

A CASE OF WHOLEHEARTED BIOTECHNOLOGY ADOPTION

Relevant for: Indian Economy | Topic: E-technology in the aid of farmers

Photo: Getty Images/iStockphoto

In the Editorial page article, “The flawed spin to India’s cotton story” (January 23, 2020), there are unfounded claims about a technology that has in reality been a boon to farmers across the world.

The first point made in the article is that GM cotton covers 95% of the area under cotton and that there are no choices for farmers. The fact: Indian farmers have voted for choice of seeds with biotechnologies by planting hybrid cotton biotech seeds on over 90% of the country’s cotton acreage. They want seeds and technologies that provide optimal yield, income and convenience in cultivation. Today, they choose from over 800 hybrid Bt cotton seed brands from over 40 Indian and global seed companies, with five approved ‘in-the-seed’ insect protection Bt cotton technologies and non-Bt varietal cotton seeds. Farmers have not shown any preference for planting non-Bt cotton seeds including the quantity supplied along with the Bt cotton seed by seed companies as per regulatory guidelines.

Several key studies by third-party economists and sociologists have established that 85% of hybrid Bt cotton seed farmers and farm labourers invested in better education for children; 77% reported better intake of nutritious food; 75% reported better health of their family members; 64% invested on the health of livestock; female workers on Bt cotton fields earned an average 55% higher income; and 42.4 crore additional days of rural employment have been generated, thereby doubling cotton production.

India’s farmers are the ones who have reposed trust in biotechnology, making India the world’s second largest cotton producer and exporter by doubling cotton production over the past decade.

Cotton Corporation of India data show that the highest production of 398 lakh bales of cotton in India was achieved in 2013-14, valued at around 72,000 crore. Additional incomes were generated from cotton seeds oil (1.3 million tons) and cotton seed oilmeal (11 million tons) worth 13,000 crore and 22,000 crore, respectively. The Bt cotton seed market is about 3,000 crore, making it hardly 2.5% of the total value generated.

The article’s second point is about low productivity as compared to the global scene. The fact is that technology has not only increased yields but also greatly reduced pesticide use.

Biotechnology in cotton, post its introduction in 2002, has led to transformational changes in India’s cotton cultivation. These have helped increase cotton yields by over 1.8 times — from 241 kg/hectare in 2002-2003 to 541 kg/hectare in 2018-2019. A BKS-CSD study shows that the significant increase in farmer incomes from higher yields and reduced pesticide use has generated additional farm income of over 42,300 crore. India is moving to first place as the largest producer of cotton in the world.

However, it is not just the technology that increases yields. India’s farmers face numerous uncertainties and crop management challenges, affecting farm yield and incomes; knowledge of cultivation and correct agronomic practices can make a significant impact. This is being addressed by numerous extension efforts.

There is an opportunity to increase yields further in India when compared to other countries that have been using even more advanced GM traits than what is being used in India. New technology introduction has stopped in India since 2005, affecting growth of yields.

The article's third point is about the availability of low cost manual labour. The fact is that one of the major challenges lies in securing labour to conduct field operations. Today, labour accounts for over 58% of a farmer's cost of cultivation per acre. In a fast-evolving global market, India's farmers instead need the best technologies to remain competitive.

The next claim is about varieties offering farmers increased benefits than hybrid cotton seeds. The fact is that Indian farmers who were using varieties for years switched to hybrids in the mid-1980s mainly because of the enormous benefits. Cotton Advisory Board data show that India's cotton yields which were at 169 kg/hectare in 1980-81 increased to 278 kg/hectare in 2000-01 and then 542 kg/ hectare in 2016-17.

The writer's argument that High Density Planting (HDP) took place in various countries after introduction of biotech cotton is inaccurate. Planting rates are determined by several agronomic and environmental conditions and not based on biotech versus non-biotech. There is also no change in the seed rate in any of the countries in which biotech cotton has been adopted. HDP has done well in India because of the better quality of germplasm.

Also, Turkey is not a large cotton producer. USDA statistics in 2017-18 shows that India leads with 35m bales, followed by China (28m bales), the U.S. (21m bales), Brazil (9m bales) and Australia (5m bales). All of them are GM cotton countries, contributing to more than 90% of global cotton production. GM cotton was introduced in Brazil in 2006-07.

India also produces hybrid cotton seed because of the availability of labour to carry out the hand pollination at reasonable cost; this is not available in the U.S., Brazil, Australia and China. Hybrid cotton has delivered not only higher yields but also provided resistance to some pests and diseases.

The article also claims that Indian farmers need to buy seeds repeatedly. The fact is that not just biotech cotton, but all hybrid seeds lose their benefits if replanted, creating reduced and erratic yields. New seeds help farmers sustain high yields year on year.

In the case of biotech cotton in India, it is the farmers who adopted the technology wholeheartedly because they saw a solution in it to some of their biggest on-field pest challenges. The choice made by the Indian farmer to plant hybrid cotton seeds on over 90% of cotton acreage, and see increased cotton production is testament to the value created by better seeds, technologies and farming practices — when compared with the alternative of low tech seed and insecticide sprays.

Bt cotton was released in varieties by some public institutions but it did not get much traction. There is always a debate about the use of hybrids versus varieties in any crop. The writer appears to be giving too much power to the seed industry in terms of influencing the farmer to prefer hybrids over varieties. This has not happened in the case of rice, mustard, many oilseeds, and pulses in which the farmers grow varietal crops in 90-100% of the area. The lesson is that the farmer adopts technologies which are beneficial to him and does not go by the recommendations of the industry or any other persons.

Seeds with biotechnologies have helped conserve biodiversity: with higher production from the same area, the expansion of agricultural land into forest areas has been slowed.

A one-sided depiction not only harms agriculture and the industry but also spreads misconceptions about biotechnology.

Ram Kaundinya is Director General, Federation of Seed Industry of India (FSII), New Delhi

You have reached your limit for free articles this month.

Register to The Hindu for free and get unlimited access for 30 days.

Already have an account ? [Sign in](#)

Sign up for a 30-day free trial. [Sign Up](#)

Find mobile-friendly version of articles from the day's newspaper in one easy-to-read list.

Enjoy reading as many articles as you wish without any limitations.

A select list of articles that match your interests and tastes.

Move smoothly between articles as our pages load instantly.

A one-stop-shop for seeing the latest updates, and managing your preferences.

We brief you on the latest and most important developments, three times a day.

*Our Digital Subscription plans do not currently include the e-paper ,crossword, iPhone, iPad mobile applications and print. Our plans enhance your reading experience.

Why you should pay for quality journalism - [Click to know more](#)

Please enter a valid email address.

To reassure Indian Muslims, the PM needs to state that the govt. will not conduct an exercise like NRC

Subscribe to The Hindu now and get unlimited access.

Already have an account? [Sign In](#)

Sign up for a 30-day free trial. [Sign Up](#)

To continue enjoying The Hindu, You can turn off your ad blocker or Subscribe to The Hindu.

[Sign up for a 30 day free trial.](#)

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com