

Syngenta contaminates US maize with illegal GM variety

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Introduction

Swiss chemical giant Syngenta has admitted it sold hundreds of tonnes of an illegal variety of GM maize to farmers in the USA over the past four years.¹ The illegal GM crop, called Bt10, was modified with a gene from the soil bacterium *Bacillus thuringiensis*, which makes the crop produce its own pesticide to kill insects.

In December 2004, Syngenta told the US government that between 2001 and 2004 the company had accidentally sold hundreds of tonnes of Bt10 maize, even though the product had not been approved as safe. It is estimated that over 15,000 hectares of the crop was sown in the USA, where farmers thought they were planting an approved type of GM maize.² The problem was only found when routine seed tests revealed the illegal contamination. Amazingly though, Syngenta themselves has refused to say which other countries besides the USA received the illegal Bt10 seed. According to the European Commission, "1000 tonnes of Bt10 food and feed products may have entered the EU through the Bt11 export channel since 2001."³ In addition, up to 10 kilograms of Bt10 were imported into France and Spain for research purposes. It is believed that the crop may have been planted in Canada, Argentina and Chile.

Syngenta's response

Syngenta claimed that Bt10 is identical to another GM maize, called Bt11, which has been approved for sale in the USA. Consequently, Syngenta believe that this illegal GM crop poses no risks to the environment or human health. In a statement the company said, "the Bt protein produced by [Bt10] is identical to that produced by the commercialised, fully approved Bt11 varieties. Therefore, there is no change to the food, health and environmental profile" of the illegal GM maize.⁴

The US government agrees with this analysis, and is "communicating with our major trading partners to ensure they understand there are no food safety or environmental concerns."¹ Syngenta says that US regulatory bodies have "confirmed the food, feed and environmental safety of Bt10."⁴ In addition, the company claims, "all current plantings and seed stock containing this material have been identified and destroyed or otherwise contained."⁴

Antibiotic resistance

Despite Syngenta's original claims it is now clear that Bt10 is far from identical to Bt11. This is because we now know that Bt10 contains a gene for antibiotic resistance that is not found in Bt11. Antibiotic-resistance genes are widely used during the development of GM crops to identify whether successful modification of the plant has taken place. Syngenta confirmed that a marker gene conferring resistance to the commonly used antibiotic ampicillin was

present in Bt10 seeds,⁵ while the UK's Advisory Committee on Releases to the Environment noted the presence of the gene in Bt10 in 2003.⁶

Releasing antibiotic resistance genes into the environment is considered unwise because of the risk of spreading antibiotic resistance to microorganisms. Syngenta say they didn't originally mention the antibiotic resistance gene's presence because "it wasn't relevant to the health and safety discussion". Yet this flies in the face of accepted science. The European Food Safety Authority said that marker genes conferring resistance to ampicillin "should be restricted to field trials and not be present in genetically modified plants placed on the market".⁷ Ampicillin is an important antibiotic widely used to treat human and animal infections. European Union rules⁸ require the phasing out of such antibiotic resistance marker genes in GM crops by the end of 2004.

UK Government response

Syngenta has informed the UK Government and Food Standards Agency about the incident. Yet the US administration, which had known about the contamination since December 2004, did not notify the UK until the end of March 2005. The UK Government's response has been to support the notion that the illegal Bt10 variety is perfectly safe. A Government spokesman said, "we understand the US food safety authorities have assessed the current report of the incident. Both GM events produce the same protein and therefore Bt10 is covered by the existing tolerance exemption for Bt11. The USDA has therefore concluded that they have no safety concerns."⁹

Each year the UK imports hundreds of thousands of tonnes of US maize for use in food and animal feed.¹⁰ Before 2004 GM maize exported by US farmers to the EU would not have been labelled, making it effectively impossible to work out exactly where the contaminated maize ended up. Despite this, the UK Government believes that there is "no actual indication that this contamination could have affected supplies of maize exported to the UK."¹⁰ Yet how can they be so sure when it is impossible to trace Bt10 through the food chain?

EU Response

The European Union were told of the Bt10 incident towards the end of March and were originally assured by Syngenta that "there should be no health or environmental risks as basically, this product is genetically the same as Bt-11 which is already approved in the EU."¹¹ However, a few days later Syngenta admitted to the EU that Bt10 contained the ampicillin-resistance gene.¹² The EU immediately asked both Syngenta and the USA for the full scientific dossier on Bt10 and precise figures on the amount of Bt10 that may have been imported.

Worryingly, the EU admitted it was practically impossible for them to test for the presence of Bt10¹³ and they could not work out whether the imports had stopped.¹⁴ The Europe Commission refused to ban US maize imports at this

time, saying “it would be a disproportionate measure at this point,”¹³ and confirmed it had every faith in its GM detection systems.¹⁵

In Mid-April the USDA imposed a \$375,000 fine on Syngenta for the Bt10 incident,¹⁶ whilst stating that it has “reviewed scientific information and concluded that there are no human or animal health or environmental concerns with Bt10 corn.”¹⁷ However, the EU Commission appeared to change its mind about banning US maize imports, and is currently “reflecting about possible action [of]...a temporary suspension of imports of corn gluten feed.”¹⁸ The EU claimed that it had no power to fine Syngenta, but national governments could do so.¹⁹

Other contamination scandals

The Syngenta Bt10 contamination incident is just the latest in a number of GM scandals that have occurred around the world in recent years.

StarLink

The last major illegal GM crop scandal occurred in 2000, when a type of Bt maize known as StarLink, developed by Aventis, was planted and then inadvertently released into the food chain.²⁰ Because of worries over possible allergic reactions in humans, StarLink was only approved for use as animal feed. Once the contamination was discovered, millions of food products around the world were recalled,²¹ Aventis had to buy back the 350,000 acres of StarLink planted in the USA^{22, 23} and major grain companies closed down their mills.²⁴ The product recall for StarLink maize cost the food industry an estimated US\$1 billion.²⁵

UK contamination events

Each year the Government’s Central Science Laboratory and GM Inspectorate compile cases of GM contamination incidents in the UK. Even though no GM crops are commercially grown here, and the vast majority of people have rejected GM foods, there have been a worrying number of contamination accidents in recent years.

The following events occurred during 2000 / 2001:²⁶

- A variety of non-GM oilseed rape developed by GM company Advanta was contaminated with GM seed, although “by the time that the GM presence had been confirmed a large amount of the seed had been sold and sown widely in the UK.” The GM contamination occurred in Canada when GM oilseed rape cross-pollinated with non-GM seeds. Advanta tried to recall and destroy all seed and plants before they flowered.
- In Spring 2000 chemical company Bayer CropScience told the Government that it had accidentally planted an illegal type of GM sugar beet in UK field trials. The variety was resistant to two herbicides and

contamination was caused by cross-pollination during seed production in Germany. Bayer CropScience were told to destroy the illegal GM sugar beet and to develop “new protocols” to ensure it never happened again.

In 2001 / 2002, there were two separate examples of cows breaking into oilseed rape Farm Scale Evaluation (FSE) trial sites.²⁷ Dairy cattle were seen grazing at one site, while hoof prints indicated cows had walked through another, having broken through an electric fence.

In the year 2002 / 2003, the following occurred:²⁸

- Bayer CropScience confirmed to the Government that it had discovered that GM oilseed rape being used in UK FSEs contained 3% of an illegal variety. Bayer CropScience only found out about the contamination when a Scottish agricultural college told them. It later transpired that the illegal seed, which contained a gene that conferred resistance to the antibiotics kanamycin and neomycin, had been used at numerous FSEs sites between 2000 and 2002 without anyone realising. Government advisors strongly criticised Bayer CropScience, but later decided to take no further action against the company.
- GM oilseed rape “volunteers” (nuisance weeds that grow from seed spilled the previous year) were found growing at four sites after FSE trials had taken place. Government inspectors considered that no further action was necessary.
- A UK seed company discovered that some of its non-GM oilseed rape had been contaminated with an unauthorised GM variety. Inspectors were unable to find the source of the contamination and the seed lot was destroyed.

During 2003 / 2004 the following incidents occurred:²⁹

- More illegal Bayer CropScience GM oilseed rape contamination was discovered in supposedly “unaffected” FSE trial sites. The Government decided to take no further action because they felt the contamination was “accidental.”
- Another UK seed company informed inspectors that they had discovered unauthorised GM oilseed rape in UK-grown non-GM seeds. None of the seeds were sold to farmers and the company in question destroyed them.
- Yet another unauthorised batch of GM oilseed rape was imported into the UK and discovered prior to planting. The seed company responsible destroyed the contaminated batch and no further action was taken.

- In December 2003 the University of California announced that it had mistakenly distributed GM tomato seeds in non-GM lots around the world. Some of these seeds were accidentally grown at the Eden Centre in Cornwall, which was designed to “promote the understanding and responsible management of the vital relationships between plants, people and resources leading to a sustainable future for all.”³⁰ The GM tomatoes were grown in the Eden Centre Biomes, but all plants and seeds were subsequently destroyed. No action was taken against the Eden Centre.

Conclusions

The recent Bt10 contamination case exposes two issues:

- The continuing unwillingness of GM companies like Syngenta to be open and honest about contamination incidents
- The inherent uncontrollability of GM crops

GM companies like Syngenta have a long track record of contaminating the environment and food chain with illegal GM crops. More often than not, these companies appear to collude with authorities to keep news from the public gaze for as long as possible, whilst no serious punishment is ever handed out - certainly a \$375,000 fine to a company the size of Syngenta is hardly any sort of deterrent. It is appalling that neither Syngenta nor the US Environmental Protection Agency confirmed the presence of the antibiotic marker gene when they admitted that Bt10 had been released. This case highlights the absence of a thorough monitoring system for GM products and the incompetence of GM companies like Syngenta, who are totally unable or unwilling to control their products and attempted to cover-up the problem with a smokescreen of public relations and media management.

Despite claims from the GM industry, it is clear that GM crops are fundamentally uncontrollable. Once released, whether to be grown commercially or as part of trials, it is impossible to contain GM crops and stop them contaminating both the environment and the human food chain. That unapproved GM crops can sneak into the food chain shows just how poor the current monitoring systems are. This problem is compounded by the fact that Syngenta kept the truth under wraps for so long, and even now refuse to publicise to the full extent of Bt10 contamination.

Most importantly the Bt10 incident shows that coexistence between conventional non-GM and organic crops with GM is impossible. The UK and EU are currently developing coexistence regulations, but seem to be focusing their attention on how to minimise crop-to-crop contamination. That is, to work out how far GM crops must be grown from non-GM and organic crops, as well as wild plants, in order to maintain their non-GM status. While this issue of cross-pollination is a significant area of concern, the Bt10 incident shows that coexistence is not just about separation distances between crops. It is also about the separation of GM and non-GM commodities, food and seed right

through the entire supply chain. Yet it seems both the UK and EU have failed to see this point, and risk undermining the entire coexistence framework as well as the future availability of GM-free food and crops.

¹ *US launches probe into sales of unapproved transgenic corn.* Nature, 23rd March 2005
<http://www.nature.com/news/2005/050321/full/nature03570.html>

² *Joint US-UK cover-up alleged over GM maize.* The Guardian, 1st April 2005
http://www.guardian.co.uk/uk_news/story/0,3604,1449692,00.html

³ *EU angry over imports of unauthorized GMO maize.* Reuters, April 4th 2005
<http://www.planetark.com/dailynewsstory.cfm/newsid/30200/story.htm>

⁴ *Following Syngenta-initiated investigation of unintended corn release, EPA and USDA conclude existing food safety clearance applies, no human health or environmental concerns.* Syngenta press release, 21st March 2005
<http://www.syngenta.com/en/media/article.aspx?pr=032205&Lang=en>

⁵ *Stray seeds had antibiotic-resistance genes.* Nature, 29th March 2005
http://www.nature.com/news/2005/050328/pf/434548a_pf.html

⁶ *Advice on a notification for marketing of an insect resistant and herbicide tolerant GM maize.* Advisory Committee on Releases to the Environment, 11th September 2003
http://www.defra.gov.uk/environment/acre/advice/pdf/acre_advice35.pdf

⁷ *Opinion of the Scientific Panel on Genetically Modified Organisms on the use of antibiotic resistance genes as marker genes in genetically modified plants.* European Food Safety Authority, 2nd April 2004
http://www.efsa.eu.int/science/gmo/gmo_opinions/384_en.html

⁸ *Directive 2001/18/EC of the European Parliament and of the council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC*
http://europa.eu.int/eur-lex/pri/en/oj/dat/2001/l_106/l_10620010417en00010038.pdf

⁹ *Possible GM contamination in US corn supply.* DEFRA, 23rd March 2005
<http://www.gnn.gov.uk/Content/Detail.asp?ReleaseID=153346&NewsAreaID=2>

¹⁰ *GB Animal Feed Statistical Notice – January 2005.* DEFRA <http://statistics.defra.gov.uk/esg/statnot/mcompspn.pdf>

¹¹ *EU Says Unapproved Syngenta GMO Maize Sets No Risk.* Reuters, 24th March 2005
<http://www.planetark.com/dailynewsstory.cfm/newsid/30065/story.htm>

¹² *Commission seeks clarification on Bt10 from US authorities and Syngenta.* European Commission press release IP/05/382, 1st April 2005
<http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/05/382&format=HTML&aged=0&language=EN&quillanguage=en>

¹³ *Commission unable to stop unauthorised GMO.* EU Observer, 4th April 2005
<http://www.euobserver.com/?sid=9&aid=18785>

¹⁴ *EU ire over mix-up on biotech corn.* International Herald Tribune, 5th April 2005
<http://www.iht.com/articles/2005/04/05/business/web.0505corn.html>

¹⁵ *EU confident in biotech safeguards.* USA Today, 4th April 2005 http://www.usatoday.com/tech/news/biotech/2005-04-04-eu-touts-safeguards_x.htm

¹⁶ *USDA fines Syngenta for illegal biotech corn.* Reuters, 11th April 2005
<http://www.planetark.com/dailynewsstory.cfm/newsid/30302/story.htm>

¹⁷ *Syngenta agrees to settlement with USDA on unintended Bt10 corn.* PR Newswire, 8th April 2005
<http://www.mysan.de/article74255.html>

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- ¹⁸ *EU mulls US trade ban in illegal GMO import row*. Reuters, 8th April 2005
<http://www.alertnet.org/thenews/newsdesk/L08707979.htm>
- ¹⁹ *EU considers suspending US corn gluten imports in biotech dispute*. Associated Press, 4th April 2005
<http://www.planetsave.com/ViewStory.asp?ID=5780>
- ²⁰ *StarLink – What happened?* <http://www.starlinkcorn.com/History/What%20Happened.htm>
- ²¹ *Kraft Foods announce voluntary recall of all Taco Bell taco shell products from grocery stores*. Kraft Foods press release, September 2000 <http://www.kraft.com/newsroom/09222000.html>
- ²² *Notice to the Industry – BCD-3*. United States Department of Agriculture, October 2000
http://www.fsa.usda.gov/daco/BCD_Notices/BCD03.pdf
- ²³ *Statement by the US Department of Agriculture and the Environmental Protection Agency*. USDA / EPA press release, September 2000 <http://www.usda.gov/news/releases/2000/09/0345.htm>
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- ²⁶ *Report on GM inspection & enforcement activities: 2000 / 2001*. GM Inspectorate, Central Science Laboratory, DEFRA, August 2001 http://www.csl.gov.uk/prodserv/cons/GMI_Report_2000-01.pdf
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- ²⁹ *Annual report on GM inspection & enforcement activities: April 2003 to March 2004*. GM Inspectorate, Central Science Laboratory, DEFRA, September 2004
http://www.csl.gov.uk/prodserv/cons/documents/GMI_report_2003_04.pdf
- ³⁰ See <http://www.edenproject.com/2920.htm>