

Starlink corn recall

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The **Starlink corn recalls** occurred in the autumn of 2000, when over 300 food products were found to contain a genetically modified corn that had not been approved for human consumption.^[1] It was the first-ever recall of a genetically modified food. The anti-GMO activist coalition Genetically Engineered Food Alert, which detected and first reported the contamination, was critical of the FDA for not doing its job. The recall of Taco Bell-branded taco shells, manufactured by Kraft Foods and sold in supermarkets, was the most publicized of the recalls. One settlement resulted in \$60 million going to Taco Bell franchisees for lost sales due to the damage to the Taco Bell brand.

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StarLink corn

StarLink, is a genetically modified maize, containing two modifications: a gene for resistance to glufosinate, and a variant of the bacillus thuringiensis (Bt) protein called Cry9C.^[2] Cry9C had not been used in a GM crop prior to Starlink, causing heightened regulatory scrutiny.^[3] Starlink's creator, Plant Genetic Systems, which later became Aventis CropScience during the time of the incident,^{[4]:15-16} had applied to the US Environmental Protection Agency (EPA) to market Starlink for use in animal feed and in the human food supply.^{[4]:14} However, because the Cry9C protein lasts longer in the digestive system before breaking down than other Bt proteins, the EPA had concerns about its allergenicity, and PGS did not provide sufficient data to prove that Cry9C was not allergenic.^{[5]:3} As a result PGS split its application into separate permits for use in food and use in animal feed only.^{[3][6]} Starlink was approved by the EPA for use in animal feed only in May 1998. After the incident the company at first tried to get the application for human consumption approved, and then withdrew the product entirely from the market.^{[4]:15}



Field of GMO corn in Yellow Springs, Ohio

The Garst Seed Company (part of the Advanta group) was licensed by Aventis to produce and sell Starlink seed in the US.^{[7]:8}

Recalls

In 2000, Genetically Engineered Food Alert was launched by seven organizations (Center for Food Safety, Friends of the Earth, Institute for Agriculture and Trade Policy, National Environmental Trust, Organic Consumers Association, Pesticide Action Network North America, and The State PIRGs) to lobby the FDA, Congress and companies to ban or stop using GMOs.^{[8][9][10]} One of their activities was testing food for the presence of GMOs via a lab called Genetic ID, a lab founded by Jeffrey M. Smith.^{[11][12]}

On September 18, 2000, Genetically Engineered Food Alert released a statement that Genetic ID had conducted tests on "Taco Bell Home Originals" brand taco shells, made by Kraft Foods that had been purchased in a grocery store near Washington, DC, and had detected Starlink;^[13] the story was reported on by The Washington Post.^{[12][4]:15}

Kraft distributed the Taco Bell-branded taco shells under a 1996 license agreement with Taco Bell.^{[14]:54}

Kraft had bought the shells from a Sabritas plant in Mexicali which used flour supplied from an Azteca mill plant in Plainview, Texas. The Texas mill used flour from six states supplied by elevators that did not segregate their genetically modified and conventionally-grown corn at the time. Kraft also suspended production of the recalled products.^{[15][16][17]} "All of us — government, industry and the scientific community — need to work on ways to



A taco with a hard taco shell

prevent this kind of situation from ever happening again," said Betsy Holden, Kraft's chief executive in September of 2000. She also stated that food safety and legal compliance were Kraft's main priority.^[18]

Following the taco shell discovery, it was reported on September 29, 2000 that Aventis agreed to buy back the entire US StarLink crop from farmers, and would instead be used in animal feed and ethanol production; Aventis estimated the cost would be between \$100 million to \$1 billion.^{[19][20]} Safeway later announced it would recall its store brand taco shells at the recommendation of a consumer group on October 12, 2000. This was done as a precaution, and no StarLink was confirmed to be found in any of the products.^[21] On October 13 and 14, Mission Foods voluntary recalled about 300 products.^{[22][23]} On October 22, 2000 it was reported that Kellogg's had shut down a plant as a precaution because they couldn't guarantee that StarLink corn flour had not been supplied to the plant.^[24] On October 26, 2000 StarLink corn was reported to be found in Japan and South Korea.^{[4]:20-21}

It was estimated that due to grain mixing StarLink corn could have existed in more than 50% of the US corn supply.^[2]

Aftermath

Following the recalls, 51 people reported adverse effects to the FDA; these reports were reviewed by the US Centers for Disease Control (CDC), which determined that 28 of them were possibly related to Starlink.^[25] The CDC studied the blood of these 28 individuals and concluded there was no evidence the reactions these people experienced were associated with hypersensitivity to the Starlink Bt protein.^[26]

The EPA was criticized by Joseph Mendelson III of the Center for Food Safety, who said "Clearly they didn't do anything here until they became embarrassed."^[27] The EPA and Aventis were also criticized for statements at the time of the recall that indicated they had no idea such a thing would happen.^[28] "If there has been a violation of our licensing process, then we would have a very great concern," was attributed to Stephen Johnson of the EPA. Margaret Gadsby of Aventis was quoted with her earlier statement "We have difficulty imagining how our corn could end up in the human food supply."

The registration for the Starlink varieties was voluntarily withdrawn by Aventis in October 2000.^{[29]:7} In February 2001, it was announced that the president, general counsel, and vice president of market development for Aventis CropScience (US), had been fired in response to the recall.^[30]

In June 2001 Tricon Global Restaurants, 20% owners of Taco Bell at the time, announced a \$60 million settlement with some of the suppliers of the supermarket taco shells; under the terms of the settlement they could not disclose the identity of suppliers.^[31] Tricon stated that the settlement would go to Taco Bell franchisees and Tricon would not receive any of it. Tricon also announced that it, along with the suppliers and franchisees, would initiate litigation against the parties responsible for Starlink entering the food chain.

In September 2001, a group of about 5,000 Taco Bell franchisees and a handful of taco shell suppliers brought a class-action lawsuit against Aventis, Garst Seed Co.; Gruma Corp., ("the largest producer and distributor of corn flour and tortillas in the United States; and Azteca Milling seeking damages.^[32] This suit was voluntarily dismissed in December 2001.^{[33]:65}

In 2002, Aventis, Garst, Kraft Foods, Azteca Foods, Azteca Milling, and Mission Foods settled a lawsuit brought by two people, and the grandmother of a third, who claimed to have had allergic reactions to Starlink, for \$9 million.^[34]

In 2003, farmers who did not plant Starlink who had suffered economic losses due to depressed corn prices following the Starlink recalls settled a class-action lawsuit against Aventis and Advanta for \$100 million.^[35]

GeneWatch UK and Greenpeace International set up the GM Contamination Register in 2005 citing these recalls as one of the "highlights" of the register.^[36]

The US corn supply was monitored by the Federal Grain Inspection Service for the presence of the Starlink Bt proteins from 2001 until 2010.^{[37][38]}

Presently, according to The Non-GMO Project, most developed nations label, restrict, or ban GMOs.^[39]

Later incidents

In 2005, aid sent by the UN and the US to Central American nations also contained some StarLink corn. The nations involved, Nicaragua, Honduras, El Salvador and Guatemala refused to accept the aid.^[40]

In August of 2013, StarLink corn was reported to be found again contaminating some foods in Saudi Arabia.^[41]

See also

- Co-existence of genetically modified and conventional crops and derived food and feed
- Fair Packaging and Labeling Act (US)
- Genetically modified food controversies
- Regulation of the release of genetically modified organisms

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