

Can We Trust Monsanto with Our Food?

The real truth about GMOs

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The World Food Prize laureates for 2013 were announced in June. They are Marc van Montagu, Mary-Dell Chilton and Rob Fraley. These scientists played seminal roles, together with the late Jeff Schell, in developing modern plant molecular modification techniques. Fraley is chief technology officer of Monsanto. Chilton is a Distinguished Science Fellow at Syngenta. Montagu founded Plant Genetic Systems (now part of Bayer CropScience) and CropDesign (today owned by BASF).

Scratch the blogosphere and you'll be dumbfounded by this award. GMOs (genetically modified organisms) produced by big ag-biotech companies are responsible for farmer suicides in India.

Monsanto sues farmers who didn't plant biotech seeds, but had a bit of pollen blown into their fields. U.S. wheat farmers are facing bankruptcy because GM wheat was discovered growing in Oregon. A quick search on YouTube turns up these top hits: "[Seeds of death: unveiling the lies of GMOs](#)," "[Horrific new studies in GMOs, you're eating this stuff!!](#)" and "[They are killing us—GMO foods](#)."

Humans began genetically modifying plants to provide food more than 10,000 years ago. For the past hundred years or so plant breeders have used radiation and chemicals to speed up the production of genetic changes. This was a genetic shotgun, producing lots of bad changes and a very, very occasional good one. That's the best we could do until the three laureates (and their colleagues) developed molecular techniques for plant genetic modification. We can now use these methods to make precise improvements by adding just a gene (or two or a few) that codes for proteins whose function we know with precision. Yet plants modified by these techniques, the best and safest we've ever invented, are the only ones we now call GM. Almost everyone believes we've never fiddled with plant genes before, as if beefsteak tomatoes, elephant garlic and corn were somehow products of unfettered nature.

The anti-GM storm gathered in the mid-80s and swept around the world. Most early alarms about new technologies fade away as research accumulates without turning up evidence of deleterious effects. This should be happening now because scientists have amassed more than three decades of research on GM biosafety, none of which has surfaced credible evidence that modifying plants by molecular techniques is dangerous. Instead, the anti-GM storm has intensified. Scientists have done their best to explain things, but they're rather staid folk for the most part, constitutionally addicted to facts and figures and not terribly good at crafting emotionally gripping narratives. This puts them at a disadvantage. One scare story based on a bogus study suggesting a bad effect of eating GMOs readily trumps myriad studies that show that GM foods are just like non-GM foods.

What are the facts? Monsanto and the other big ag-biotech companies have developed reliable, biologically insect-resistant and herbicide-tolerant commodity crops that benefit people, farmers and the environment, and are nutritionally identical to their non-GM counterparts.

GM insect-resistant crops contain a gene that codes for a bacterial protein that's toxic to an insect pest, but not animals or people. Insecticides are toxic chemicals that kill insects indiscriminately, both harmful and beneficial. They're also poisonous to other animals—people included. Insect-resistant crops have reduced insecticide use. Biological solutions for insect pest problems were Rachel Carson's dream.

Insect-resistant GM corn also decreases human and animal exposure to mycotoxins, highly toxic and carcinogenic compounds made by fungi. The fungi that produce mycotoxins follow insects into plants; insect-resistant plants have no insect holes for fungi to enter and therefore no mycotoxins.

Monsanto developed GM crops that tolerate a nontoxic herbicide called glyphosate, aka Roundup. Herbicide-tolerant crops have made a major contribution to decreasing topsoil loss by facilitating no-till farming. This farming method reduces CO₂ emissions from plowing and improves soil quality.

Farmers don't have to buy Monsanto seed, nor is anyone preventing them from saving and replanting any seed they want, except for patented seed they've signed an agreement not to save and plant. Farmers buy seeds from Monsanto and other ag-biotech companies because their costs decrease and their profits increase. If they didn't, farmers wouldn't buy them again.

If the popular mythology about farmer suicides, tumors and toxicity had an ounce of truth to it, these companies would long since have gone out of business. Instead, they're taking more market share every year. There's a mismatch between mythology and reality. Maybe it's worth remembering that technology vilification is about as old as technology itself. What's new is electronic gossip and the proliferation of organizations that peddle such gossip for a living.

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