

# Chinese researchers find Bt cotton controls pests while also promoting good bugs

14 June 2012, by Bob Yirka



Cotton plant. Photo courtesy of USDA Natural Resources Conservation Service.

(Phys.org) -- Because they can modify plants to either produce better fruit or in many other cases ward off disease and pests, researchers genetically alter crop plants to increase yields without adding additional costs to the process. One such success story is Bt cotton, a strain developed in the lab and so named because it harbors *Bacillus thuringiensis*, a bacterium that produces a chemical harmful to some insects and thus is often used as a pesticide. Farmers in the United States have been using it since 1996, and report that since that time, average yields have been up 5% even as costs have gone down due to use less of other pesticides. Now, researchers in China are reporting that not only does planting Bt cotton reduce losses from pests, it also allows other beneficial insect populations to increase not just in the cotton fields, but in those nearby growing other crops as well. The team has published its findings in the journal *Nature*.

In their paper, the researchers report that cotton growers in China raising Bt cotton experience lower levels of bollworms than when using non genetically modified cotton and that they were able to reduce the amount of [insecticide](#) needed to

control the pests as well. But perhaps more interestingly, they found that when conducting surveys in the Bt cotton fields, that many more lady bugs, spiders and other insects that feed on pests such as aphids were found, and better yet, were also more abundant in adjacent fields as well. Thus by growing Bt cotton, farmers are getting more from their fields while at the same time promoting the growth of "good" bugs that feed on other bad ones.

Bt cotton is the only approved genetically modified crop being grown in China, and has been grown there since 1997. Current estimates suggest that as much as ninety five percent of all cotton now grown in that country is of the genetically modified variant, though its use is not without controversy.

Most governments around the world including those in the United States, Asia, Europe and especially Africa have thus far slowed the movement of edible crops onto consumers dinner plates, fearing that some unknown disease might arise from their consumption. Even non-edible crops such as altered cotton have caused controversy due to studies being done in India that suggest that farmers that grow [Bt cotton](#) have a higher suicide rate than the rest of the country. Despite the lack of concrete proof, there persists a degree of suspicion and that has been enough to slow its use in that country.

Despite the fact that genetically altered plants have been studied for decades, there is still fear among the general population that some tragedy will befall those who eat the results, thus, more research such as that being conducted in China will have to be done before common use of genetically altered crops becomes a reality.

**More information:** Widespread adoption of Bt cotton and insecticide decrease promotes biocontrol services, *Nature* (2012)

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**Abstract**

Over the past 16 years, vast plantings of transgenic crops producing insecticidal proteins from the bacterium *Bacillus thuringiensis* (Bt) have helped to control several major insect pests and reduce the need for insecticide sprays. Because broad-spectrum insecticides kill arthropod natural enemies that provide biological control of pests, the decrease in use of insecticide sprays associated with Bt crops could enhance biocontrol services. However, this hypothesis has not been tested in terms of long-term landscape-level impacts<sup>10</sup>. On the basis of data from 1990 to 2010 at 36 sites in six provinces of northern China, we show here a marked increase in abundance of three types of generalist arthropod predators (ladybirds, lacewings and spiders) and a decreased abundance of aphid pests associated with widespread adoption of Bt cotton and reduced insecticide sprays in this crop. We also found evidence that the predators might provide additional biocontrol services spilling over from Bt cotton fields onto neighbouring crops (maize, peanut and soybean). Our work extends results from general studies evaluating ecological effects of Bt crops by demonstrating that such crops can promote biocontrol services in agricultural landscapes.

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