

In Key Test, U.S. Allows Sale of Genetically Engineered Corn

By Justin Gillis
Washington Post Staff Writer
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Monsanto Co. won government approval yesterday to sell genetically altered corn designed to combat the most significant pest in the largest crop grown in the United States, setting up a major test of whether the plant biotechnology industry can deliver on its long-standing promise to reduce the use of chemical pesticides.

The new corn is genetically engineered to resist corn rootworm disease. That problem, which plagues farmers nationwide, is the biggest single reason they apply toxic pesticides to their fields. Monsanto, of St. Louis, estimates that the corn could eventually be grown on 12 million acres, or 15 percent of the nation's cornfields.

In granting permission, the Environmental Protection Agency acknowledged that some environmental questions remain but declared that on balance the corn appears to offer more benefits than risks.

"What this decision means is that the environment will have literally millions of pounds of very toxic pesticides not being used," said Stephen Johnson, the assistant EPA administrator in charge of pesticide regulation.

People would be unlikely to eat much, if any, of the new corn. Like most corn grown in North America, the new crop is likely to be used overwhelmingly as animal feed, so people would eat it only indirectly -- as poultry, beef or other meat. But a small amount might be turned into products such as corn syrup, a sweetener.

The approval is a victory for Monsanto, a company struggling to gain public acceptance of gene-altered crops. "This is a new tool to help farmers fight insects," said Robb Fraley, Monsanto's chief technology officer. "But the real beneficiary is the public, which is getting a more sustainable agricultural system. This will allow growers to be better stewards of the land."

For years, the backers of agricultural biotechnology, which involves inserting new genes into plants to confer traits such as improved insect or weed resistance, have claimed that their techniques hold the potential to replace toxic herbicides and insecticides with more benign control methods.

But big reductions in chemical use have been achieved only with gene-altered cotton. For genetically engineered crops grown as human food or animal feed, the data have been far murkier. Corn rootworm, nicknamed the "billion-dollar bug" because it costs farmers nearly \$1 billion a year in lost yields and control expenses, is such a huge agricultural problem that the new gene-altered corn is likely to serve as the definitive test of whether

big chemical reductions can be achieved in a food crop.

"This is a blockbuster," said Gregory Jaffe, director of biotechnology programs at the Center for Science in the Public Interest, a Washington consumer group that favors the use of agricultural biotechnology under tightly regulated conditions. "It's the first product to come down the line in a while that really could cut insecticide use and help the environment."

Jaffe and representatives of some other watchdog groups, however, expressed disappointment that the EPA had yielded to Monsanto on one key issue.

Most members of a scientific advisory panel had urged the EPA to require farmers to plant sizable "refuges," or strips of conventional corn, around the genetically altered crops to provide food for the rootworm and slow the pests' ability to develop a resistance to the new corn variety. Panel members wanted the EPA to require that 50 percent of a farmer's cornfield be planted as refuges, while Monsanto pushed for 20 percent, similar to requirements already in place for other crops. The EPA sided with Monsanto.

"What we have here is companies doing as they usually do: profiting in the short term" even if it shortens the life of the product, said Jane Rissler, senior staff scientist at the Union of Concerned Scientists, a Washington group.

Johnson, of the EPA, rejected criticism on the issue, noting that the 20 percent requirement will be in effect for only three years while the resistance issue is studied further. New plans may be put in place if resistance proves to be a problem, Johnson said.

Corn rootworm is the common name for the larval stage of four species of beetles that grow in fields throughout the United States. The immature beetles feed on the roots of corn plants, sometimes damaging them so much that the plants blow over in storms or yield little corn.

To create resistant corn, Monsanto, through molecular engineering, inserted a gene that contains instructions for making a protein toxic to most varieties of the worms, but one that can be easily digested by people or other mammals. The new crop does pose theoretical risks to some other species, including beneficial insects, and the EPA said it would monitor that issue.

Monsanto hopes to put limited supplies of the new corn on the market for the 2003 growing season, but the corn is not expected to gain wide use until 2004, when additional seed becomes available. The company intends to cross the new corn with an older genetically altered corn designed to resist a lesser worm, the European corn borer. And, in a first, Monsanto will create a variety with three genetic modifications: the two anti-worm proteins plus a gene that helps farmers fight weeds.

This latter variety, designed to solve virtually all common problems that farmers confront in growing corn, may serve as the first real test of whether large-scale, industrialized agriculture is possible in the United States without significant use of toxic chemicals.

