



Food Safety *Fact Sheet*

A PUBLICATION OF THE CENTER FOR FOOD SAFETY / JUNE 2008

Tainted Sugar

SUGAR IN THE FOODS WE EAT may soon come from genetically engineered (GE) sugar beets unless we act now. Western farmers in the U.S. are poised to plant their first season of Monsanto's *Roundup Ready*[®] (RR), herbicide-tolerant, GE sugar beets. Over half the sugar in processed foods comes from sugar beets and the rest comes from sugar cane.¹ Both sugars are often combined in products and not listed separately on labels. Once food producers start using GE beet sugar in cereals, breads, baby foods, candies, and other products, we will not know if we are eating GE sugar because GE ingredients are not labeled. The only way to avoid eating GE beet sugar will be to buy organic foods and foods containing 100% cane sugar or evaporated cane juice.

In January 2008, Center for Food Safety (CFS) and Earthjustice filed a federal lawsuit on behalf of the Organic Seed Alliance, Sierra Club, and High Mowing Organic Seeds, challenging the U.S. Department of Agriculture's (USDA) decision to deregulate² RR, GE sugar beets.³ The lawsuit seeks to reverse the approval of GE sugar beets and to force USDA to conduct an Environmental Impact Statement (EIS), as required by the National Environmental Policy Act (NEPA). The EIS process mandates a thorough environmental, health, and economic assessment of the impacts of planting GE sugar beets, with full public participation. Our lawsuit seeks to prohibit any planting, sale or dissemination of RR sugar beets, pending USDA compliance with applicable laws. Unless the judge in this case orders farmers to stop planting RR sugar beets, foods containing sugar from GE beets could reach supermarkets as early as 2009.

WHAT ARE GE SUGAR BEETS?

In sharp contrast to traditional, selective breeding methods, genetic engineering creates new life forms in the laboratory that never would be created in nature. GE technology synthesizes novel organisms by inserting the genetic material (DNA) of bacteria, viruses, and other organisms from one species into the living cells of another often completely unrelated species. The end result is the expression of a new trait, most often herbicide tolerance. This unprecedented breach in the species boundary can cause unpredictable, subtle, unknown, and



Examples of sugar-containing products that could be affected.

potentially irreversible human and environmental effects. Monsanto's RR sugar beet has been engineered to withstand large doses of the herbicide, Roundup, and its active ingredient, glyphosate.

WHERE ARE SUGAR BEETS GROWN?

Sugar beets (*Beta vulgaris* L.) flourish in temperate climates. Minnesota, Idaho, North Dakota, Michigan, and California are the five top sugar beet growing states. Sugar beets are also grown in Colorado, Montana, Nebraska, Ohio, Oregon, Texas, Washington and Wyoming.⁴ More than seventy percent of all sugar beet seeds are grown in Oregon's Willamette Valley.⁵ The Valley serves as the

prime seed producing region for other *Beta*-related species, including several varieties of chard and table beets, and it is home to many organic seed producers.

WHY THE CONCERN?

▲ Allowable herbicide residues on sugar beets have substantially increased

In December 1998, the USDA approved Monsanto's first GE sugar beet for commercial planting and sale. Several months later, at Monsanto's request, the U.S. Environmental Protection Agency (EPA) increased the maximum allowable residues of the herbicide, glyphosate, on sugar beet roots from just 0.2 parts per million (ppm) to 10 ppm.⁶ Sugar beet roots contain the sucrose extracted, refined, and processed into sugar. EPA's policy change represents a staggering 5,000% increase in allowable toxic weed killer residues, some of which could end up in sugar. The Agency has also increased allowable glyphosate residues on dried sugar beet pulp, a by-product of sugar processing, from 0.2ppm to 25 ppm.⁷ Dried sugar beet pulp is fed to dairy and beef cattle, particularly in Europe, Japan, and Korea, and it is also fed to racehorses in the U.S.⁸

▲ GE crops are not proven safe for consumption

Market approval of GE crops is based upon research conducted by the biotech industry alone. No long-term health studies on the effects of eating GE foods have ever been conducted by any government agency. Furthermore, new GE crops do not require approval from the Food and Drug Administration (FDA) before they are introduced into the food supply. A GE plant is considered "substantially equivalent," and allowed to

be planted, if superficial company research shows that no glaring differences exist between the GE plant and its conventionally-bred counterpart. This weak standard does not include testing for the presence of potential toxins, mutagens, carcinogens, immune system suppressants or new allergens created during the GE production process.^{9,10}

▲ *GE crops increase herbicide use*

Herbicide-tolerant crops comprise a remarkable 81% of the GE crops planted globally,¹¹ nearly all of which are Monsanto's RR variety. Since 1995, the year before the introduction of the first RR crop, farmers have vastly increased their use of glyphosate on three major RR crops—soybeans, corn, and cotton. In fact, glyphosate use on those crops rose dramatically from 7.9 million pounds in 1994 to 119.1 million pounds in 2005.¹² More recently, USDA data has shown an increase in the application of more toxic and persistent herbicides such as 2,4-D on soybeans and atrazine on corn, in part to combat increasing glyphosate weed resistance.¹³ Contrary to claims by the biotech industry that GE crops reduce herbicide use, USDA's own data shows the emergence of a trend towards more toxic and more frequent herbicide applications.

▲ *GE plants contaminate conventional and organic seeds and crops*

Sugar beets are wind pollinated and their pollen can travel long distances. As such, GE sugar beets have the potential to cross pollinate with related *Beta* species such as chard and table beets, placing both conventional and organic farmers at risk of contamination.¹⁴ For farmers who sell to markets that restrict GE foods, contamination could result in substantial economic losses. Moreover, GE sugar beet pollen has the potential to contaminate entire conventional and organic seed lines of *Beta* crops, and within a relatively short period of time. This could result in the permanent loss of non-GE seeds and foods and put increasing control over our agricultural food production systems into the hands of a few multinational corporations, such as Monsanto.

▲ *RR crops promote glyphosate-resistant weeds*

GE sugar beets represent the fifth major RR crop approved by the USDA. Although the USDA initially approved RR alfalfa, the courts withdrew its deregulated status in 2007, due to a successful CFS lawsuit. Just as overuse of antibiotics eventu-

Agricultural experts attribute the growing epidemic of super weeds in the U.S. to a dramatic upsurge in Roundup use on soybeans, cotton and corn.

likely intensify glyphosate usage, weed resistance, and the spread of super weeds. U.S. scientists have documented 9 species of glyphosate resistant weeds in 19 states, including 4 that grow sugar beets.¹⁵

▲ *RR crops serve as a gateway for the more toxic herbicide use*

As RR crop acreage and associated glyphosate use swells, so does the spread of glyphosate-resistant weeds. The biotech industry's "solution" to combating super weeds is to genetically engineer a new generation of plants to resist even more toxic and persistent weed killers such as 2,4-D (Dow),¹⁶ dicamba (Monsanto) or a mix of noxious herbicides.¹⁷ This short-sighted "solution" will undoubtedly perpetuate the pesticide treadmill as weed resistance emerges and greater quantities of herbicides end up in our food and waterways.

▲ *GE sugar beets threaten domestic and overseas markets*

Genetically engineered crops cannot be contained. This was demonstrated by two recent GE contamination episodes involving StarLink GE corn and LibertyLink GE rice.¹⁸ In both cases, food not approved for human consumption was mixed with conventional varieties and released into the U.S. food supply. Massive food recalls resulted, severely disrupting domestic and export markets and costing farmers and the food industry hundreds of millions of dollars. If commercialization of GE sugar beets occurs, a contamination episode would taint the entire U.S. sugar industry. Moreover, the unlabeled release of GE beet sugar into the market would make it increasingly difficult for producers of baby food, and the natural and organic food industries, to source non-GE sugar. Consumers would also find it hard to avoid eating products that contain GE beet sugar.

Help CFS support the rights of people everywhere to obtain food free from GE contamination and the rights of farmers to grow GE-free crops. Join the CFS True Food Network to get involved: www.centerforfoodsafety.org

⁹ Shapouri, H. & M. Salassi. July (2006) *The Economic Feasibility of Ethanol Production from Sugar in the United States*, US Department of Agriculture.

<http://www.usda.gov/oce/EthanolSugarFeasibilityReport3.pdf>

¹⁰ If a GE crop is deregulated, USDA considers it ready to be grown for commercial use and as far as the Agency is concerned, it will be treated no differently than crops developed using conventional breeding methods.

¹¹ *Center for Food Safety v. Charles Connor, Secretary, US Department of Agriculture*, No. C-08-484 (N.D. Cal. filed Jan. 23, 2008).

¹² DeVuyst, C.S. & C.J. Wachenheim. (2005) "American Crystal Sugar: Genetically Enhanced Sugar beets?" *Review of Agriculture Economics*, Vol. 27. No. 1, Spring, pp. 105-116.

¹³ Hildebrandt, D. (2005) "Sugarbeet production starts in Willamette

Valley," *Farm & Ranch Guide*, July 7. http://www.farmandranchguide.com/articles/2005/07/07/ag_news/regional_news/news01.txt

¹⁴ 64 Fed. Reg. 18360-18367 (April 14, 1999).

¹⁵ *Ibid.*

¹⁶ DeVuyst & Wachenheim, op. cit.

¹⁷ Santa Cruz County Public Health Commission, Subcommittee on Genetic Engineering. (2006) "A Report for the GE Subcommittee of the Public Health Commission," May. www.santacruzhealth.org/ge

¹⁸ See: Freese, W. (2007) "Regulating Transgenic Crops: Is Government Up to the Task?" *Food and Drug Law Institute Newsletter*, Issue 1. www.fdlr.org

¹⁹ Friends of the Earth International & Center for Food Safety. (2008) *Who Benefits from GM Crops: The Rise in Pesticide Use*, p. 6. <http://www.centerforfoodsafety.org/pubs/FoE%20I%20Who%20Benef>

[its%202008%20-%20Full%20Report%20FINAL%202-6-08.pdf](http://www.centerforfoodsafety.org/pubs/Contamination%20Episodes%20Fact%20Sheet.pdf).

¹² *Ibid.*, pp. 8 & 11.

¹³ Center for Food Safety. (2007) "Comments for USDA's Advisory Committee on Biotechnology and 21st Century Agriculture (AC21 Meeting)," August 1.

¹⁴ Center for Food Safety v. Charles Connor, op. cit.

¹⁵ *Ibid.*

¹⁶ Robinson, E. (2008) "Weed control growing much more complex, new tools coming," *Delta Farm Press*, March 27. <http://deltafarm-press.com/cotton/weed-control-0327/index.html>

¹⁷ Friends of the Earth International & Center for Food Safety. (2008) op. cit., pp. 10-11.

¹⁸ See: <http://www.centerforfoodsafety.org/pubs/Contamination%20Episodes%20Fact%20Sheet.pdf>