

## 20 plus years of data show Bt insect-resistant crops to be 'powerful,' sustainable pest management tools

Genetically engineered (GE) crops producing insecticidal proteins from *Bacillus thuringiensis* (Bt) (mainly Cry proteins) have become a major control tactic for a number of key lepidopteran and coleopteran pests, mainly in maize, cotton, and soybean.

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Over the past 20+ years, extensive experience and insight have been gained through laboratory and field-based studies of the non-target effects of crops producing Cry proteins. Overall, the vast majority of studies demonstrates that the insecticidal proteins deployed today cause no unintended adverse effects to natural enemies.

Furthermore, when Bt crops replace synthetic chemical insecticides for target pest control, this creates an environment supportive of the conservation of natural enemies. As part of an overall integrated pest management (IPM) strategy, Bt crops can contribute to more effective biological control of both target and non-target pests....Bt technology represents a powerful tool for IPM.

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As of late 2008, over 63 field studies had been conducted to assess the potential impacts of Bt crops on non-target arthropods....Dozens of studies have since been added, especially in the rice and [soybean](#) systems, but also with continued focus on cotton and maize....Overall, these studies have collectively concluded that non-target effects of Bt crops are minimal or negligible, especially in comparison to the negative effects of the use of insecticides for control of the Bt targeted pest

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[T]he large-scale adoption of Bt crops in some parts of the world has led to area-wide suppressions of target pest populations benefiting both farmers that adopted the technology and those that did not.

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Consequently, such insect-resistant GE varieties can not only help to increase yields and provide economic benefits to farmers but also improve environmental and human health. The large body of evidence supporting such outcomes should be considered when developing and introducing new insecticidal GE plants in new countries and [cropping systems](#).

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