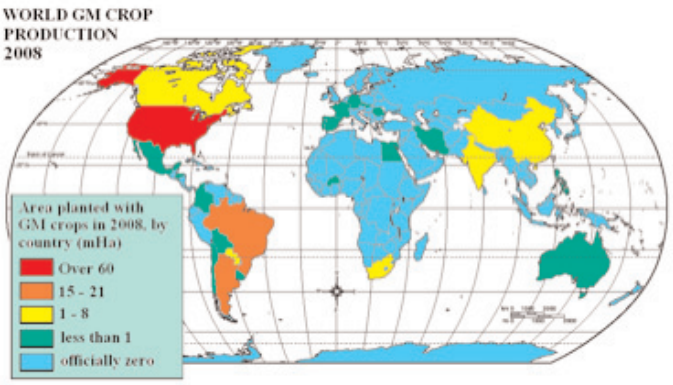
GM Inspectorate Seed Monitoring News

The Food and Environment Research Agency

October 2009

Worldwide GM crop cultivation

In 2008[1] the area dedicated to GM crop cultivation occupied some 125 million hectares (mha) worldwide, an increase of over 9% on the previous year (figures from http://www.isaaa.org and http://www.gmo-compass.org).



[1]*The latest year for which reliable figures are available, so far, for most crops.*

The principal biotech crops were soyabean (65.8 mha GM), maize (37.3 mha GM), cotton (15.5 mha GM) and rapeseed (5.9 mha GM).

Countries with the largest area of GM crop cultivation in 2008

Country	GM maize (mha)	GM Crops cultivated
USA	62.5	soya, maize, cotton, rapeseed, squash, papaya, alfalfa and sugar beet
Argentina	21.0	soya, maize, cotton
Brazil	15.8	soya, maize, cotton
India	7.6	cotton
Canada	7.6	rapeseed, maize, soya
China	3.8	cotton, poplar, papayas, tomato, pepper, petunia

Area of GM maize planted in the EU in 2008

Country	GM maize (ha)
Spain	79,269
Czech Republic	8,380
Portugal	4,851
Germany	3,171
Slovakia	1.9
Romania	7,146
Poland	3,000
TOTAL	**107,717**

For further information see: http://www.gmocompass.org/eng/agri_biotechnology/gmo_planting/392.gm_maize_cultivation_europe_2008.html

GM linseed/flax contamination reported in Germany.

German authorities in Baden Württemberg recently (08/09/09) reported the finding of GM linseed/flax variety FP967/'CDC Triffid', which is not authorized for food, feed or cultivation in the European Union (see http://ec.europa.eu/food/food/rapidalert/index_en.htm). The affected consignment appears to have originated in Canada, but at present it is not clear whether the problem is restricted to food/feed, or whether seed for sowing is also affected. Some unsubstantiated reports suggest a quantity of the affected material was sown in Germany.

CDC Triffid was developed by the University of Saskatchewan to be tolerant to the herbicide sulfonylurea, and was deregulated in Canada in 1996. It is reported that a number of farmers multiplied seed of the variety for future marketing and use, but its product registration was subsequently withdrawn and the variety was never grown commercially. The multiplied seed was subsequently crushed. (http://www.rense.com/general11/gm.htm).

UK companies importing seeds of *Linum usitatissimum (L.)*, particularly seedlots originating in Canada, should be aware of the potential risk and take appropriate precautions. As further information becomes available it will be published on the GM Inspectorate's website: http://www.gm-inspectorate.gov.uk

A new biotech crop - GM sugar beet

In 2008 Roundup Ready® herbicide tolerant sugar beet was commercially cultivated for the first time in the USA, plus a small area in Canada. In total some 257,975 ha were planted with the biotech variety in the USA, comprising around 59% of the total sugar beet area. In 2009 the area planted in the USA is expected to be around 450,000 ha, or 90% of total US sugar beet area). (http://www.gmo-compass.org/eng/ database/plants/13.sugar _beet.html)

Alfalfa update

Glyphosate tolerant (Roundup Ready® events J101 and J163) alfalfa (Medicago sativa; lucerne) was deregulated in the USA in 2006 and planted on 80,000 ha of land. In 2007, following a US court ruling, the US Department of Agriculture announced that RR alfalfa could no longer be grown commercially, but that growers who had already purchased RR alfalfa seed could continue to plant, harvest and sell their crop. Following the cessation of seed marketing the cultivation area of GM alfalfa decreased to 20,000 ha in 2007.

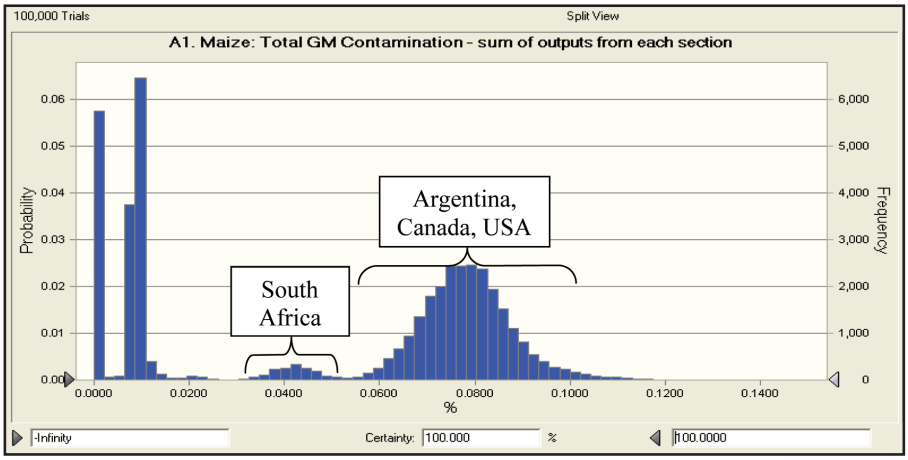
Given that alfalfa is a perennial crop it is likely that an area of GM crop remains under cultivation in the USA, although no figures could be ascertained for 2008 or 2009. GM alfalfa continues to be authorised for commercial production in Canada (although not intended for commercial planting or seed production – see http://www.agbios. com/dbase.php) and Japan. The fact that planting figures could not be ascertained may indicate that there is little if any cultivation in those countries.

Quantitative Risk Assessment Update

It is three years since the GM Inspectorate rolled out its new audit programme underpinned by a full quantitative assessment of the risk of adventitious GM presence in seed. During the three years up to March 2009, all companies participating in the programme have undergone a detailed audit of their procedures to manage GM risk. The start of the 2009 financial year seemed, therefore, to be a good time to review the risk assessment models and take account of changes in the range and area of GM crops grown worldwide. The update also presented the opportunity to refine the underlying formulae in the models and to incorporate some user-friendly features.

The models now take account of the area of GM and non-GM crops grown in specific countries, rather than treating the world as a homogeneous whole. This means that the predicted distributions of AGMP in seed are multi-modal, which allows at least some of the risk to be easily attributed to country of origin (for example see figure 1 below, where peaks toward the right of the distribution are due to countries with considerable areas of GM maize).

Figure 1: Predicted AGMP (%) in lots of maize seed



One refinement to the models has been the inclusion of a single data entry page. This will facilitate more frequent updating of basic data in the models, and brings closer the ultimate goal of releasing the models as an interactive programme for seed producers to investigate their own risk scenarios.

Despite a general increase in the total area of GM crops grown worldwide and the deregulation of GM sugar beet in the USA the range of crops remains unaltered this year. The main outputs from the models take the form of graphs of the distribution predicted level of AGMP with respect to the probability of that level occurring. Six crops stand out as having AGMP risk that is roughly an order of magnitude greater than the rest. Of these, PVS has decided that the GMI should audit just the five crops previously audited: alfalfa is only a risk if sourced from the USA, to our knowledge, no alfalfa seed is imported from there.

Seed Monitoring programme 2008-09

In addition to revising the QRA, we have introduced changes to the audits based on feedback from participating companies. We have revised the template, which will now also act as the template for detailed audit reports. Further information and a copy of the new template can be downloaded from our website at: http://www.gm-inspectorate.gov.uk/seed AuditProgramme /auditGuidance.cfm.

A flow chart describing how the audit process operates and what you can expect from us and when, is available on our website at http://www.gm-inspectorate.gov.uk/seedAuditProgramme/Timingofseedaudits.cfm

The GMI website

We have recently uploaded a copy of our 'GM test matrices' to the GMI website. We have made these available to help companies that commission or receive GM PCR analyses to assess the effectiveness of the testing regimes for identifying the presence of GMOs. They can be found, together with instructions for use, on our website at: http://www.gm-inspectorate.gov.uk/ seed AuditProgramme/GMTestMatrices.cfm

This newsletter is also available to download at www.gm-inspectorate.gov.uk/news_info.cfm