Contamination of Honey with GM Pollen

In September the Court of Justice of the European Union ruled on a case involving the contamination of honey with pollen from genetically modified (GM) corn. A beekeeper in Germany who kept bees in the vicinity of research plots that were grown with Monsanto's Bt corn, which is designed to kill the larvae of certain moths, had his honey and pollen (which was sold as a food supplement) tested, and small amounts of Bt pollen were found in some of the samples. He considered his product "unsuitable for marketing and for consumption" (Court of Justice of the European Union Press Release No. 79/11). As a result, this beekeeper and four fellow beekeepers started legal proceedings against the state of Bavaria, which owned the land upon which the corn was grown. The Bavarian court then sought the judgment of the EU Court of Justice.

In its ruling the EU court states that the GM pollen must be considered as an ingredient of the honey, regardless of whether it is an intended or unintended ingredient. Therefore honey or pollen supplements containing GM ingredients would be subject to a special safety and approval process stipulated for any food product in the EU that contains ingredients produced from genetically modified organisms (GMOs). All foods containing GM products must be labeled in the EU, in contrast to the United States, where there is no labeling. It would be unlawful for a beekeeper in the EU to sell honey containing GM pollen — even the smallest amounts — without having gone through the complex safety and approval process.

Most beekeepers will not want to go through this process, knowing that consumers in Europe generally do not want to consume food containing products from GMOs. But they should have other recourse. Beekeepers who find their honey contaminated and can therefore no longer sell it, can take a legal route to receive compensation from the farmers who grow the GM crop and the company that produces the genetically modified crops. In other words, Monsanto will have to pay beekeepers for their losses due to the contaminated honey.

Another consequence is that the large amounts of honey imported from Argentina, Canada and other countries where GM crops are grown, will be subjected to new scrutiny. The waves from this ruling will ripple far beyond the European Union.

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Genetically Modified Corn Is Leading to Insect Resistance

Bacillus thuringiensis is a soil-dwelling bacterium some strains of which produce a crystal protein useful as a natural insecticide. The crystal toxin, known as "Cry," is effective against many moth and butterfly species, as well as mosquitoes and some flies, beetles, and other insects. It has been one of the most effective insect-control agents for organic farmers.

The bacterium itself has been used as an insecticide, but the Cry toxin can also be extracted and sprayed over crops. More recently, genes to produce the toxin have been altered and engineered directly into agricultural crops and approved for general use in the U.S., beginning with the potato plant in 1995. In such cases, for the most part, cells throughout the plant contain the toxin during the life of the crop, regardless of the presence or absence of threat from the targeted insect. Globally, 11.1 percent of corn plantings and 33.6% of cotton were "Bt crops" (genetically modified to produce the Cry toxin) in 2006. The figures today are vastly greater in the U.S.: 65 percent of corn in 2011 and 75 percent of cotton — this according to the Department of Agriculture Economic Research Service.

But now the inevitable is happening: due to this massive application of insecticide over huge crop areas regardless of actual need, the destructive pests are becoming resistant. The engineered Bt toxin can be targeted against different insects, and in 2003 a commercialized variety of corn with a form of the toxin known as Cry3Bb1 was developed for resistance to corn rootworm larvae. It was rapidly adopted by farmers, already amounting to 45 percent of corn plantings by 2009. However, as an article published in the July issue of the scientific journal PLoS One announces, "The evolution of resistance by the western corn rootworm could cut short the benefits of Bt maize [corn]."

The authors of the study, all from Iowa State University in Ames, Iowa, tested larvae of rootworms taken from fields

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What is important is that we do not carry the picture we have formed of one plant as a kind of standard against which we measure the second plant. We don't judge one phenomenon through the other. Rather, we need to carry our experience as an illuminating gaze, as an enriched inwardness that allows us to see more in the world. So when I say that the method is to let phenomenon illuminate phenomenon, we can't forget that we ourselves are the mediators of this process. The quality and degree of illumination depends upon us—how closely we have studied the phenomena, how vividly we have connected with them and internalized them, and how able we are to let past experiences metamorphose into sources of illumination for revealing the qualities in the next phenomenon we study. Inasmuch as we work in this way, the profane veil that dulls our view of the world falls away.

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of Cry3Bb1 corn where farmers reported severe root injury. These larvae demonstrated in the laboratory that they were indeed more resistant to Cry3Bb1 than larvae taken from control fields where no injury was reported. Further, the resistance increased with the number of years the transgenic corn had been grown in these fields.

One strategy that is supposed to at least delay the onset of resistance is the interplanting of "refuge" fields between transgenic fields. This provides an opportunity for nonresistant insects from the refuges to interbreed with any that may be developing resistance from the Bt fields, thereby diluting the resistance. However, the researchers note that "a lack of compliance in planting of refuges has been documented among farmers that grow Bt maize in the United States." They also refer to other recent reports of resistance. "Typically there is a lag between the introduction of an insecticide and the first occurrence of resistance, which is then followed by a steady increase in the cumulative number of occurrences."

The strategy of the biotech seed producers will surely be to develop new and more powerful Bt crops. But this is an unsustainable strategy since it entails continually creating problems (new forms of resistance) by trying to solve them with the same means that caused them (new Bt crop varieties). This seems, unfortunately, to be the standard approach for modern, business-driven ways of dealing with complex problems. And to make matters worse, as scientist and biotech critic Charles Benbrook notes, "traditionally, about two-thirds of corn acres have not required an insecticide spray application."

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