Next up for U.S. farmers: Genetically modified sugar beets
By Andrew Pollack
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Each growing season, like many other sugar beet farmers bedeviled by weeds, Robert Green repeatedly and painstakingly applies herbicides in a process he compares to treating cancer with chemotherapy.

"You give small doses of products that might harm the crop, but it harms the weeds a little more," said Green, who grows about 900 acres, or 365 hectares, of beets in St. Thomas, North Dakota.

But next spring, for the first time, Green intends to plant beets genetically engineered to withstand Monsanto's powerful Roundup herbicide. The Roundup will destroy the weeds but leave his crop unscathed, potentially saving him thousands of dollars in tractor fuel and labor.

For Green and many other beet farmers, it is technology too long delayed. Seven years ago, beet breeders were on the verge of introducing Roundup-resistant seeds. But they had to pull back after sugar-using food companies like Mars and Hershey, fearing consumer resistance, balked at the idea of biotech beets.

Now, though, sensing that those concerns have subsided, many processors have cleared their growers to plant the Roundup-resistant beets next spring.

It would be the first new type of genetically engineered food crop to be widely grown since the 1990s, when bio-engineered soybeans and corn entered the market. And it could pave the way for the eventual planting of other biotech crops like wheat, rice and potatoes, which were also stalled.

But so far it is sounding like the quietest of revolutions.

"Basically, we have not run into resistance," said David Berg, president of American Crystal Sugar, the largest sugar beet processor in the United States. "We really think that consumer attitudes have come to accept food from biotechnology."

A Kellogg spokeswoman, Kris Charles, said her company, the top U.S. maker of cereal, "would not have any issues" purchasing such sugar for products sold in the United States, where she said "most consumers are not concerned about biotech."

If some other big food companies are now open to genetically modified sugar, though, they are not talking about it. Both Hershey and Mars declined to comment. "There's just nothing we have to say on the topic," a Mars spokeswoman said. Many sugar refiners and seed developers also refused to comment, hewing to an industrywide plan to coordinate the rollout of the genetically engineered beets and carefully control what is said about them.
When it comes to genetically modified crops, there is a reason to keep one's corporate head low - to avoid protests. Some opponents of biotechnology are only now getting wind that the sugar beets have been resurrected, and they have issued a call to arms.

"When I first saw this I said, 'No, it can't be.' " said Ronnie Cummins, national director of the Organic Consumers Association. "I thought we had already dealt with this."

His organization is behind a campaign that has resulted in thousands of identical e-mail messages being sent to Berg at American Crystal Sugar warning that "profit margins of your company and its supporting farmers" would be hurt by consumer resistance.

Berg said he received 681 messages in a 24-hour period before having the e-mail blocked. He said he still believed most consumers would accept biotech crops.

But Cummins said he would next try to get consumers to pressure food companies to boycott the sugar. "I don't think companies like Hershey are going to want any more hassles than they already have," he said, referring to recent earnings pressure and management turmoil at the company, a chocolate maker.

Sugar beets are grown on only about 1.3 million acres by about 10,000 farmers in the United States, mainly in northern states from Oregon to Michigan. That makes them a minor crop compared with corn, at about 90 million acres, and soybeans, at almost 70 million.

And yet beets account for about half the U.S. sugar supply, with the rest coming from sugar cane. The sugar from beets and cane, generally considered interchangeable, is used in candies, cereals, cakes and numerous other products, although some food manufacturers have switched to high-fructose corn syrup, which is less expensive.

When genetically engineered versions of soybeans and corn - as well as cotton and canola (rapeseed) - were introduced in the mid-1990s, they were quickly adopted by farmers. But opposition to genetically engineered crops then took hold, particularly in Europe. Food companies, fearing protests or loss of customers, pressured farmers not to grow the crops.

Sugar was not the only crop affected. Monsanto's insect-resistant potatoes were withdrawn from the market in 2001 after fast-food companies resisted them. Monsanto gave up on developing Roundup-resistant wheat in 2004, in part because American wheat farmers feared losing exports. The rice industry, also heavily dependent on exports, has never grown herbicide-tolerant varieties.

Even if the situation has now changed for sugar, however, other crops might still meet resistance.

For one thing, sugar is a refined product that contains no DNA or proteins, just the chemical sucrose. "While the sugar beet is genetically different, the sugar is the same," said Luther Markwart, executive vice president of the American Sugarbeet Growers Association and co-chairman of the Sugar Industry Biotech Council.

By contrast, the foreign DNA and proteins in genetically modified wheat, rice or potatoes can be eaten by consumers, which at least theoretically raises food safety questions. Moreover, only about 3 percent of American sugar is exported, Markwart said, compared with about half of wheat and rice.

The sugar industry's organizational structure also helps. Virtually all sugar processors - which buy the beets from farmers and then extract the sugar and sell it - are owned by the farmers themselves. That makes them more likely to accept the biotech crops than an independent processor might be.

Because such foods would have to be labeled in Europe as containing genetically engineered ingredients, some U.S. food companies might use cane sugar, which is not genetically modified, for products they export to Europe. But in the United States, foods containing sugar made from biotech beets would not have to be labeled.
The sugar beet industry conducted field trials in Idaho last year and Michigan this year. Duane Grant, who grows about 5,000 acres of sugar beets in Rupert, Idaho, and was one of the growers in the Idaho test, said the biotech seeds had slightly higher yields and sugar output than very similar conventional varieties.

Some environmentalists say the use of Roundup on sugar beets could contribute to the growing problem of Roundup-resistant weeds. But the U.S. Department of Agriculture said it expected little, if any, environmental impact from growing the beets.

One factor that could help contain the trait from spreading is that beets produce seeds only in their second year of life, after passing through a winter. So beets grown in most parts of the country never produce seeds, because farmers harvest beets every fall and plant new seeds the next spring.

But in California, beets do stay in the ground through the winter and there are also weeds that can mate with sugar beets. So growers there may be wary about joining the Roundup revolution.

"We have to make sure we don't cause ourselves more problems than we're curing," said Ben Goodwin, executive manager of the California Beet Growers Association.