200 grams of pigeon-pea (*arhar*) seeds are being supplied free.

“The *arhar* seeds are being given to farmers to grow as refuge around the Bt cotton. These will divert the bollworm activity and minimise the potential for development of Bt-resistant pest races in the long run,” Dr Kranthi explained.

Competitive pricing

According to him, “our pricing is very competitive considering that the private sector Bt hybrids are being sold in the range of Rs 650 to Rs 750 a packet, depending on whether it incorporates Monsanto’s Bollgard-I or the second generation Bollgard-II gene technology”.

Moreover, private companies are offering only 450 grams of Bt seeds and 120 grams of non-Bt cotton seeds in every packet, besides 120 grams of non-Bt cotton seeds for refuge purpose. “Our experiments have shown *arhar* to harbour the bollworm pest much better than cotton making it a more effective refuge solution,” Dr Kranthi said.

Seed rate

The seed rate will depend largely on soil-climatic conditions. In the case of the Bikaneri Nerma-Bt seeds, the farmer will have to sow 1.5 to 2 kg an acre in rain-fed shallow soils requiring 60 cm X 30 cm spacing, whereas it is only one kg an acre in irrigated soils with 90 X 60 spacing.

For the NHH-44 Bt hybrids, the recommended planting rate is 750 grams or one packet an acre under irrigated conditions. Farmers adopting private Bt hybrids are currently sowing between 1.2 to 1.5 packets an acre, which works out to roughly Rs 1,000. Dr Kranthi felt that the Bikaneri Nerma-Bt held out hope for farmers in view of it being an in-bred variety, which can be stored and multiplied by farmers themselves. This is unlike hybrid seeds that have to be bought afresh for planting in every new season.

Single spraying

“Our variety is also more effective against pink and spotted bollworms than the Bt hybrids. This is because in the case of hybrids, a quarter of the developing seeds in the green bolls do not express the Bt toxin. The segregation of the toxin gene does not happen in varieties,” he claimed.

Even with regard to the NHH 44-Bt, Dr Kranthi said farmers had to hardly spray once for controlling sucking pests such as aphids, jassids and thrips, whereas in the other hybrids, “you have to spray 3-4 rounds of pesticides”.

Limitations

The CICR Director, however, admitted that competing with the private sector would not be easy, given the government agencies' limited seed multiplication and marketing network.

Last year, Bt cotton accounted for around 19 million acres or 80 per cent of the country's total area under the crop. Of this, 12.7 million acres were covered under Bollgard-I hybrids (based on Monsanto's proprietary *cry1Ac* Bt gene technology) and 4.5 million acres under Bollgard-II seeds (containing a stacked combination of *cry1Ac* and *cry2Ab* genes).

In addition, hybrids based on JK Agri Genetic Ltd's alternate *cry1Ac* and Nath Biogene's 'cry1Ab-cry1Ac fusion gene' technologies covered an estimated 0.3 million and 0.25 million acres, respectively. The remaining area was mainly under various illegal Bt hybrid seeds.
