

## GM Crops Perform Far Better in Third World Than U.S.

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Insects may pose a concern for farmers in the developed world, but in places where pesticide technologies are not as sophisticated, a buggy growing season can decimate a crop's yield. To that end, a cotton hybrid genetically modified to resist some common pests has produced dramatically greater yields than non-bioengineered crops on farms in subtropical India.

Insects thrive in India's monsoonal climate, and growers there often do not have the expensive equipment or technological know-how to effectively blanket their crops with pesticides. Indeed, when bugs settle in for the season, it is not uncommon for the pests to devour more than half of the potential yield. In recent years, biotechnology companies in the U.S. and in other developed countries have created insect-resistant plants for commercial use, outfitting them with an insecticide-producing gene from the bacterium *Bacillus thuringiensis* (Bt). Many of the field trials in the U.S. failed to show improvements in yield over those produced by traditional pesticide spraying, however, offering yield advantages of less than 10 percent on average.



MATIN QAIM

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Scientists theorized that pest-resistant seed would fare better in poor nations that lack pest control alternatives, but until now, there were no supporting data. The U.S. company Monsanto developed the GM cotton plant and licensed it to the Maharashtra Hybrid Seed Company in India to conduct farm trials. GM cotton was planted alongside a non-GM version of the same cotton hybrid and another plot of the local hybrid in 157 farms across three major cotton-producing states in India. When Martin Qaim of the University of Bonn's Center for Development Research and David Zilberman of the University of California at Berkeley analyzed the results of the trials, they found that the GM crops had yields averaging some 80 percent larger than those of the other cotton hybrids.

"The price of commercial Bt seed is four to five times the price of regular seed, but based on our calculation, the profit per acre is five times what it would have been otherwise," Zilberman remarks. The results of this study, published today in the journal *Science*, bode well for other subtropical developing nations. Says Qaim, "With populations in developing countries growing exponentially, and available farmland stagnating, there is an urgent need to find ways to increase crop yields on the land that is available."

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