Why Transparency is Essential for GM Test Sites

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the campaign on
GM food, crops and patents

The biotechnology lobby wants to keep the locations of future UK GM test sites secret[i] because it claims that direct action is preventing research on GM crops. Such calls first appeared in the late 1990s but have increased in past 12 months.

Recently a GM potato trial was planted without the public register of release sites being updated by Defra officials. The possibility of a limited number of highly secure sites has also been put forward in the media by scientists.

This briefing explains what is behind this and why it would not be in the interests of the environment or people of this country. It provides important information for anyone concerned about the impact of GM crops in their area, from local councils to farmers to food and honey producers.

What needs to happen before GM sites go ahead?

The existence of GM test sites in the UK has been very controversial since the late 1990s, when it became clear that our understanding of plant genetics, the outcomes of genetic engineering events and how GM traits can escape from test sites were poorly understood. More often than not GM crops tested in outdoor test sites in the UK had not been assessed for their food safety, thus opening the way for untested traits entering the food chain from gene transfer during trials or accidental mixing of seeds and crops with food crops before or after the trials. Concerns were raised about the adequacy of buffer zones around GM test sites in preventing cross-pollination. The use of contained testing (eg, in sealed glass house systems) was largely ignored by the biotechnology industry. The contamination of neighbouring crops, honey and wild plants was a major concern for local communities during the Farm Scale Evaluations from 1999-2003. The biotechnology industry and government failed to adequately address these concerns.

Several changes need to happen before outdoor testing of GM crops could be implemented:

- independent and transparent development of health testing of GM foods and products.
- a commitment to test in contained conditions as a first option.
- large buffer zones around test sites to minimize the risk of gene escape.
- legislation to introduce strict liability on biotechnology companies for any harm arising from test sites.
- industry-funded compensation to cover the cost of contamination incidents.
- unequivocal support for right to have a GM-free sector of food production and clear labelling to support choice.
- independent process to allow concerns of "Whistle blowers"/dissenting scientists to be voiced without fear of recrimination.
- long-term and well-funded monitoring of impacts post trials by an independent scientists.

Do we need GM test sites?

At present, the market for GM ingredients in human food is very limited because of the decisions made by major food retailers and manufacturers to remove GM ingredients from their own brands in the late 1990s. Thus very few GM foods can be found on sale in the UK in 2009. There is a lack of demand for GM food produced in the UK and therefore no immediate need to conduct GM trails here.

Testing in the UK of GM crops being developed for other climates and soils does not make any sense.

GM soya and GM maize are still imported from North and South America for animal feed, although a good deal of production of fresh eggs, farmed fish, chicken meat and pork uses non-GM feed. Organic feed is required to be non-GM in origin. The public is kept in the dark about the use of GM feed to produce milk, cheese and other dairy products, meat and eggs because there is no legal requirement to label such products. Their ability to exercise choice has therefore been denied. Animal feed itself is labelled, so traceability and labelling of animal products from GM-fed animals and birds would not be a problem if the law was changed.

The lack of demand for GM means that there is no reason to develop GM crops for animal feed in the UK, and therefore there is no need to test them in the field. Indeed, the recent price rises of imported animal feed

(over 100% in twelve months in some cases) suggests that the production of home -grown non-GM feeds may be a more sensible route for UK farmers rather than ongoing dependency on imports of GM soya and maize.

The need for GM test sites to develop GM crops for the UK is unproven, aside from the commercial needs of the agri-biotech corporations. However, there are other factors driving the clamour for GM test sites to be secret (see below).

Why GM test sites?

There are a number of reasons why the government, biotech companies and institutions would want to test GM crops. The need for outdoor testing comes in the later part of the development of GM crops, after they have passed through the laboratory and greenhouse stages:

1. To test to establish whether they perform adequately when placed under a range of stresses normally encountered in the field.
2. To test to see if the GM modification functions in normal field conditions.
3. To provide data to be used in the risk assessments required under EU law on the approval of genetically modified organisms for marketing.
4. To develop seed varieties in preparation for marketing.
5. To test new GM varieties.
6. To test seeds in National List Trials following an application to be added to the National List of Varieties.
7. To multiply seeds up in preparation for further testing or marketing and to test seeds for national recommended list of varieties.
8. To demonstrate the GM variety to potential customers.

Thus the majority of reasons for GM test sites are closely linked to the commercial development of the GM crop, rather than pure research into the crop itself or health or environmental impacts. In the past, some test sites provided data that could be used for scientific and commercial purposes.

The GM test approval process

To test GM crops in the UK, a Release Consent under EU Directive 2001/18[ii] is required. Prior to October 2002 test site approvals were given under Directive 90/220. Applications are made on a national basis, although the information is shared among EU member states. It is a devolved function in the UK. Applicants have to provide an environmental risk assessment including details of the genetic modification involved. The statutory Advisory Committee on Releases to Environment (ACRE) advises the four UK administrations on whether the application presents a risk to the environment. The applicants must advertise their intention to release a GMO and the location in an appropriate newspaper. Members of the public can make representations, which ACRE takes into account before they make their final advice to the Minister responsible for signing the release consent.

Usually the Release Consent is signed by a senior civil servant, but in 2007 a release consent for GM potatoes was actually signed by the Secretary of State at the time, David Milliband, showing the current government's backing for GM crops. Locations of test sites (six figure map references) have to be supplied by applicants and then placed on a public register. Some recent newspaper adverts have not contained full six figure map references (down to 100m), but either four figure (down to 1 km) or by parish, making it difficult for local people to assess if there was a risk to their crops or property. Six figure references were provided nearer the planting date.

The history of GM test sites in the UK

GM test sites have been grown for many reasons (see above). The best known were the Farm Scale Evaluations (FSE) from 1999 to 2003, which were Government-funded research into the indirect effects of GM herbicide tolerant crops on farmland wildlife. Universities and research institutions have also carried out tests for research. The remainder were funded and conducted by agri-biotechnology companies for commercial research and development.

The majority of GM test sites in the UK have been sited in England. Scotland has also had significant numbers of sites and Wales only a handful. Northern Ireland has hosted one GM test site.

The first GM test site approval under this EU process was in 1993 for the release of a GM bacterium.

Oilseed rape (spring and winter) has accounted for most approvals followed by beet and potatoes. The peak

year for approvals was 1995, when 41 release consents were granted. Release consents allow GM crops to be grown in many different test sites. After 1995 the numbers of applications tailed off. This was partly because release consents covered many years (up to a decade in some cases), and therefore companies had no need to apply each year. After 2004 applications to test GM crops reduced even more, with none being granted in 2005, and just one for each of the following years up until 2008. No new crop test sites were approved in 2009, although one GM potato trial is continuing in North Yorkshire.

The present public register maintained by Defra does not include all historic test sites. Friends of the Earth mapped 141 test sites in 1999, of which 129 were for herbicide tolerant crops.

Reasons for the decline in GM test sites

The biotech industry, various academic institutions, the media and the government are blaming the reluctance to grow GM test sites on direct action on test sites by anti-GM activists: "*Since 2000 almost all of the 54 GM crop trials attempted in Britain have been attacked to some extent."*[iii](see below)

However, there are several other more significant reasons, other than direct action, for the decline in enthusiasm for outdoor trials:

- GM herbicide tolerant oilseed rape and beet were not approved because of evidence of long-term harm to farmland wildlife, so no further tests were needed.
- There is no market for GM crops because most supermarkets and manufacturers banned GM ingredients, so there was no reason to test new crops.
- Monsanto abandoned plans for GM cereals because of lack of EU markets demonstrated by public rejection of GM products, so testing no testing was needed.
- Bayer Crop Science halted work on GM maize even after being given approval by the UK government, so no further test sites were needed.
- The biotech industry has not come forward with any insect resistant crops that would find a market in the UK because pest levels do not merit them, and therefore no testing has been required.
- Modern applications of traditional plant breeding are progressing and producing good quality crop varieties without resorting to GM (eg, marker assisted selection, or MAS).
- All GM seed varieties that had been entered for National Listing were voluntarily withdrawn by the applicants because of lack of market demand, thus removing the need for further outdoor testing.
- The National Assembly Government of Wales the Scottish Government have been strongly opposed to GM crops on the grounds that they do not fit with the model for developing farming in the two countries, and no test site applications have been made.

"Nearly 54 GM crop trials attacked since 2000"? – Where does that come from?

At present it is very convenient for the pro-GM government and the biotech lobby to blame activists for the lack of GM test sites in the UK because it hides the major failings of an industry they said was supposed to be a significant part of the "knowledge based economy" in the UK.

UK public opinion remains highly skeptical about the benefits and safety of GM crops, in common with people right across the EU[iv]. This is a view endorsed by several EU member state governments, such as Greece, Austria, Luxemburg and France. This is also a view shared by 230 regions and 4200 municipalities[v] across the EU, who have declared their wish to remain GM-free, including many in the UK. UK food retailers and manufacturers continue to ban GM ingredients, suggesting that their private surveys find customer support for this policy.

The claim that, "*Since 2000 almost all of the 54 GM crop trials attempted in Britain have been attacked to some extent,"*[vi] makes good headlines, but is it accurate?

What does the claim actually mean? Does it mean that nearly all the physical sites have been attacked, or what? Or is the figure based on the number of release consents, or the number of actual test sites?

A list of individual GM field trial sites used since 2000 is not available via any official website – only current sites are listed by Defra. Sources of information about past GM test sites used in this briefing are supplied by the Scottish Government, Parliamentary answers from Defra Ministsers, reports of site inspections carried out by the GM Inspectorates in England and Scotland and the post-release reports submitted by the consent holders. No test sites took place during this period in Wales or NI during this period.

The table below summaries the information that is currently in the public domain.

	Number since 2000	Number damaged	Percentage damaged
Valid part B release consents[(A)]	98	33	34%
Individual test sites part B consents[(B)]	597	129	22%
Individual commercial sites part C consents[(C)]	68	23	34%
Total part B and part C	665	152	23%

(A) All consents issues under Directives 90/220 and 2001/18 covering the deliberate release of GMOs Sources: www.defra.gov.uk/environment/gm/regulation/exper.htm and www.defra.gov.uk/environment/gm/regulation/consents/index.htm

(B) GM test sites in England and Wales from 2000. None took place in Wales and Northern Ireland. Sources: Post-release reports submitted to Defra by consent holders, Scottish Government's GM Inspectorate and www.geneticsaction.org.uk/testsites/

(C) During the FSE 1999-2003 GM fodder, maize which already had a Part C Marketing Consent under Directive 90/220, was grown experimentally, but the crops was destroyed in majority of sites.

From the available data it is impossible to see where the statement, "*Since 2000 almost all of the 54 GM crop trials attempted in Britain have been attacked to some extent,"* comes from. It appears to have no factual basis, yet has been repeated and used to build the case for making GM test sites secret. The majority of test sites (77%) and release consents (66%) appear to have been untouched by activists. Damage caused to the high profile FSEs did not prevent the results form the 198 sites being analysyed and used to compile the final scientific papers[vii].

Publication of GM Test Site Locations

The Genetically Modified Organisms (Deliberate Release) Regulations 2002[viii] Regulation12 (c) require that applicants for release consents advertise "*the location and purpose of the release**".***

The advert should *"mention that details of the application will be placed on the public register, and that the Secretary of State will invite representations (i.e. hold a public consultation) on [safety] issues raised by the proposed release".*

Defra's on-line guidance to applicants for Part B consents[ix] states:

> *"…the applicant should state the name of the farm(s) or institute(s) where the release(s) will be carried out and the full address. The size of the release area should also be given, with an estimate of the expected spread of the organism from the release site."*

Copies of the full applications are available on-line for citizens wishing to make representations concerning the application.

Regulation 34 requires a public register of GMO releases to be maintained, including "*the location at which the genetically modified organisms are proposed to be released".*

The current practice of Defra is to maintain an on-line public register that includes the six figure map references of each current release site[x]. No archive of previous sites is maintained.

In 2003 Defra asked ACRE's advice on the need to publish the location of one National List Trial for oilseed rape from a scientific perspective:

> *"For this particular application for small-scale National List trials of herbicide tolerant oilseed rape from Bayer CropScience Limited (03/R38/1), ACRE is satisfied that the notification of sites at county level prior to sowing is acceptable in terms of risk assessment, providing that the GM material does not occupy an area of greater than 500m2 per release site. However, for the purpose of post-release monitoring, the exact location by means of a 6-figure grid reference must be provided to the authorities before harvest. In addition the consent holder must ensure that sufficient information regarding site location is available to enable an effective inspection regime.ACRE would like Ministers to note that this advice is provided entirely in terms of evidence-based risk assessment. The Committee has concerns over this application with respect to openness and transparency. The Committee will provide more*

detailed advice regarding site notifications later this year.[xi]*"*

The further advice promised in this quote has not been posted on the ACRE website.

A recent European Court of Justice ruling[xii], arising from a legal challenge in France, was very clear that the location of test sites must be made public, and that using public order as grounds for secrecy under the freedom to access to information about the environment (Directive 90/313/EC) was not permitted:

> *"1. The 'location of release', within the meaning of the first indent of Article 25(4) of 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, is determined by all the information relating to the location of the release submitted by the notifier to the competent authorities of the Member State on whose territory that release is to take place in the context of the procedures referred to in Articles 6, 7, 8, 13, 17, 20 or 23 of that directive.*
> *2. An exception relating to the protection of public order or other interests protected by law cannot be relied on against the disclosure of the information set out in Article 25(4) of Directive 2001/18."*

GM Potatoes in North Yorkshire

In 2008, the University of Leeds was granted a release consent to field test GM potatoes repellent to potato cyst nematodes (PCN)[xiii] from 2008 to 2010 inclusive. Objections were made to the application on grounds of insufficient risk assessment and the existence of more sustainable approaches to dealing with PCN[xiv]. The consent limited the planting of the GM potatoes to 0.1ha in any of the three years. The location of the site was advertised in 2008 giving a six figure map reference for the location near Tadcaster, and this information was included in the public register maintained by Defra[xv]. The trial was subject to direct action in 2008 and abandoned.

In July 2009 it was revealed[xvi] that the trial had continued in June 2009, although the public register of Part B release consent sites makes no reference to this fact, nor was there further advertising by the University of Leeds of the location to inform local people. Defra claim that these updates were not necessary because the 2009 trial site was within the area defined by the six figure map references given by the advert in 2008 and on the Defra public register.

This case illustrates Defra's desire to keep test sites secret despite the ECJ ruling. Whilst technically "legal", Defra's actions in 2009 are well outside the spirit of the law, and if widely applied will leave neighbours of GM crop test sites uncertain as to what action they may need to take to prevent contamination of their crops. This level of secrecy is likely to further undermine confidence in the regulatory process and build suspicions and resentment in rural areas.

The Case for Transparency

There are many good democratic, legal, economic, environmental and social reasons why the precise location of GM test sites should be published in advance of planting the crops and the public fully involved in decision making at local level:

Democratic

- To ensure democratic procedures can be followed if there is significant local opposition to the GM trial site. Over 60 UK local authorities have voted that they wish to be GM-free (ie, no GM crops should be grown in their area). In Wales and Scotland, the governments have strong anti-GM policies. During the Farm Scale Evaluations, several parishes held referenda under the 1972 Local Government Act, resulting in unwanted and unsupported GM test sites being dropped, for instance at St Osyth in Essex[xvii].

Legal

- Under the GMO Deliberate Release Regulations 2002, the locations of Part B GMO release sites have to be made public. Under Regulations 12 and 34, applicants are required to inform local authorities and parish councils of the intention to test GM crops, and therefore it would be impossible to maintain secrecy without changes in the law.
- To ensure that trials are carried out as specified in the release consents, particularly when it comes to monitoring volunteers and out crossing and control of volunteers and wild relatives (eg failure to prevent oilseed rape re-sprouting at the FSE at Witham-on-the-Hill, Lincs in 2001; planting of oilseed rape relatives and failure to control weedy relatives at Hinton Waldrist in 2002; uneven fertilizer

application on the oilseed rape FSE at Munlochy, Black Isle in 2002, where the GM OSR received fertilisers but the non-GM did not until local people reported this omission; failure to control oilseed rape volunteers on the Munlochy site in 2003; and delays in destroying beet remnants at a trial site at Frampton Cotterell, South Gloucestershire, in 2003).

Economic

- To protect neighbouring farmers and growers from the risk of cross-pollination, including gardeners and allotment holder (eg, the Guy Watson case at Dartington in Devon 1998 and HDRA case in Warwickshire in 2001). Both organic and non-organic growers are currently required to have no detectable GM presence in crops by their growing contracts or licenses. Any GM presence could result in a significant loss of income.
- To ensure that local farmers, growers and gardeners are aware that GM traits may have spread from the GM trial via seed or pollen transfer, and be on the look out for GM volunteers or GM hybrid weeds. In Canada and the USA, many non-GM farmers have been adversely affected by the transfer of GM traits onto their land. Without knowing, the neighbours could be growing GM crops, so control measures on GM feral or volunteer plants could be delayed and the infestation could worsen. Seed spillage post-harvest has also been a significant route by which Canadian farms become contaminated.
- To protect local beekeepers and honey. GM pollen was detected in honey and honeycomb produced near the FSE at Model Farm Watlington, Oxon in 1999, where bees had travelled three miles to the GM oilseed rape crop. A public opinion survey in 2003 found 63% regular honey buyers did not want GM pollen present in honey[xviii].
- Evidence from Spain[xix] and Canada[xx] suggests that GM contamination can travel long distances, so if GM pollen had come from a secret test site, economic redress would become much more difficult, if not impossible. NB the 2008 contamination incident in South Somerset involving a winter oilseed rape crop contaminated with a herbicide tolerant GM trait at 0.05% resulted in detectable contamination in a neighbouring crop of spring oilseed rape[xxi].
- Post-release monitoring, future sales of land used for GM trials or the future renting of land could be affected by the presence of dormant GM seeds in the soil (for example).

Scientific

- To ensure that the public are able to monitor the conduct of scientific experiment and factors that might affect them (eg, sheep invaded the FSE at Woodhouse in Leicestershire in 2000; and the poor growth of GM maize at Hinton Waldrist in 2002).
- If farmers are aware that a GM test site has taken place, they will be pre-warned to be on the look out for any impacts on their land that might arise from cross-pollination (eg, herbicide tolerance spreading).
- Test sites often involve GM crops in their early stages of development before food and feed safety assessment have been made and therefore may pose a threat to food/feed safety if cross-pollination takes place or breakdown of segregation procedures take place.

Social

- Carrying out GM test sites in secret will immediately raise public concerns that the government and the GM industry have something to hide. Such a policy is highly likely to make the crops even more unpopular.
- Rural harmony could be severely tested by rumours of GM test sites in the area, especially if vulnerable crops or products were being grown or produced. The growth of local food production based on quality and provenance could be seriously undermined by rumours of GM test sites in the vicinity. Rather than stop direct action, it may result in increased damage to non-GM crops as concerned people try to prevent the escape of pollen from GM test sites but work from a position of ignorance about which field is involved. Other, non-GM field trials would immediately come under suspicion and attract unwanted attention.
- The biotechnology industry has refused to accept they should be held liable for any GM contamination or environmental harm arising from the release of GMO crops. During the public consultations on the coexistence of GM, conventional and organic crops issued by Defra in July 2006 and during the consultation on the English transposition of the EU Environmental Liability Directive, the responses biotechnology companies indicated they did not accept the concept of liability for GM crops in any form. Such an attitude reinforces public mistrust of GM crops and concerns about test sites.

For all these reasons it is essential that a register of test sites based on six figure map references is maintained.

Secure National GM Test Centres

Some GM proponents have called for the creation secure national centres for testing GM crops[xxii]. This will not make them popular. Indeed, it is likely to make them even more unpopular because it will be seen as an attempt to force GM crops onto an unwilling population. The agri-biotech industry has failed to answer concerns about food safety, environmental impact, cross-pollination, consumer choice, liability and farmers' rights. People should have the right to object to any test site if they feel it threatens the environment or their livelihood.

Neither secrecy nor increased security is the ways forward. GM crops have the capacity to contaminate and for that contamination to spread through gene flow in a unique way. The future of farming in the UK has to be built on a national consensus rather than the narrow vested interests of agri-biotech companies. The Government needs to recognise the divisions and make a fresh start to develop an agricultural strategy that meets the needs of the environment and aspirations of people.

An Alternative Approach

GM test sites must be carried out in an open and democratic manner. Allowing local public involvement in deciding if the trial should go ahead would enable the trials to proceed based on a consensus. Public advertising of the precise location (based on six figure map references) is essential to allow the democratic process to take place. Public registers of all test sites based on six figure map references should be established once the site has been approved so that neighbours can take measures to avoid contamination with GM pollen.

Suggested Action for Local Authorities and Citizens

So far Defra has not only attempted to keep GM test sites "semi" secret, but this illustrates the lengths they are prepared to go, under immense pressure from the agri-biotech lobby. Secure GM testing centres would require planning permission from the local planning authority. When discussing the issue, Ministers focus on the need to test GM crop in the first place. The alleged impact of direct action on the willingness of researchers to establish test sites should not be exaggerated. Once again they choose to ignore the underlying social, political, economic and scientific reasons that have led to the UK population's failure to welcome GM crops with open arms.

UK farming needs to adopt agroecological methods in the next decade to meet the challenges of the future[xxiii] and to develop the research capacity to support such a transition. Agroecology is defined as the use of ecological concepts and principles to study, design and manage agricultural systems. The five main principles are: recycling of nutrients, building of soil organic matter; minimising losses from the system; maximising biodiversity and genetic diversity; and enhancing biological interactions[xxiv].

To keep information about GM test sites full and public:

- Lobby or write to your MP to support keeping test site locations public and to support the development of a strong agroecological research base.
- Write to Defra Secretary of State, Rt Hon Hilary Benn MP, Nobel House, Smith Square, London SW1P 3JR
- Sign the declaration for keeping the UK GM free including outdoor testing of crops
- Join GM Freeze at www.gmfreeze.org

Notes

[i] See http://news.bbc.co.uk/1/hi/sci/tech/7529590.stm
[ii] The Genetically Modified Organisms (Deliberate Release) Regulations 2002
[iii] Sample Ian, 2008. "Food: Scientists want top security for GM crop tests", See www.guardian.co.uk/environment/2008/jul/29/gmcrops.activists
[iv] See http://ec.europa.eu/research/press/2006/pdf/pr1906_eb_64_3_final_report-may2006_en.pdf
[v] See www.gmo-free-regions.org/
[vi] Sample Ian, 2008. *op cit*
[vii] See www.defra.gov.uk/environment/gm/fse/index.htm
[viii] See www.defra.gov.uk/environment/gm/regulation/pdf/gm-guide_draft.pdf
[ix] See www.defra.gov.uk/environment/gm/regulation/formats/format1/b.htm
[x] See www.defra.gov.uk/environment/gm/regulation/pdf/trials-rev080708.pdf
[xi] See http://collections.europarchive.org/tna/20080727101330/http://www.defra.gov.uk/environment/acre/advice/pdf/acre_advice39.pdf
[xii] See http://curia.europa.eu/jurisp/cgi-bin/form.pl?lang=EN&Submit=rechercher&numaff=C-552/07
[xiii] See www.defra.gov.uk/environment/gm/regulation/pdf/07-r31-01.pdf
[xiv] See www.gmfreeze.org/uploads/PCN_potato_response.pdf

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[xv] See www.defra.gov.uk/environment/gm/regulation/pdf/trials-rev090331.pdf
[xvi] See www.telegraph.co.uk/earth/agriculture/farming/5912012/GM-crops-being-grown-in-Britain.html
[xvii] See www.stosyth.gov.uk/default.asp?calltype=parishmeeting
[xviii] See www.foe.co.uk/resource/press_releases/0920bbka.html
[xix] See www.greenpeace.org/raw/content/international/press/reports/impossible-coexistence.pdf
[xx] See www.parliament.the-stationery-office.co.uk/pa/cm199900/cmselect/cmagric/812/0071802.htm
[xxi] See www.publications.parliament.uk/pa/cm200809/cmhansrd/cm090128/text/90128w0005.htm
[xxii] See http://news.bbc.co.uk/1/hi/sci/tech/7529590.stm
[xxiii] See www.agassessment.org/docs/IAASTD_EXEC_SUMMARY_JAN_2008.pdf
[xxiv] See www.cnr.berkeley.edu/~agroeco3/principles_and_strategies.html