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Farmer Suicides in Rainfed Areas of India Correlate with Genetically Modified Bt Cotton Adoption: Study

By GMWatch
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New study deconstructs hype around GM Bt cotton; shows widespread problems with the technology

An important new paper by respected researchers deconstructs the false hype around Bt insecticidal cotton in India. The study shows that:

* Bt cotton, introduced in 2002 to control bollworm and other pests, is grown on more than 90% of the cotton area

* By 2013 insecticide use was high – back to 2000 levels (before the introduction of Bt cotton)

* Yields have plateaued nationally, and farmer suicides have increased in some areas

* Pink bollworm causes damage in irrigated cotton, but not in rainfed cotton unless infested from irrigated fields. Therefore use of Bt cotton seed and insecticide in rainfed cotton is questionable

* Bt cotton may be economic in irrigated cotton, whereas costs of Bt seed and insecticide increase the risk of farmer bankruptcy in low-yield rainfed cotton

* Inability to use saved seed and inadequate agronomic information trap cotton farmers on biotechnology and insecticide treadmills

* Annual suicide rates in rainfed areas are inversely related to farm size and yield, and directly related to increases in Bt cotton adoption (i.e., costs)

* High-density short-season non-GM cottons could increase yields and reduce input costs in irrigated and rainfed cotton

* Policy makers need to conduct a holistic analysis before new technologies are implemented in agricultural development.

The lead researcher on the study, Andrew Paul Gutierrez, is a professor at UC Berkeley and an expert in agroecological systems as well as GM crops.

Deconstructing Indian cotton: weather, yields, and suicides

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http://www.enveurope.com/content/27/1/12/abstract (open access)

Abstract

Background:

Cotton with coevolving pests has been grown in India more than 5000 years. Hybrid cotton was introduced in the 1970s with increases in fertilizer and in insecticide use against pink bollworm that caused outbreaks of bollworm. Hybrid Bt cotton, introduced in 2002 to control bollworm and other lepidopteran pests, is grown on more than 90% of the cotton area. Despite initial declines, year 2013 insecticide use is at 2000 levels, yields plateaued nationally, and farmer suicides increased in some areas. Biological modeling of the pre-1970s cotton/pink bollworm system was used to examine the need for Bt cotton, conditions for its economic viability, and linkage to farmer suicides.

Results:

Yields in rainfed cotton depend on timing, distribution, and quantity of monsoon rains. Pink bollworm causes damage in irrigated cotton, but not in rainfed cotton unless infested from irrigated fields. Use of Bt cotton seed and insecticide in rainfed cotton is questionable.

Conclusions:

Bt cotton may be economic in irrigated cotton, whereas costs of Bt seed and insecticide increase the risk of farmer bankruptcy in low-yield rainfed cotton. Inability to use saved seed and inadequate agronomic information trap cotton farmers on biotechnology and insecticide treadmills. Annual suicide rates in rainfed areas are inversely related to farm size and yield, and directly related to increases in Bt cotton adoption (i.e., costs). High-density short-season cottons could increase yields and reduce input costs in irrigated and rainfed cotton. Policy makers need holistic analysis before new technologies are implemented in agricultural development.
