

Greenwashing Genetically Engineered Crops

Fact Sheet • April 2011

The biotechnology industry often touts the environmental sustainability of genetically engineered (GE) crops. The industry claims that GE crops can reduce herbicide use, increase yields to feed a hungry planet, and develop new crops adapted to climate change.

Monsanto advertises that biotech crops can feed the world “from a raindrop,” suggesting that GE crops are especially climate change resistant.¹ In 2011, Roger Beachy, then-director of the U.S. Department of Agriculture’s primary research agency, the National Institute of Food and Agriculture, suggested to *Scientific American* magazine that GE crops protect traditional small farmers by reducing the need for agrochemicals.² But this greenwashing doesn’t change what is just agribusiness as usual: more agrochemicals, more fossil fuels and more intensive agricultural production.

1. Biotech crops do not reduce agrochemical use

Most GE crops are designed to be tolerant of specially tailored herbicides (mostly glyphosate, known as Roundup).³ Farmers can spray the herbicide on their fields, killing the weeds without harming their crops. Monsanto’s herbicide-tolerant (“Roundup Ready”) corn, soybeans and cotton were planted on 150 million U.S. acres in 2009.⁴ Glyphosate use on these Roundup Ready crops has grown steadily. Between 2001 and 2007, annual glyphosate use doubled to 185 million pounds.⁵ Glyphosate can pose risks to animals and the environment. A 2010 *Chemical Research in Toxicology* study found that glyphosate-based herbicides caused highly abnormal deformities and neurological problems in vertebrates.⁶ Another study found that glyphosate caused DNA damage to human cells even at lower exposure levels than recommended by the herbicide’s manufacturer.⁷

2. Resistant weeds increase herbicide use

Ubiquitous Roundup application has spawned glyphosate-resistant weeds, which drives farmers to apply more toxic herbicides and reduce conservation tilling, according to a 2010 *National Research Council report*.⁸ At least 15 weed species worldwide are resistant to glyphosate, including aggressive weeds like ragweed, mare’s tail and water-

hemp.⁹ Even the biotech company Syngenta predicts that glyphosate-resistant weeds will infest one-fourth of U.S. cropland by 2013.¹⁰

Agricultural experts warn that these “superweeds” can lower farm yields, increase pollution and raise costs for farmers.¹¹ Farmers may resort to other herbicides to combat superweeds, including 2,4-D (an Agent Orange component) and atrazine, which have associated health risks, including endocrine disruption and developmental abnormalities.¹² Moreover, as glyphosate-resistant weeds strangle cropland, farmers have returned to deep tilling for weed management, abandoning tillage practices designed to slow soil erosion.

3. No yield advantage

Biotech companies have focused on developing crops that are designed to work with the herbicides they sell, not on developing high-yield seeds. A 2009 Union of Concerned Scientists survey found that herbicide-tolerant corn and soybeans had no yield increase over non-GE crops, and insect-resistant corn had only a slight advantage over conventional corn.¹³ A 2001 University of Nebraska study found that conventional soybeans had 5 to 10 percent higher yields than herbicide-tolerant soybeans.¹⁴

A 2006 *Environmental Science and Technology* study found that low-input farms in developing countries had significant yield gains.¹⁵ A 2007 University of Michigan study found that organic farming in the developing world had higher yield gains than conventional production and could feed the global population without increasing the amount of cultivated land.¹⁶

4. No drought protection

Biotech firms have promised high-yield and drought-resistant GE seeds, but these traits are not presently commercially available.¹⁷ The research has yet to achieve the

complex interactions between genes necessary to endure environmental stressors such as drought.¹⁸

Traditional breeding methods for stress tolerance are more resilient to disruption and climate change than GE crops because they complement and thrive in nutrient-rich and biodiverse soil.¹⁹ Even if research succeeded in developing drought-tolerant crops, biotechnology companies would control any viable seeds, potentially putting new seeds out of reach for poor countries.

5. GE crops benefit biotech companies, not farmers

Only a few chemical and pharmaceutical giants dominate the seed industry, which once relied on universities for most research.²⁰ By 2009, nearly all (93 percent) U.S. soybeans and four-fifths (80 percent) of corn cultivated were grown from seeds covered by Monsanto patents.²¹

Biotech corn seed prices increased 9 percent annually between 2002 and 2008; soybean seed prices rose 7 percent annually.²² By 2009, Roundup Ready soybean seeds cost twice as much as conventional seeds.²³

Biotech companies also zealously pursue farmers that allegedly violate their patents.²⁴ By 2007, Monsanto had filed 112 lawsuits against U.S. farmers for patent infringement, recovering between \$85.7 and \$160.6 million.²⁵ In the developing world, patented GE seeds threaten the traditional practice of saving and sharing seeds from harvested crops to plant the next season.²⁶

6. GE crops will not feed a hungry planet

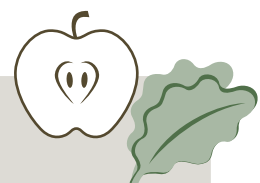
High-priced seeds and herbicides are ill-suited to farmers in the developing world. The prestigious 2009 International Assessment of Agriculture Knowledge, Science and Technology for Development concluded that the high costs for seeds and chemicals, uncertain yields, and potential to undermine local food security makes biotechnology a poor choice for the developing world.²⁷

For example, Indian farmers, wooed by Monsanto's marketing have widely adopted GE cotton.²⁸ Farmers take out high-interest loans to afford the GE seeds, which can be twice as expensive as conventional seeds.²⁹ Half the pesticides in India are applied to cotton. Some farmers significantly over-apply these chemicals, making agricultural workers highly vulnerable to health problems.³⁰ More than half of farmers lack access to irrigation and are dependent on a punctual rainy season for a good crop.³¹ And when GE cotton crops fail, farmers are often unable to repay the substantial debt. The steeper treadmill of debt with GE crops contributes to a rising number of farmer suicides in India — exceeding 17,000 in 2009.³²

Despite their huge public relations campaigns, biotechnology is not solving our sustainability problems — it's making them worse and creating more.

Endnotes

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