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Genetically engineered maize: illegal, risky and out of control

Greenpeace detects illegal transgenic maize in US shipment to The Netherlands

On 10 April 2007 a Greenpeace biosafety patrol tested the Vessel Pakrac¹ in the harbour of Rotterdam. The Pakrac was coming from the US (New Orleans, Port Davant) with maisgluten for animal feed on board. The ship had left the US on the 11th of March and offloaded part of its cargo on the 31st of March till the 5th of April in Dublin. Then it came to Rotterdam harbour on 10 April where they started off loading again. Activists from Greenpeace Netherlands were allowed on board the Pakrac and spoke to the captain. The captain claimed that the maize cargo was free from genetic engineered organisms. The captain agreed to give two samples to Greenpeace activists. The samples, one maize meal and the other maize pellets, were sent to an accredited laboratory for analysis.

On the 27th of April Greenpeace recieved the results of the laboratory testing showing the presence of the illegal maize.

In the samples from the maize pellets 2.4 % percent of GE maize Pioneer/ DOW Herculex RW (Das 59122-7) was demonstrated. This GE maize variety is not approved for commercial use in the EU. Therefore the cargo of the Pakrac has illegally entered the EU.

In addition Monsanto GE maize MON863 was found to a percentage of 20 %. GE maize MON 863 is under suspicion from posing significant health risks, after French scientists recently published a study which demonstrates that laboratory rats, fed with a genetically engineered (GE) maize MON 863, have shown signs of toxicity in kidney and liver.² These results are highly alarming as it is proven once more that the existing mechanisms of EU legislation concerning GMOs are not effective and cannot protect consumers, farmers, companies and the environment from unwanted GE contamination.

The discovery of Pioneer's Herculex maize is the fourth genetically engineered (GE) product that was discovered to enter the EU illegally during last two years. Previously EU consumers, businesses and authorities have been set in alarm when unapproved

¹ The ship is owned by the Croatian shipping company 'Tankerska Plovidba' from Zadar, and is registered at St. Vincent & The Grenadines.

² i Séralini, G-E, Cellier, D. & Spiroux de Vendomois, J. 2007. New analysis of a rat feeding study with a genetically modified maize reveals signs of hepatorenal toxicity.

varieties of a Syngenta Genetically Engineered (GE) maize (BT10), a Bayer GE rice (LL601), and a Chinese GE rice (Bt63) entered the EU illegally.

Herculex GE insect resistant maize (59122)

Herculex maize (59122) is a maize that is genetically engineered to resist the corn rootworm. The fact that they are in animal feed being imported into the EU raises food and feed safety issues. Although European Food Safety Authority (EFSA) recently gave an opinion on this maize saying it was “unlikely to have any adverse effect on human and animal health”, this is not a good indicator for the safety of Herculex maize. The confidence in EFSA’s GMO opinions has been undermined by a series of incidents in which EFSA has ignored scientific evidence (including evidence by EU member states) pointing at negative effects (such as signs of toxicity) of GMOs on test animals.

Studies on test animals with Herculex maize show several adverse effects such as:

- statistically significant decreases in absolute reticulocyte count
- increases in mean corpuscular haemoglobin and mean corpuscular haemoglobin concentration ³

The findings in the blood parameters in the 90 day feeding trial are of particular importance because these effects are noticed after only a short time. They could give an indication of toxicity in the longer term. This is similar to concerns expressed with MON863. However, EFSA simply dismiss all these differences (as they did with MON863) saying results are within historical or literature ranges or simply that they are “unlikely to be of any biological significance”.

Monsanto MON 863: high- risk GE maize

A recently-published scientific study by French scientists, showed that MON863 has significant health risks associated with it. Reviewing research data from Monsanto’s own tests on Bt maize MON863, Dr. Seralini and his colleagues came to the conclusion that evidence available to Monsanto and the European Food Safety Authority (EFSA) prior to the authorisation of MON863 was clear: rats fed on MON863 during the 90 days trials showed signs of liver and kidney toxicity and significant variations in growth. These data, however, were disregarded in the authorisation process.

Clearly, the conclusions of Dr. Seralini’s and his team are another nail in the coffin for the credibility of the EU authorisation system. These findings confirm that EFSA has failed to conduct full environmental and health risk assessments, as required by EC legislation. EFSA has not to date analysed the long-term effects of GMOs and has ignored diverging scientific opinions voiced by the EU Member States’ competent authorities.

A history of contamination in EU – a history of failure of EU mechanisms

³ EFSA 2007. Opinion of the Scientific Panel on Genetically Modified Organisms on an application (Reference EFSA-GMO-NL-2005-12) for the placing on the market of insect-resistant genetically modified maize 59122, for food and feed uses, import and processing under Regulation (EC) No 1829/2003, from Pioneer Hi-Bred International, Inc. and Mycogen Seeds, c/o Dow Agrosciences LLC. (Question No EFSA-Q-2005-045) Opinion adopted on 23 March 2007. *The EFSA Journal* (2007) 470, 1-25

The last two years the number of contamination incidents have been increasing around the world. In the absence of an official register of these incidents Greenpeace and Genewatch have launched a website which monitors all the contamination cases ⁴

The most significant contamination cases that EU has experienced recently are:

Syngenta's GE Maize Bt10 ⁵

On 22 March 2005, the science journal *Nature* revealed that a line of GE maize, Bt10, that does not have regulatory approval anywhere in the world had been grown accidentally for four years in the US and Canada.⁶ The breach was reported by the company to the US authorities in December 2004, but was not made public until three months later. In response the European Commission demanded that the USA ensure that shipments to Europe did not contain Bt10.ⁱ It also requested further information from the company producing maize Bt 10 –Syngenta- on the gene sequence and detection methods. Emphasising the lack of information with which to determine a risk assessment, the emergency measures to ensure that imports of maize products from the USA were certified as free of Bt10 were formalised on 18 April 2005.ⁱⁱ

Despite an illegal release of a GM organism having taken place in Europe, where all releases require a licence, no further action is being taken against the company. The angry press releases published by the Commission are belied by its apparent lack of interest in holding the company to account in any meaningful way.

Recently, in 8 of March 2007, EU Commission (DG DANCO) decided to repeal its 2005 decision setting up emergency measures regarding Bt10 maize. The reason is that only one case of products contaminated with bt10 has been found in the last two years. However, EU should be more careful of repealing emergency measures as the lack of strict and effective control mechanisms allows US contaminated commodities to enter the EU market like in the case of Bayer's GE rice (see below) and the present case of Pioneers/Dow ge maize.

Bayer LL rice 601

On 18th of August 2006 US authorities announced that Bayer's illegal LLRICE601 was found on the market. As with Bt10, the variety had last been grown in field trials *in* 2001, yet it was found throughout the rice growing areas of the USA in 2006 in one of the most commonly used varieties, Cheniere. LLRICE601 has not been approved for human consumption anywhere in the world. Nevertheless, the product was exported widely from the United States. How this contamination arose is still not known over a year after it was first detected, and it has led to product withdrawals in a number of countries, further damaging the confidence of consumers and food companies in the ability of the biotech industry to control its products.

Rice contaminated with LLRICE601 has now been found across the world, including in twenty European countries: Austria, Belgium, Cyprus, Denmark, Finland, France,

⁴ www.gmcontaminationregister.org

⁵ See GM Contamination Register Report – special case study on BT10, 2005, www.gmcontaminationregister.org

⁶ Macilwain C (2005) US launches probe into sales of unapproved transgenic corn. *Nature*, **434**, 423.

Germany Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Poland, Slovenia, Sweden, Switzerland, and the UK. LLRICE601 contamination has also been found in rice purchased in the United Arab Emirates, Dubai, Kuwait and the Philippines, food aid in Ghana and Sierra Leone, and rice being imported into Russia. On 23 of October EU decided to control every rice shipment. These measures are still in place in EU.

Chinese Rice Br63

In September 2006, Greenpeace releases test results⁷ showing Bt63 presence in rice products imported from China into France and Germany. Friends of the Earth releases similar information for the UK. In October 2006, France announces the discovery of illegal Chinese rice on the EU's Rapid Alert system. Subsequently the German and Austrian Governments announce that additional Chinese foods contaminated with Bt63 were found⁸ Later in October: European Commission receives official reply that the Minister of the General Administration of Quality Supervision, Inspection, and Quarantine of China is paying high attention to the contamination of food imported from China.

Conclusions

- In all the above cases, the official traceability mechanisms were unable to detect the entrance of illegal unapproved varieties in the market.
- In all cases, the information made known either from the biotech companies themselves or by NGOs such as Greenpeace.
- In the cases of Syngenta and Bayer there was a significant time delay between the detection of contamination and the report to authorities
- In all cases there was a delay of reaction from EU authorities to put emergency measures and start controlling and recalling the contaminated unapproved products.
- As with Syngenta's Bt10 contamination scandal in 2005, the cases of LLRICE601 and Bt63 show that field trials and GM crops not intended for commercialisation are not being properly controlled
- In all cases, no fines were put on biotech companies who cause the contamination of the environment, agriculture and the food chain.
- Authorities have been willing to bend the rules in the interests of the company involved. The USA did not conduct an event-specific assessment of the BT10 crop; public consultation and publication of details required for a risk assessment have been avoided. In Europe and Japan, despite an illegal act taking place, the company has faced little more than stern requests for information which has then been kept secret at the company's insistence.
- The potential for contamination with a plant modified to produce a drug, industrial chemical or other biologically active protein can not be discounted and the implications of such an accident are enormous. All indications are that the biotech industry simply is not up to the task of managing its products safely and responsibly..

⁷ See www.greenpeace.org

⁸ Greenpeace Market Report: the Collapse of GE Industry, www.greenpeace.org

ⁱ Commission seeks clarification on Bt10 from US authorities and Syngenta.

European Commission Press Release, 1 April 2005,

<http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/05/382>

ⁱⁱ http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/oj/2005/l_101/l_10120050421en00140016.pdf.