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U.S. Approves Corn Modified for Ethanol

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A type of corn that is genetically engineered to make it easier to convert into ethanol was approved for commercial growing by the Department of Agriculture.

The decision, announced Friday, came in the face of objections from corn millers and others in the food industry, who warned that if the industrial corn cross-pollinated with or were mixed with corn used for food, it could lead to crumbly corn chips, soggy cereal, loaves of bread with soupy centers and corn dogs with inadequate coatings.

“If this corn is comingled with other corn, it will have significant adverse impacts on food product quality and performance,” the North American Millers’ Association said in [a statement](#) on Friday.

The corn, developed by [Syngenta](#), contains a microbial gene that causes it to produce an enzyme that breaks down corn starch into sugar, the first step toward making ethanol. Ethanol manufacturers now buy this enzyme, called alpha amylase, in liquid form and add it to the corn at the start of their production process.

Syngenta says that having the crop make the enzyme for its own breakdown — self-processing corn, as it were — will increase ethanol output while reducing the use of water, energy and chemicals in the production process. The company, a seed and pesticide manufacturer based in Switzerland, said it would take various measures to prevent the corn from getting into the food supply.

The corn, which is called Enogen, is one of the first crops genetically engineered to contain a trait that influences use of the plant after harvest. Virtually all past biotech crops have had traits like insect resistance, aimed at helping farmers more than manufacturers or consumers.

Enogen is also one of the first to be engineered solely for industrial purposes.

The Agriculture Department said the corn met the statutory requirements for approval, in that it was not a pest that would harm plants. The [Food and Drug Administration](#) had previously found the corn safe to eat.

The Agriculture Department said the food processors should work with Syngenta to address their concerns. “We are pleased that these segments of industry continue to dialogue with

Syngenta on research and testing efforts,” the department said in a press release.

The corn approval is the third recent one in which the Agriculture Department has had to weigh the risks of the spread of a genetically engineered trait.

Two weeks ago, it approved the unrestricted cultivation of [biotech alfalfa](#) over the objections of some environmental groups and the [organic food](#) industry. Last week, it cleared [biotech sugar beets](#) for planting, with some restrictions. Both the alfalfa and beets have a gene making them tolerant of the herbicide Roundup.

With Syngenta’s corn, however, the opponents are not only the usual anti-biotechnology groups but also a powerful industry that is normally receptive to biotechnology. The millers’ association, which has led the opposition, represents 43 companies, including giants like [General Mills](#), [ConAgra Mills](#) and [ADM Milling](#).

The association said that Syngenta’s own data indicated that as little as one amylase corn kernel mixed with 10,000 conventional kernels could be enough to weaken the corn starch and disrupt food processing operations.

Another concern of some in the food industry is that if the amylase corn is found in food supplies it could lead to recalls or disrupt exports.

Syngenta says the amylase enzyme is not active when the kernel is intact. It is most active, the company said, at certain levels of temperature, acidity and moisture found in ethanol factories but rarely in factories that make corn starch, corn syrup or corn chips.

Syngenta also said the corn would be grown only in the vicinity of ethanol plants. Farmers would be under contract and have financial incentives to sell their output only to that plant. Other steps would be taken to limit cross-pollination or inadvertent mixing in grain elevators.

But food processors and environmental groups said that some spread was inevitable.

“This is StarLink all over again,” said Margaret Mellon of the [Union of Concerned Scientists](#). She was referring to [the situation in 2000](#) when a genetically modified corn approved only for animal use got into the human food supply, prompting huge recalls and disrupting American exports.

One difference, however, is that unlike StarLink, Syngenta’s new corn is approved for food use. Other alpha amylase enzymes are already used in food processing.

The Center for Food Safety, an advocacy group, said it was preparing to sue. The group persuaded a court to temporarily revoke the approvals of the biotech alfalfa and sugar beets because the Agriculture Department had not done a full environmental impact statement. The department, which has been reviewing Syngenta’s application since 2005, did not prepare such

a statement for Syngenta's corn.

Syngenta said that this year it expected the corn to be grown on fewer than 25,000 acres, in the western parts of Kansas and Nebraska. However, use could expand greatly in the future. As much as 40 percent of the nation's corn crop last year is going into ethanol production.

The National Corn Growers Association applauded the corn's approval.

The corn contains a synthetic gene derived from micro-organisms that live near hot-water vents on the ocean's floor. The enzyme is stable at the high temperatures used in making ethanol. The liquid amylase now used by ethanol plants is made in other micro-organisms.

Syngenta said that use of its corn increased ethanol production by 8 percent and reduced natural gas consumption 8 percent in a test at an ethanol plant in Oakley, Kan.

"We don't ever want to go back to a liquid amylase product," Steve McNinch, the chief executive of Western Plains Energy, the owner of the plant, said in a statement issued by Syngenta.