

## Are GMOs to blame for the mass suicides of Indian farmers?

It's understandable why the alleged GMO link to farmer suicides in India has gained so much traction over the past decade. Two documentaries, [Seeds of Suicide](#) and [Bitter Seeds](#), have spread the myth to a wider audience, highlighting gut-wrenching stories of farmers killing themselves by [drinking pesticides](#). Celebrities promote the fears; in 2008, Prince Charles garnered headlines around the world when he publicized "the truly appalling and tragic rate of small farmer suicides in India, stemming in part from the failure of many GM crop varieties." ["This kind of genetic modification takes mankind into realms that belong to God and God alone," Charles wrote in the 1990s, when Europe was debating whether to approve GM cultivation and imports.]

There has been a considerable amount of research showing that India's farming suicides have been misrepresented and, sometimes, overstated by GMO opponents. The current trend, for example, started well before GMOs were introduced to India in 2002, as shown in this chart: [farmer-suicides](#) farmer-suicides unknown

But in India, anti-GMO activists have singled out a clear villain: Monsanto and its Bt cotton seeds. Shiva says the company is [responsible for a genocide](#), claiming Monsanto has used its patent protections which prevent farmers from saving and reusing their seeds to ensnare farmers. Writing on her website, [Shiva said](#):

*In less than two decades, cotton seed has been snatched from the hands of Indian farmers by Monsanto, displacing local varieties, introducing GMO Bt cotton seeds and coercing extravagant royalties from farmers. Since Monsanto's entry into India in 1998, the price of cotton seeds has increased by almost 80,000%. 300,000 Indian farmers have committed suicide, trapped in vicious cycles of debt and crop failures, 84% of these suicides are attributed directly to Monsanto's Bt cotton.*

Shiva is misrepresenting the data. Numerous studies have shown that Bt farmers spend at least 15 percent more on crops, but their pesticide costs are 50 percent lower. Since the seed was introduced, yields have increased by more than 150 percent. India, which had to import cotton two decades ago, now exports this lucrative crop. Suicide rates are [lower for farmers than for non-farmers in India](#). Suicide rates in the most cotton rich provinces have fallen sharply with the introduction of Bt cotton, as the standard of living of farmers has risen. According to researcher Ian Plewis, a professor of social sciences at the University of Manchester:

*The balance of evidence favours the argument that adopting Bt cotton has increased yields in all cotton-growing states except Punjab, and has reduced pesticide costs so that the crop has become more profitable for farmers. So it's reasonable to suppose that these farmers have reduced their debts and, to the extent that suicide has an economic component, are less at risk of committing suicide.*

[The impact of the adoption of Bt cotton in India. Source: The International Service for the Acquisition of Agri-b](#)

The impact of the adoption of Bt cotton in India is shown in the accompanying chart from [The International Service for the Acquisition of Agri-biotech Applications](#).

Shiva also claims Monsanto controls the seed supply in India, preventing farmers from reusing them. Farmers buy the GM seeds because they have no other choices, or because they have been duped by Monsanto's marketing campaigns. That's not accurate. The Indian Farmers' Rights Act of 2001 guarantees every person the right to "save, use, sow, resow, exchange, share, or sell" her seeds. Most farmers, though, even those with tiny fields, choose to buy newly bred seeds each year, whether genetically engineered or not, because they promise better yields and bigger profits. Upwards of 95 percent of India farmers have opted to use GM seeds since their introduction, making it one of the most successful embraces of GM crops in the world.

A [2013 PLOS ONE study](#) examined the economic effects of Bt cotton in India, where most farmers work small parcels of lands. The study showed an increase in the daily caloric intake of Indian farmers growing Bt cotton, indicating that income gains were providing better nutrition for the farmers' families.

*The results of this research confirm that the income gains through Bt cotton adoption among smallholder farm households in India have positive impacts on food security and dietary quality. GM crops are not a panacea for the problems of hunger and malnutrition. Complex problems require multi-pronged solutions. But the evidence suggests that GM crops can be an important component in a broader food security strategy.*

So what is behind the spate of farmer suicides in India (and most countries around the world)? A [2011 report](#) by the Center for Human Rights and Global Justice at New York University School of Law blames globalization for the problem.

*These farmers and their families are among the victims of India's longstanding agrarian crisis. Economic reforms and the opening of Indian agriculture to the global market over the past two decades have increased costs, while reducing yields and profits for many farmers, to the point of great financial and emotional distress. As a result, smallholder farmers are often trapped in a cycle of debt. During a bad year, money from the sale of the cotton crop might not cover even the initial cost of the inputs, let alone suffice to pay the usurious interest on loans or provide adequate food or necessities for the family. Often the only way out is to take on more loans and buy more inputs, which in turn can lead to even greater debt. Indebtedness is a major and proximate cause of farmer suicides in India. Many farmers, ironically, take their lives by ingesting the very pesticide they went into debt to purchase.*

There are a number of studies ([here](#), [here](#) and [here](#)) that point to a wide range of factors that have played a role in the incidences of suicides. In Factors Associated With the Farmer Suicide Crisis in India, researcher Dominic Merriott, of the U.K.'s Imperial College school of medicine, [wrote](#):

*Determining a single defining cause for farmer suicides in India is impossible, especially considering the relative lack of detailed literature. What can be inferred is that an amalgamation of factors has led to a picture of large-scale farmer indebtedness, that combined with a volatile ecological climate and socioeconomic landscape has left hundreds of thousands, if not millions of farmers vulnerable to a situation of such crushing debt and desperation that many have come to take their own lives. The most*

*discussed cause, Bt cotton, does not appear to be a significant factor, and notably there is little, if any suggestion that mental illness plays a role. Rather an agrarian crisis that manifests as a culmination of lack of agricultural investment and irrigation improvement, the increased use of noninstitutional credit sources (that appears to have increased since the neoliberal reforms of the 1990s), and likely to some extent the reduction of trade barriers appear to best explain the picture of farmer indebtedness and the acceleration of farmer suicides over the period.*

Journalist Keith Kloor examined the controversy in [a 2014 piece](#), The GMO-Suicide Myth, in Issues in Science and Technology.

*As in much of the developing world, small-holder Indian farmers (those with less than two hectares of land) are most vulnerable to the vagaries of weather and climate change. They also have little access to institutional credit. As the World Bank has noted: "While India has a wide network of rural finance institutions, many of the rural poor remain excluded, due to inefficiencies in the formal finance institutions, the weak regulatory framework, high transaction costs, and risks associated with lending to agriculture." Consequently, when purchasing seed, fertilizer, and other crop-related items, poor farmers often turn to private money lenders who charge high loan rates.*