GM maize - the risks

By approving GM maize the Government is jeopardizing the future integrity and economic viability of British farming and food. If commercial planting of GM maize goes ahead, the Government must ensure that the public and farmers who want to avoid GM food and farming are protected.

Safety issues
The Soil Association has many concerns about the safety of GM maize. It has been linked to serious and unusual health problems in pigs[1] and cattle[2] when used as feed in the United States and Germany. In trials, twice as many chickens fed Chardon LL maize, the variety to be allowed in the UK, died as those fed non-GM maize[3]. The Soil Association believes that these safety concerns should have been properly investigated before they gave GM maize a green light.

GM maize is unstable
Genetic Modification is an imprecise technique, with unpredictable results. The gene package that has been inserted into Chardon LL in the genetic modification process has changed from the structure recorded in the company's original information[4]. This is extremely worrying as it indicates that it is unstable. Not only does this mean that this change could result in new and unexpected results but it also makes it illegal under the current European Community directive on the deliberate release of GMOs.

Environmental issues
In America, GM maize has caused year-on-year increases in the use of agro-chemicals: now 29% more are applied on to GM maize than non-GM maize[5].

GM contamination of organic food
Currently, EU labelling rules forbid any deliberate use of GM in organic and other non-GM food, but allow accidental or technically unavoidable GM contamination up to 0.9% (almost one in a hundred mouthfuls). The Soil Association insists that the lowest level of reliable detection (0.1%) must be used throughout the organic sector, including all organic maize.

Protection for non-GM food and farmers
There is currently no legal protection for the vast majority of farmers who will continue to produce non-GM food and who could lose money because of contamination. The Soil Association is encouraging the adoption of a new law to protect all non-GM farmers. We welcome the Government's agreement to consult stakeholders on the issue of compensation to non-GM farmers who suffer financial loss, and that funding for this would come from the GM sector.

The Government's current separation distances for maize are only 50m for conventional crops, and 200m for organic and seed crops. The National Pollen Research Unit (NPRU) report shows that, just to avoid breaching the 0.9% labelling threshold, there would need to separation distances greater than 600m.

Scientific evidence: report on pollen dispersal by the NPRU -

- the NPRU report's recommended separation distance is 3km
- maize has a medium to high risk for cross-pollination between GM and non-GM varieties
- other maize crops for example sweet corn could become contaminated

Commercial experience of GM maize in the US and Spain

Incidents have already occured which demonstrate that even if only a small amount of GM maize is grown it can cause major disruption to non-GM farmers, trade and the organic sector.

1. The September 2000 StarLink incident in which less than 1% of the US maize area was planted to the GM variety, StarLink. Although it was only intended for animal feed, it contaminated nearly half the national maize supply.
2. Bt maize in Spain has contaminated organic maize. Some was decertified and as a result organic farmers have been put off from growing maize.

Herbicide: Glufosinate

The development of herbicide resistant crops is a strategy by a number of chemical companies to increase profits. The production of a range of crops resistant to glufosinate such as Chardon LL maize ensures increased sales of this herbicide. However, numerous studies have revealed problems caused by glufosinate including adverse health effects[6], leaching into drinking water sources[7], increased nitrate leaching[8], and toxicity to beneficial soil micro-organisms[9]. The introduction of glufosinate resistant crops and a greater exposure to glufosinate increases the likelihood of these harmful effects in humans and the environment. Glufosinate resistance will tend to intensify and increase dependency on herbicide use rather than lead to significant reductions[10].

Our position

1. The problems of co-existence and the health concerns are so serious that GM maize should simply not be grown
2. If it is to be grown, there needs to be strict, statutory controls of GM contamination based on a 0.1% (limit of detection) threshold for organic and other non-GM crops
3. A key issue is the inadequacy of the current maize separation distances - they should be 3km, not 50m.
4. There must be a new GM liability law to ensure that the biotechnology companies cover the costs of controlling contamination and any incidents of contamination or health problems
5. GM contamination thresolds for non-GM seed must be 0.1%
6. We want to see the adoption of non-GM feed policies by the supermarkets and dairies

The supermarkets, major food companies and consumers all say that they will not buy GM food. The only remaining outlet for GM maize is as feed for livestock, particularly dairy cows. The public must tell retailers if they do not want to drink milk or eat products from animals that are fed GM crops.

Marks and Spencer now guarantee that their own-brand milk is non-GM, and the Co-op has pledged to do the same. The other supermarkets will follow suit if enough of customers make their wishes known. When it comes to food, contacting your supermarket is more

important than writing to your MP.

How you can support the work of the Soil Association
The Soil Association is a membership charity, we urgently need your support to continue our work. Join us today and help us to continue campaigning for sustainable agriculture and organic food. You can join the Soil Association on our website, over the phone or by writing to us.

Footnotes;
1/Soil Association, 'Seeds of Doubt' report, September 2002, pp. 35-36. See www.soilassociation.org/gm
2/For further information on this please see http://www.i-sis.org.uk/isisnews/sis21_1-5.pdf
3/The Department of Animal and Poultry Sciences, University of Guelph, 'The effect of glufosinate reistant corn on the growth on male broiler chickens', July 1996.
4/ Mae-Wan Ho, Transgenic Lines Proven Unstable, http://www.i-sis.org.uk/TLPU.php Collonier C. et al., Characterization of commercial GMO inserts: a source of useful material to study genome fluidity www.crii-gen.org (language: French).
5/Benbrook CM (2003) *Impacts of Genetically Engineered Crops on Pesticide Use in the United States: The First Eight Years*, BioTech InfoNet, Technical Paper No 6, Nov 2003. See www.biotec-info.net/technicalpaper6.html
6/ Hack, R., E Ebert, G. Ehling, and K.H. Leist, Glufosinate-ammonium - some aspects of its mode of action in mammals, Food and Chemical Toxicology, 1994, Vol. 32, No. 5, pp. 461-470.
And Fujii, T., Transgenerational effects of maternal exposure to chemicals on the functional development of the brain in offspring. Cancer Causes and Control, 1997, Vol. 8, No. 3, pp. 524-528.
7/MAFF, Health and Safety Executive, Advisory Committee on Pesticides Annual Report 1991, HMSO, London, 1991.
8/Malkomes, H.P., 1988. Einfluss von Glufosinat-ammonium (Basta) und Glyphosat (Roundup) auf Bodenmikroorganismen und deren Aktivitaten. Zeitschrift Pflanzenkrankheiten Pflanzenschutz, Sonderheft 11, pp. 277-286. Cited in Meyer, H., and V. Wolkers, (unpublished) Herbicides containing glufosinate-ammonium and their effect on micro-organisms and animals in both terrestrial and aquatic eco-systems. (Language: German).
9/ Ibid.
10/ http://www.foe.co.uk/resource/reports/impacts_glufosinate_ammon.pdf

Further Reading

Please see the Soil Association website library, http://www.soilassociation.org/library, for more information

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