



**Current Awareness of Experimental and Commercial
Releases of GM Crops Worldwide:**

**Quarterly Summary Report for
January to March 2006**

GM Inspectorate
Central Science Laboratory
Department for Environment, Food and Rural Affairs
Sand Hutton
York YO41 1LZ

Provided for:
Plant Variety Rights Office and Seeds Division, Defra

Contents

Section	Description	Page
	Executive Summary	1
1.	Introduction	2
2.	News concerning GM crops	2
2.1	Headline news	2
2.2	Additional news	2
3.	GM Crop Release Information	4
3.1	Major Agricultural GM Crops – Category 1	5
3.2	Major Agricultural (& Horticultural) GM Crops – Category 2	7
3.3	Minor Agricultural GM Crops - Category 1	9
3.4	Minor Agricultural GM Crops - Category 2	10
3.5	GM Vegetable Crops - Category 1	10
3.6	GM Vegetable Crops - Category 2	10
3.7	GM Fruit Crops - Category 1	11
3.8	GM Flower/Ornamental Crops - Category 1	12
3.9	GM Flower/Ornamental Crops - Category 2	13
3.10	Miscellaneous GM species	13
4.	Additional Information - notes to be used in conjunction with charts and tables	15
	ANNEX 1 – Sources of information/disclaimer and Notes	15

Executive Summary

1. This quarterly report is the fourth in an ongoing series aimed at documenting the number and type of releases of genetically modified (GM) crops worldwide. The report covers the period January to March 2006 and provides summary information for all reported experimental and commercial release notifications issued within the reporting period. It also highlights significant developments in terms of GM technology and documents any reported unauthorised releases of GM crops.
2. GM-related articles making the news this quarter include the publication of a critical report on the USDA's regulation of GM field trials; Greece has been ordered to lift its ban on GM maize seed; Monsanto is accused of GM soybean pollution in Europe; France finally begins transposition of EC directive 2001/18; the WTO has announced its ruling on Europe's 'GM ban'; and the Polish government has expressed its opposition to the cultivation of genetically modified maize in that country.
3. In terms of GM **deliberate release trials**, maize has seen the greatest number of new notifications this quarter (198 issued, with 140 in the USA and 58 in the EU). This is followed by soybean (80 issued in USA) and potato (26 issued, with 14 in the USA and 12 in the EU). Most of the traits employed are considered fairly standard for these particular GM crops, including herbicide tolerance, insect resistance and disease resistance. One notification issued by France involves the trialling of maize modified to produce an enzyme for medical use. Such 'biopharm' trials have mainly been confined to the USA in the past, so this is something of a departure from the norm. There have also been 17 notifications for GM wheat, 14 for tomato and 12 for trees, all in the USA. Single-figure numbers of notifications have covered a range of GM crops, including barley, alfalfa, pea, safflower, grass, etc. The majority of these have been issued in the USA, but other countries issuing notifications include EU Member States and Australia.
4. Recent notifications for the **commercial release** of GM crops include approvals for maize lines DAS-59122-7 (corn rootworm-resistant maize) and LY038 (altered amino acid composition, specifically elevated levels of lysine) in the USA, and MON 88017 glyphosate-tolerant, rootworm-protected maize in Canada.

1. Introduction

This is the fourth surveillance report on the status of GM crop releases worldwide and covers the reporting period 1st January to 31st March 2006. The aim of these reports is to maintain current awareness of the number and types of GM plant releases taking place around the world, with the aim of informing policy makers and those that implement seed-related policy about the potential risks to UK seed from GM releases. Releases monitored include experimental (deliberate) release, authorised commercial release, and unauthorised (e.g. accidental) release. Findings are presented in terms of plant species that have undergone genetic modification, including the types of introduced trait and the countries where releases have taken place. A news section aims to highlight any significant developments in GM-related issues and flag up any reported incidents of unauthorised GM crop release. The GM crops included in this series of reports belong to those plant species that are grown in the UK, or where there is a possibility that they may be grown in the UK. Some borderline species (e.g. sweet potato) have been included because, although they are not grown widely in the UK, they are currently available to the UK amateur market. GM crops such as cotton and rice, which are unlikely to be grown in the UK in the foreseeable future, are not included in this report. The report is produced on behalf of UK Plant Variety Rights Office & Seeds Division of Defra (PVS).

2. News concerning GM crops

The following GM-related articles have appeared in the news during the period January to March 2006:

2.1 Headline news

U.S. agency found weak in regulating GM crops

Date: 04/01/2006

Original Publication: The New York Times

The US Department of Agriculture (USDA) has failed to regulate field trials of genetically engineered crops adequately, raising the risk of unintended environmental consequences, according to a stinging report issued by the department's own auditor. The report, issued late last month by the department's Office of Inspector General, found that biotechnology regulators did not always notice violations of their own rules, did not inspect planting sites when they should have and did not assure that the genetically engineered crops were destroyed when the field trial was done. In many cases, the report said, regulators did not even know the locations of field trials for which they granted permits. In a written response, the Agriculture Department's Animal and Plant Health Inspection Service, which regulates biotech field trials, said that it was taking steps to adopt 23 of the 28 recommendations made by the Inspector General, and that more changes were on the way.

(Source: [http://www.agbios.com/news.php/January 06](http://www.agbios.com/news.php/January%2006))

2.2 Additional news -

Syngenta moves closer to launching GM wheat

Date: 15/03/2006

Leading agribusiness Syngenta could be set to introduce the world's first genetically modified wheat seed by early next decade, a move fully supported by American wheat industry organizations. The Swiss company has already conducted several years of successful trials on its wheat seed, which has been developed to resist the increasingly troublesome disease *Fusarium*. Syngenta now says it needs to conduct more extensive

field performance evaluations and technical success in field trials, emphasizing that it is still in early stages of development. However, because wheat is such an essential food product, developing genetically modified traits is likely to attract the attention of activists who are opposed to the technology. Indeed, the firm is still keeping quiet about its GM wheat, making no public announcements and speaking tentatively when it comes to possible commercialisation dates. Two years ago, rival company Monsanto did not follow through on plans to introduce a GM wheat variety that was resistant to herbicide. But despite the opposition a GM wheat is sure to raise, US wheat industry organizations have given their full backing to Syngenta.

(Source: <http://www.foodnavigator.com/news/ng.asp?n=66430&m=1FNE315&c=albvapovucqbfcf>)

EU orders Greece to lift GM ban

Date: 11/01/2006

The EU has ordered Greece to lift its ban on GM maize seeds. In September 2004, the EU authorised 17 different seed strains of Monsanto maize from parent crop MON 810 (engineered to resist certain insect pests), for planting and sale. EU law allows countries to decide whether to allow such seeds on national territory, although a ban must be approved by EU member states. The European Commission has stated that Greece does not have sufficient reasons to ban the Monsanto seeds, especially as EU scientists had already assessed MON 810 as safe for human health. Luxembourg, Greece and Austria consistently vote against GMO approvals, while the UK, Finland and the Netherlands almost always vote in favour. It seems likely therefore that the Greeks will appeal against the EC's order at the European Court of Justice.

(Source: <http://www.foodnavigator.com/news/ng.asp?n=65008&m=1FNE111&c=albvapovucqbfcf>)

Romania proposes ban on GM soybeans/Monsanto accused of GM pollution

Date: 12/01/2006 & 23/02/2006

The Romanian government has announced a decision to ban the cultivation of GM soybeans in accordance with current EU regulations. The ban will come into operation in January 2007. Transgenic soybeans conferring resistance to the Roundup herbicide have EU approval for use in food and feed but the product is awaiting EU approval for cultivation. In the past few years Romania has grown tens of thousands of hectares of GM soybeans, a large part of which was exported to the EU for food/feed. A recent Greenpeace report, however, claims that GM soy in Romania covers more hectares than are officially registered and says that conventional and organic farming is now impossible in many regions. Together with a former manager of Monsanto and Limagrain in Romania, Greenpeace claims that Monsanto is contaminating European agriculture with its Roundup Ready GM soybean variety. Dragos Dima, who left Monsanto in 1999 when GM soybeans were first introduced in Romania, said that the acreage of the herbicide resistant soybeans 'increased uncontrollably' year after year. Undeterred, the US biotech giant is now seeking to expand its involvement in Europe. In December 2005 an application was lodged with the EU asking to grow its GM Roundup Ready soybeans across the whole of Europe once its current licence - permitting the beans' import but not cultivation - expires in 2006.

(Source: <http://www.foodnavigator.com/news/ng.asp?n=65042&m=1FNE112&c=nkzbeuggsxazvzn> & <http://www.foodnavigator.com/news/ng.asp?n=66027&m=1FNE223&c=albvapovucqbfcf>)

France begins transposition of EC directive 2001/18

Date: 12/02/2006

The most important piece of GM-related legislation for some years has its initial adoption by the French Cabinet, as the country begins transposition of EC directive 2001/18 on the deliberate release into the environment of GMOs. A new "biotechnology council" and a fund to compensate growers for GM contamination of conventional crops are additional French measures beyond simple transposition. If the

parliamentary process fails to deliver transposition of key EC legislation by the autumn, France risks daily fines by Brussels. (Source: Personal communication, A. Parr, Sustainable Development and Food Safety Attaché, British Embassy, Paris)

WTO says Europe's GM ban broke trade rules

Date: 13/02/2006

In February the World Trade Organization (WTO) ruled that the EU and six of its member states broke trade rules by banning imports of genetically modified (GM) crops and food. The preliminary ruling, which could have significant implications for developing countries, still needs to be confirmed in a final decision next month, and can be appealed. Dulce de Oliveira, a professor of plant biotechnology and fellow of the Brazilian Research Council, says the decision could open the European market to GM products from countries such as Brazil, the world's third biggest producer of GM crops. The verdict came in response to a complaint that Argentina, Canada and the United States made in 2003 against the European Union's ban on GM imports, imposed in 1999. They said the ban, which lasted until August 2003, was not scientifically justified and was therefore an unfair trade barrier. The WTO has now agreed, adding that six member states - Austria, France, Germany, Greece, Italy and Luxembourg — also broke the rules by applying their own bans. Many developing countries have refused to let farmers grow GM crops, partly because of concerns that the crops could jeopardise their access to the lucrative European market by contaminating non-GM exports.

(Source: <http://www.scidev.net/content/news/eng/wto-says-europes-gm-ban-broke-trade-rules.cfm>)

Poland says no to GM crops

Date: 09/03/06

The Polish government declared this week that it is opposed to the development of GM crops in Poland, but is in favour of importing GM produce into the country. The government said that it is opposed to the cultivation of genetically modified maize, rape, sugar, beet, potatoes and soya. "Poland should be in principle a country free of genetically modified organisms (GMOs)", the Polish cabinet said in a weekly statement. A recent poll from environmental campaigners Greenpeace found that 76 per cent of Polish consumers are opposed to GM crops.

(Source: <http://www.foodnavigator-usa.com/news/ng.asp?n=66325&m=1FNU310&c=nkzbeuggsxazvzn>)

3. GM Crop Release Information

The following section provides information on the number of experimental releases of GM crops during the period January to March 2006. It also highlights those GM crop lines that have been commercialised, showing the countries that have given approval for GM crop cultivation. Data has been sourced from various online databases and from general web searches, with the number of experimental releases primarily based on notifications issued by the relevant national or federal competent authorities (see Note 1 under Section 4 for a definition of the term 'notification'). Stacked bar charts and accompanying tables summarise the information on a country by country basis and indicate the predominant GM traits. For ease of comparison GM crop releases have been grouped on the basis of crop type and number of notifications. It should be noted that some countries (for example Argentina and Canada) only publish trials data on an annual basis, therefore any experimental releases in these countries conducted during the current reporting period will not appear until the end of the year.

3.1 Major Agricultural GM Crops - Category 1 (over 1000 experimental releases per species)

For the purposes of this report ‘major agricultural GM crops – category 1’ are classed as any crop species for which there have been over 1000 GM deliberate release notifications worldwide since GM crop trials first commenced in the mid 1980’s. Species that come under this heading are maize, oilseed rape, potato and soybean. During the period January to March 2006 the following GM experimental release notifications were issued:

Maize: 198 notifications (see figure 1), with trials confined to the USA and the EU (although note the limitations of the available data, as described above). Of the 58 notifications issued in the EU, 28 notifications were issued by Spain and 15 by France - see table 1. The majority of notifications were for insect resistance or herbicide tolerance traits (or the two traits combined); less common traits included drought tolerance, altered composition, increased yield, disease resistance and altered oil quality. In addition, France issued a notification for maize modified for medical use (expression of gastric lipase). In the past such ‘biopharm’ crops have been largely restricted to the USA, thus trials of crops expressing such traits in the EU are something of a novelty.

Recent notifications for the **commercial release** (cultivation) of GM maize include approvals in the USA for rootworm-resistant maize DAS-59122-7 and altered amino acid LY038 (with elevated levels of lysine), and approval in Canada for maize line MON 88017 (glyphosate-tolerant, and rootworm-protected).

Oilseed rape: there have been 15 notifications for GM oilseed rape trials this quarter, again with notifications being confined to the USA and EU (Sweden and Germany). Traits have included herbicide tolerance, yield increase, altered oil and increased yield.

Potato: 26 notifications have been issued for GM potato, 14 in the USA and 12 in the EU (Germany and Spain mostly). Traits included insect resistance, blight resistance and altered starch. A notification issued by Germany involves potato modified for pharmaceutical and technical traits. Coupled with the above-mentioned maize trait, this may indicate the start of a trend in non-food GM crop applications.

Soybean: There have been 80 deliberate release notifications for soybean in the USA. Traits included altered oil, herbicide tolerance, altered composition, yield increase, pest resistance, disease resistance and cold/drought tolerance.

Figure 1 – Total number of experimental release notifications of major agricultural GM crops (category 1)

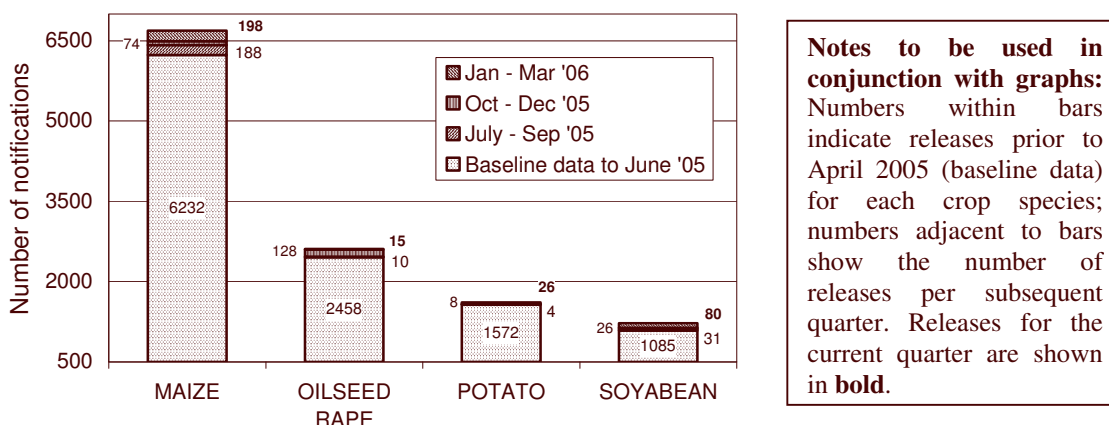


Table 1 – Releases of major agricultural GM crops (category 1) in the last quarter showing number of releases per country, main traits, and commercial status

CROP TYPE	RELEASES THIS QUARTER	COUNTRY	MAIN TRAITS	COMMERCIAL STATUS ¹
MAIZE incl. sweetcorn (<i>Zea mays</i> L.)	58	EU (Czech Republic 1; France 15; Germany 1; Hungary 7; Portugal 5; Spain 28; Sweden 1).	Insect resistance; herbicide tolerance; combined IR + HT; expression of gastric lipase for medical uses.	EU – 3 notifications APPROVED (Bt176, T25, MON810); 5 notifications PENDING USA – 21 notifications APPROVED (recent approvals for DAS-59122-7 and LY038) Canada – 16 notifications APPROVED (recent approval for MON 88017) Other countries with approval for commercialisation incl.: Argentina South Africa Japan Philippines Uruguay
	140	USA	Insect resistant; herbicide tolerant; drought tolerant; altered composition; increased yield; fungal resistance; altered oil.	
OILSEED RAPE (<i>Brassica napus</i>)	4	EU (Germany 1; Sweden 3)	Increased and stable grain yield; increased oil content; minimised out-crossing	Canada – 4 notifications APPROVED EU – 1 notification APPROVED (for seed for breeding activities only; 2 for cultivation for which France has not issued the consent).
	11	USA	Herbicide tolerance; yield increase; altered oil	USA – 7 notifications APPROVED
POTATO (<i>Solanum tuberosum</i>)	12	EU (Czech Republic 3; Germany 6; Ireland 1; Netherlands 3; Spain 4; Sweden 1)	Altered starch metabolism; increased starch levels; altered starch content; improved resistance to <i>Phytophthora infestans</i> ; Pharmaceutical and technical traits.	Canada – 4 notifications APPROVED USA – 5 notifications APPROVED (4 for Colorado potato beetle resistance 1 for Coleopteran resistance)
	14	USA	Insect resistance; blight resistance; altered starch	
SOYABEAN (<i>Glycine max</i>)	80	USA	Altered oil; herbicide tolerant; altered composition; yield increase; pest resistance; disease resistance; cold/drought tolerance	Canada – 4 notifications approved; Japan – 3 notifications approved; Mexico – 1 notification approved; S.Africa – 1 notification approved; Uruguay – 1 notification approved; USA – 6 notifications approved.

¹ 'Commercial Status' highlights those GM crops for which approval for *commercial cultivation* has been granted in the specified country. It does not include GM crops that have been approved only for food and/or feed use (i.e. not for sowing). New approvals granted within the current reporting period are shown in **bold** within a greyed-out cell.

3.2 Major Agricultural (and Horticultural) GM Crops - Category 2 (200 to 1000 experimental releases per species)

‘Major agricultural (and horticultural) GM crops – category 2’ encompasses crop species for which there has been 200 to 1000 GM deliberate release notifications worldwide. Most species that come under this heading are field crops (wheat, alfalfa, turnip, sugar beet and beet²), but tomato is also included in this category because of the high number of releases. During the period January to March 2006 the following GM experimental release notifications were issued:

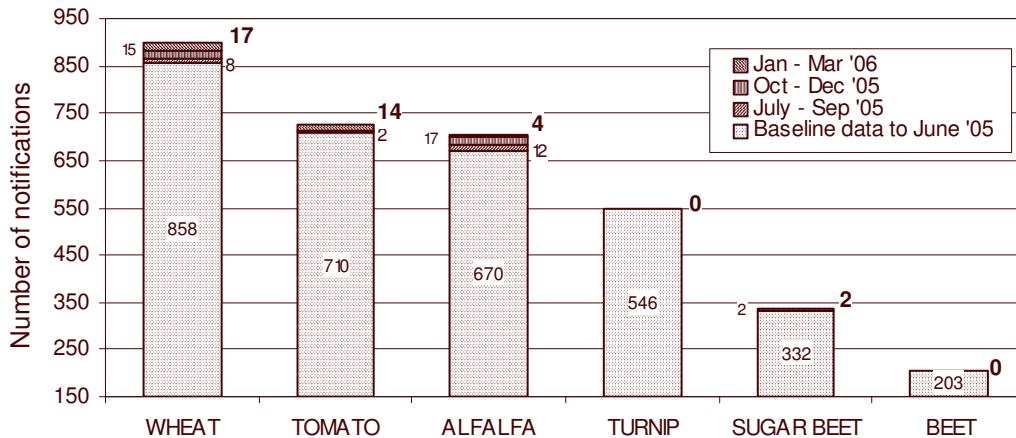
Wheat: 17 notifications for GM wheat have been approved in the USA. Most trials were for *Fusarium* resistance, with others including drought tolerance, scab susceptibility, yield increase and herbicide tolerance.

Tomato: there have been 14 notifications for the experimental release of tomatoes in the USA, with traits including improved quality; altered sugar, altered nutritional quality, virus resistance, insect resistance, drought tolerance and altered plant development.

Alfalfa: the USA has issued 4 notifications for the experimental release of GM alfalfa (lucerne). All 4 releases were for altered lignin biosynthesis, presumably to increase digestibility for cattle.

Sugar Beet: there have been 2 notifications for the release of GM sugar beet in the last quarter: 1 in Spain (herbicide tolerance) and 1 in the USA (virus resistance).

Figure 2 – Total number of experimental release notifications of major agricultural (and horticultural) GM crops (category 2)



² The term ‘Beet’ is not defined in the database from which the information was sourced, and may be either sugar beet or fodder beet.

Table 2 – Releases of major agricultural (and horticultural) GM crops (category 2) in the last quarter showing number of releases per country, main traits, and commercial status

CROP TYPE	RELEASES THIS QUARTER	COUNTRY	MAIN TRAITS	COMMERCIAL STATUS
WHEAT (<i>Triticum aestivum</i> L.)	17	USA	Fusarium resistance; drought tolerance; scab susceptibility; yield increase; herbicide tolerance.	None
TOMATO (<i>Lycopersicon lycopersicum</i> L.)	14	USA	Improved quality; altered sugar profile; altered nutritional quality; virus resistance; insect resistance; drought tolerance; altered plant development.	USA: 6 notifications APPROVED (5 for delayed ripening; 1 for lepidopteran pests resistance). Canada: 4 notifications APPROVED (3 for delayed ripening; 1 for lepidopteran pests resistance). Japan: 1 notification APPROVED (delayed ripening) Mexico: 1 notification APPROVED (delayed ripening) No GM tomato products currently available for sale.
ALFALFA (<i>Medicago sativa</i> L.)	4	USA	Altered lignin biosynthesis	USA & Canada – 1 notification APPROVED (Roundup Ready)
SUGAR BEET (<i>Beta vulgaris</i> L.)	1	EU (Spain)	Herbicide tolerance	USA – 3 notifications APPROVED (Glyphosate tolerance & Glufosinate tolerance)
	1	USA	Virus resistance	

3.3 Minor Agricultural GM Crops - Category 1 (41 to 200 experimental releases per species)

‘Minor agricultural GM crops – category 1’ encompasses crop species for which there has been 41 to 120 GM deliberate release notifications worldwide. Species that fall under this heading are mustard, barley, linseed, pea and sunflower. During the period January to March 2006 the following GM experimental release notifications were issued:

Barley: 6 notifications have been issued for GM barley; 5 in the USA (traits included *Fusarium* resistance, herbicide tolerance and stem rust resistance) and 1 notification issued by Germany for *Rhizoctonia* resistance.

Linseed: there has been 1 notification for GM linseed (flax), issued by Poland. This was for the experimental release of linseed with improved thermoplastic and elastic properties of fibres, and increased antioxidant capacity of flaxseed oil.

Pea: in the USA 5 notifications have been issued for GM peas, with traits including *Fusarium* resistance, herbicide tolerance and stem rust resistance.

Figure 3 – Total number of experimental release notifications of minor agricultural GM crops (category 1)

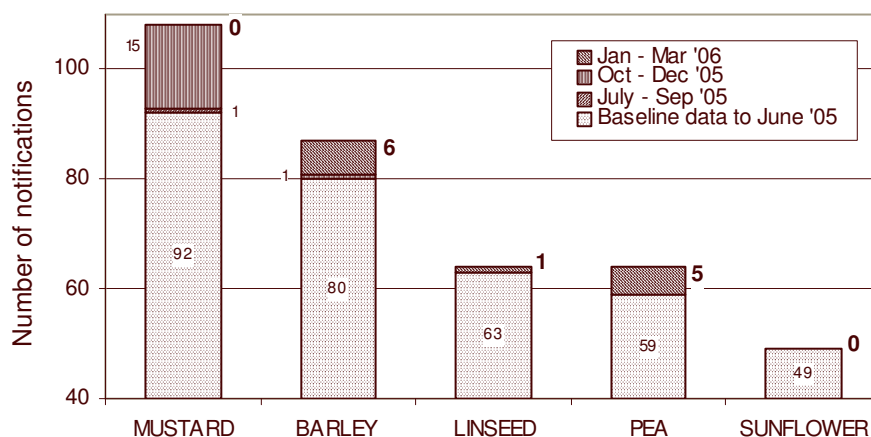


Table 3 – Releases of minor agricultural GM crops (category 1) in the last quarter showing number of releases per country, main traits, and commercial status

CROP TYPE	RELEASES THIS QUARTER	COUNTRY	MAIN TRAITS	COMMERCIAL STATUS
BARLEY (<i>Hordeum vulgare</i> L.)	1	EU (Germany)	<i>Rhizoctonia</i> resistance.	None
	5	USA	<i>Fusarium</i> resistance; herbicide tolerance; stem rust resistance.	
LINSEED (flax) (<i>Linum usitatissimum</i>)	1	EU (Poland)	Improved thermoplastic properties and elasticity of fibres; increased antioxidant capacity of flaxseeds; kanamycin resistance; hygromycin resistance.	USA – 1 notifications APPROVED (sulfonyleurea tolerance)
PEA (<i>Pisum sativum</i>)	5	USA	Herbicide tolerance	None

3.4 Minor Agricultural GM Crops - Category 2 (1 to 40 releases experimental releases per species)

‘Minor agricultural GM crops – category 2’ encompasses crop species for which there have been 1 to 40 GM deliberate release notifications worldwide. Species that come under this heading are fodder beet, clover, oats and sorghum. During the period January to March 2006 the following GM experimental release notifications were issued:

Sorghum: 2 notifications issued for the USA, both for altered feed properties.

Figure 4 – Total number of experimental release notifications of minor agricultural GM crops (category 2)

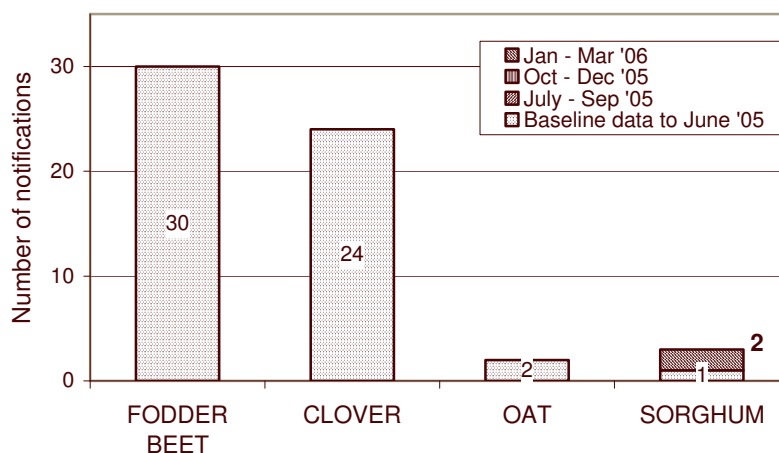


Table 4 – Releases of minor agricultural GM crops (category 2) in the last quarter showing number of releases per country, main traits, and commercial status

CROP TYPE	RELEASES THIS QUARTER	COUNTRY	MAIN TRAITS	COMMERCIAL STATUS
SORGHUM	2	USA	Feed properties altered	None

3.5 GM Vegetable Crops – Category 1 (over 20 experimental releases per species)

There have been no releases of GM vegetable crops in Category 1 this quarter.

3.6 GM Vegetable Crops - Category 2 (1 to 20 experimental releases per species)

‘GM vegetable crops – category 2’ encompasses crop species for which there have been 1 to 20 GM deliberate release notifications worldwide. During the period January to March 2006 the following GM experimental release notifications were issued:

Sweet potato: 1 notification issued for the USA for herbicide tolerance.

Onion: 1 notification issued for the USA for herbicide tolerance.

Figure 5 – Total number of experimental release notifications of GM vegetable crops (category 2)

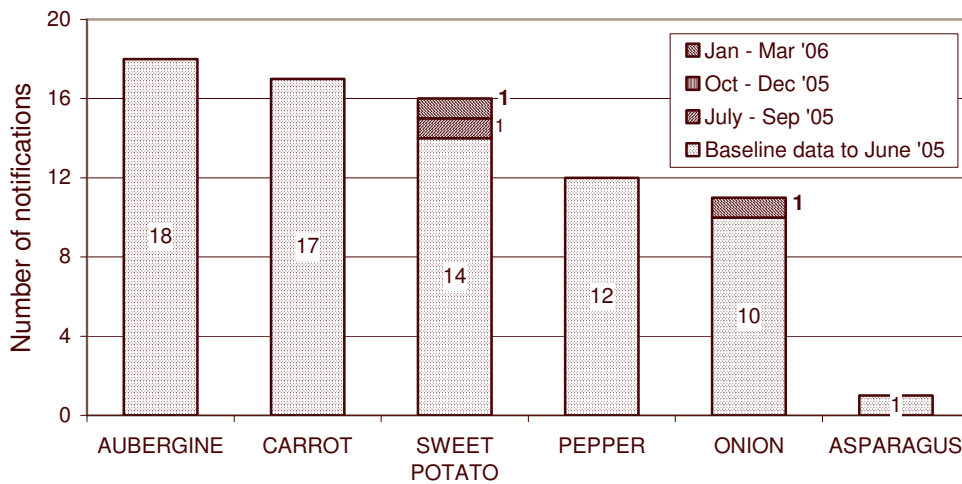


Table 5 – Releases of GM vegetable crops (category 2) in the last quarter showing number of releases per country, main traits, and commercial status

CROP TYPE	RELEASES THIS QUARTER	COUNTRY	MAIN TRAITS	COMMERCIAL STATUS
SWEET POTATO	1	USA	Herbicide tolerance	None
ONION	1	USA	Herbicide tolerance	None

3.7 GM Fruit Crops - Category 1 (over 50 experimental releases per species)

‘GM fruit crops – category 1’ encompasses crop species for which there have been over 50 GM deliberate release notifications worldwide. During the period January to March 2006 only 1 GM experimental release notification was issued:

Melon: 1 notification for watermelon, issued for the USA for parthenocarp (production of fruit without fertilization).

Figure 6 – Total number of experimental release notifications of GM fruit crops (category 1)

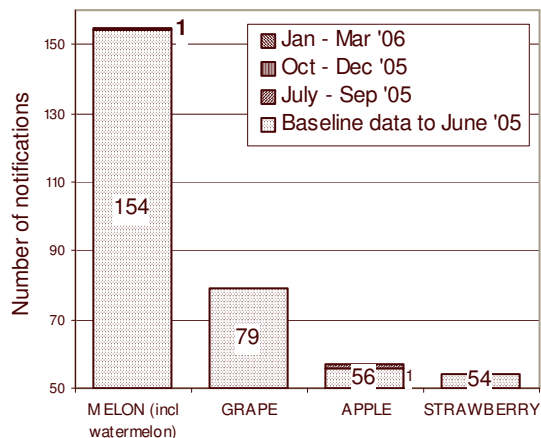


Table 6 – Releases of GM crops in the last quarter showing number of releases per country, main GM traits, and commercial status

CROP TYPE	RELEASES THIS QUARTER	COUNTRY	MAIN TRAITS	COMMERCIAL STATUS
MELON (incl watermelon)	1	USA	Parthenocarpy	None

3.8 GM Flower/Ornamental Crops - Category 1 (over 10 experimental releases per species)

‘GM Flower/Ornamental Crops - category 1’ encompasses species for which there have been over 10 GM deliberate release notifications worldwide. During the period January to March 2006 only 1 GM experimental release notifications was issued:

Safflower: 4 notifications issued for the USA for linolenic acid production.

Figure 7 – Total number of experimental releases of GM flower/ornamental crops (category 1)

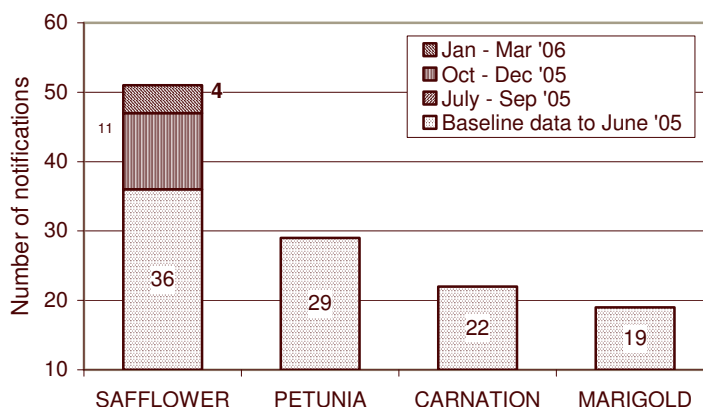


Table 7 – Releases of major GM flower/ornamental crops (category 1) in the last quarter showing number of releases per country, main GM traits, and commercial status

CROP TYPE	RELEASES THIS QUARTER	COUNTRY	MAIN TRAITS	COMMERCIAL STATUS
SAFFLOWER (<i>Carthamus tinctorius</i> L.)	4	USA	Linolenic acid produced	None

3.9 GM Flower/Ornamental Crops - Category 2 (1 to 10 experimental releases per species)

Category 2 GM Flower/Ornamental Crops encompasses species for which there have been 1 to 10 GM deliberate release notifications worldwide. During the period January to March 2006 two GM experimental release notifications were issued:

Rose: 1 notification issued for Australia for altered flower colour (plus marker).

Solanum: 1 notification issued for the USA for insect resistance. There is no indication which *Solanum* species this refers to.

Figure 8 – Total number of experimental releases of GM flower/ornamental crops (category 2)

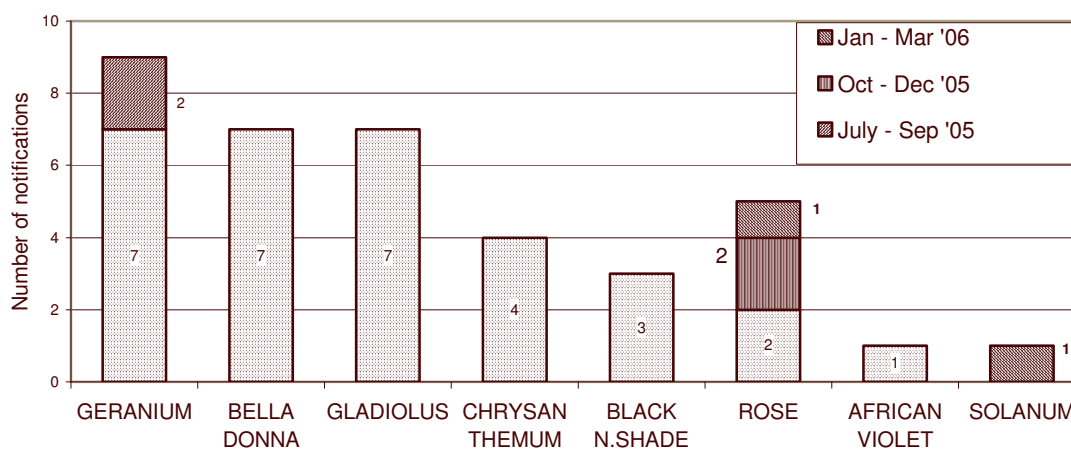


Table 8 - Releases of GM flower/ornamental crops (category 2) in the last quarter showing number of releases per country, main GM traits, and commercial status

CROP TYPE	RELEASES THIS QUARTER	COUNTRY	MAIN TRAITS	COMMERCIAL STATUS
ROSE (<i>Rosa</i> sp.)	1	Australia	Altered flower colour; selectable marker	None
SOLANUM	1	USA	Insect resistant	None

3.10 Miscellaneous GM Species

'Miscellaneous GM species' encompasses species that do not easily fit in any of the above categories. During the reporting period 16 GM experimental release notifications were issued:

Trees: there were 12 notifications for the experimental release of GM trees in the USA this quarter. Species include pine, poplar and sweetgum.

Grasses: the USA had issued 3 notifications for the experimental release of herbicide tolerant creeping bentgrass.

Peppermint: a single notification had been issued in the USA for peppermint with altered oil profile.

Figure 9 – Total number of experimental releases of miscellaneous GM species.

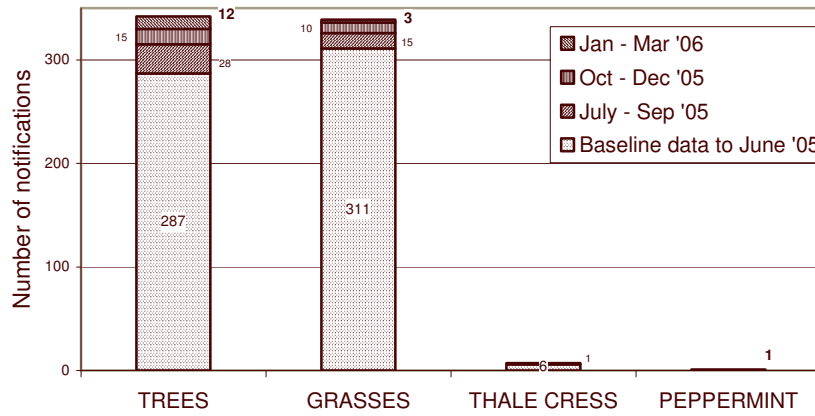


Table 9 – Releases of miscellaneous GM species in the last quarter showing number of releases per country, main GM traits, and commercial status

CROP TYPE	RELEASES THIS QUARTER	COUNTRY	MAIN TRAITS	COMMERCIAL STATUS
TREES (Pine, Poplar, Sweetgum)	12	USA	Wood quality altered; Growth rate altered; Flowering altered; dwarfed; sterility	None
GRASS – (Creeping bentgrass)	3	USA	Herbicide tolerance	USA – 1 application PENDING (Creeping bentgrass, Glyphosate tolerant, Monsanto).
PEPPERMINT	1	USA	Oil profile altered	None

4. Additional Information/Notes

NOTES to be used in conjunction with charts and tables

NOTE 1 – notifications: the number of experimental release trials shown is based on the number of deliberate release ‘notifications’ that have been approved worldwide for each GM species. A notification is a declaration of consent issued by the relevant responsible body allowing the applicant to proceed with the release (subject to any conditions imposed). It should be noted that ‘approved’ refers to the fact that the regulatory authorities have given the go-ahead for the release(s) to take place, it does not indicate that the trials have actually gone ahead (although in the vast majority of cases it is expected they will have taken place).

NOTE 2 - number of deliberate releases: approval notifications often give authorization for several separate releases of the same GM line at different geographic locations (and in the case of the EU, in different member states). In addition, approved notifications often allow experimental releases over a number of years. The actual number of release trials, therefore, will be greater than the number of notifications shown in the graphs/tables. This approach, of issuing 1 notification for several trials, conducted over several years, seems to apply to most GM regulatory systems, including the EU system.

ANNEX 1 – Sources of information/disclaimer

The information contained in this report is considered correct at the time of publication. The GM Inspectorate relies on a wide range of data sources to ensure that information presented is up to date and correct, and whilst every care is taken to verify this information the nature of the data sources means that authentication is not always possible. In a number of countries the experimental release of GM crops are not recorded in publicly available databases and the GM Inspectorate therefore cannot account for these.

General databases consulted in this study:

<http://www.agbios.com/main.php>
<http://biosafety.ihe.be/>
<http://www.fao.org/biotech/>

International Field Test Sources: databases consulted in this study:

Argentina: http://www.sagpya.mecon.gov.ar/0-0/index/programas/conabia/index_conabia.htm
Australia: <http://www.health.gov.au/ogtr/index.htm>
Bolivia: <http://webdomino1.oecd.org/ehs/biotrack.nsf>
Brazil: <http://www.ctnbio.gov.br/ctnbio/Sistema/LIBERACOESogm.asp>
Bulgaria: <http://webdomino1.oecd.org/ehs/biotrack.nsf>
Canada: <http://www.cfia-acia.agr.ca/english/plaveg/pbo/pbobbve.shtml>
China: <http://www.biosafety.gov.cn/BCHMEN/216172782113783808/index.shtml>
Czech Republic: <http://webdomino1.oecd.org/ehs/biotrack.nsf>
Egypt: <http://binas.unido.org/binas/trials.php3>
EU: <http://biotech.jrc.it/deliberate/gmo.asp>; <http://www.gmo-compass.org/eng/gmo/db/>
Hungary: http://biosafety.abc.hu/biosafe_eng.html
India: <http://webdomino1.oecd.org/ehs/biotrack.nsf>
Japan: <http://www.s.affrc.go.jp/docs/sentan/eguide/edevelop.htm>;
http://www.bch.biodic.go.jp/english/e_index.html
Mexico: <http://www.senasica.sagarpa.gob.mx/pagconasag/svtransgen.htm#ensayo>
New Zealand: <http://www.ermanz.govt.nz/no/index.asp>
Russian Federation: <http://webdomino1.oecd.org/ehs/biotrack.nsf>
South Africa: <http://www.nda.agric.za/docs/GeneticResources/Geneticcontrol.htm>
South Korea: http://www.niab.go.kr/bio/english/database/database_search.jsp
Switzerland: <http://webdomino1.oecd.org/ehs/biotrack.nsf>
Thailand: http://biodiversity.biotec.or.th/biosafety/doa/m_impymo.asp
United States: <http://www.isb.vt.edu/cfdocs/fieldtests1.cfm>

GM News sites consulted in this study:

<http://www.agbios.com/news.php>
<http://www.foodnavigator.com> & <http://www.foodnavigator-usa.com>
<http://www.greenpeace.org/raw/content/international/press/reports/gm-contamination-report.pdf>
<http://www.scidev.net/News>