

Border Control for Genetically Modified (GM) Seeds

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Prepared for MAF Policy
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Submissions

This paper is about testing consignments of seeds imported for sowing in New Zealand to ensure that they do not contain genetically modified (GM) seeds. The Ministry of Agriculture and Forestry (MAF) is suggesting ways to test some types of imported seeds and would like to receive feedback about these proposals.

If you have a particular interest or concern about these proposals, or if they will affect your business or lifestyle, then we would like to hear from you. We ask some specific questions within the paper, and have included a feedback form at the back of this document, but you are welcome to comment on other aspects as well. We will **not** be responding to comments about the government's overall approach to genetic modification or biotechnology, which were part of the government's response to the Royal Commission on Genetic Modification.

Written submissions on the issues raised in this document should be addressed to:

- GM Seeds, Ministry of Agriculture and Forestry, PO Box 2526, Wellington; or
- email your comments to gmseeds@maf.govt.nz; or
- make a submission through our website at www.maf.govt.nz/gmseeds; or
- fax your comments to (04) 473 0118 (please write "GM seeds" on the front page).

The deadline for comments is close of business, Friday 28 June 2002

If your submission includes commercial or personal information, you should make this clear to us and you should be aware that submissions are subject to the provisions of the *Official Information Act 1982*.

Depending on the level of interest, MAF may also hold meetings to explain the proposals. If it is feasible, we may be available to attend other meetings, please contact us if you would like to discuss this option.

Requests for further copies or more information should be directed to:

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This publication is also available on the MAF website at www.maf.govt.nz/gmseeds.

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1. Summary

This paper discusses several ways of providing assurances that unauthorised genetically modified (GM) seeds are not released into the New Zealand environment through seeds imported for sowing. The proposals do not change existing laws, but they will introduce new requirements to check compliance.

In New Zealand, GM organisms (including seeds) must be assessed and approved before they can be released and currently, are only allowed in specific research projects. No GM crops are grown in New Zealand and no GM seeds have been assessed for release, so it is not clear whether they would cause any adverse effects if released in New Zealand. With more and more GM crops being grown overseas, there is a possibility that imported seeds may contain GM seeds that could be released into the New Zealand environment. New Zealand has strict biosecurity controls and there are already a number of requirements and checks to manage the risks posed by organisms that could enter New Zealand through seed imports. However, it is not possible to tell the difference between GM and non-GM seeds simply by looking at them.

The documents that explain the requirements for importing seeds into New Zealand clearly state that GM seeds must be approved before they can be imported. Most importers take great care to act lawfully and to ensure they meet the import requirements. Most seed companies use quality assurance systems to ensure they meet international standards for seed purity, and can give a high level of assurance that their seeds are not GM. **The central issue is whether this provides sufficient assurance that GM seeds are not being imported, or whether the government should seek more assurances at the border (Question 1).** The decision has to balance the desire for more assurances against the costs to New Zealand as a whole, because imported seeds affect the competitiveness of a variety of agricultural industries.

No system can completely exclude GM seeds. Although seeds are produced to high standards of purity, it is not possible to guarantee 100 percent purity because cross-pollination and accidental mixing does sometimes occur. DNA testing is extremely sensitive, but cannot confidently detect levels below about 0.1 percent (one seed in a thousand). Even banning seeds from certain countries would not eliminate the possibility that GM seeds could enter New Zealand.

The Ministry of Agriculture and Forestry (MAF) is proposing protocols for *Zea mays* (maize, sweet corn and pop corn) and *Brassica napus var. oleifera* (canola and oilseed rape) involving:

- no GM testing or auditing requirements for seed imported from countries that do not produce GM varieties (MAF would seek a declaration from the appropriate regulatory authority);
- auditing to ensure that every third consignment of seed imported from other countries is tested for GM seeds (testing can be performed offshore or at the New Zealand border).

Many other countries are grappling with the issue of unauthorised GM seeds but there is no consensus on an approach, nor are there standardised tests or audit mechanisms. By implementing these protocols, New Zealand would be one of the first countries to adopt a regulation for systematically screening imported seeds for the presence of GM seeds.

MAF would like to receive information that will help to improve these proposals and is seeking comments from people who are interested in or affected by them. Comments are due by the close of business on Friday 28 June 2002. Depending on the outcomes of consultation, MAF anticipates that the *Zea mays* protocol would replace the existing sweet corn protocol on 1 August 2002 and the *Brassica napus var. oleifera* protocol would come into force on 1 January 2003.

MAF is seeking further information to decide whether similar protocols for soybean (*Glycine max*) and crook-neck squash/zucchini (*Cucurbita pepo*) are necessary.

2. What GM Crops are Grown Commercially Overseas¹?

In 2001, GM crops were planted on an estimated 52.6 million hectares worldwide, an area more than twice the size of the New Zealand. This was 19 percent higher than the area planted with GM crops in 2000. At least 16 different species of GM crops have been approved for commercial planting overseas, although it appears that only eight were grown in 2001. Four of them (soybean, maize, cotton, canola/oilseed rape) made up 99 percent of the area planted with GM crops. Globally, GM crops made up nearly half (46 percent) of soybean, 20 percent of cotton, 11 percent of canola/oilseed rape, and 7 percent of maize grown. Other GM species are planted in much smaller areas and include papaya (USA), crook-neck squash/zucchini (USA), carnations (Australia), and potatoes (USA, Romania). Some GM sweet potato is grown in Kenya as a subsistence crop.

Almost all GM crops (99 percent by area) were grown in only four countries: USA, Argentina, Canada, and China. Another nine countries (Australia, South Africa, Romania, Mexico, Bulgaria, Uruguay, Indonesia, Spain and Germany) grew much smaller areas of GM crops.

Species	Countries that appear to have commercial GM crops (approximate proportion of national crop that was GM in 2001)
<i>Glycine max</i> (soybean)	Argentina (90%), Canada, Romania, USA (68%), Uruguay
<i>Zea mays</i> (sweet corn, maize, pop corn)	Argentina (20%), Bulgaria, Canada (35%), Germany, Spain, South Africa, USA (26%)
<i>Gossypium hirsutum</i> (cotton)	Argentina, Australia (34%), Canada, China (10%), Indonesia, Mexico, South Africa, USA (69%)
<i>Brassica napus var. oleifera</i> (oilseed rape, canola)	Canada (50%), USA
<i>Carica papaya</i> (papaya)	USA
<i>Cucurbita pepo</i> (crook-neck squash, zucchini)	USA
<i>Dianthus caryophyllus</i> (carnation)	Australia
<i>Solanum tuberosum</i> (potato)	Romania, USA

3. What is the Likelihood of Unauthorised GM Seeds Being Imported?

The likelihood of GM seeds being present in seed imports appears to be greatest for *Zea mays* (sweet corn, maize and pop corn) and *Brassica napus var. oleifera* (canola and oilseed rape). There is a much smaller likelihood for crook-neck squash/zucchini and soybeans and it is very unlikely for cotton, carnations, papaya and potatoes.

Over 27,000 species of plants can be imported into New Zealand. Seeds are an important input into a range of agricultural industries and are imported for sowing to grow food, produce stock feed, to multiply seeds and for research. Many consignments are extremely small and some species are imported infrequently. A small number of species are imported more frequently and in large quantities – for example, wheat, maize and grass seeds. Seed imports from countries that produce GM varieties of the seeds are the most likely sources of GM seeds. It is possible that GM seeds could be present in seeds imported from countries that do not produce GM varieties, but it will be very rare and is likely to involve low levels of GM seeds that will be difficult to detect.

Question 2: Do you agree that it is appropriate to have a different approach for seeds imported from countries that do not produce GM varieties? Do you have any information about the likelihood of unauthorised GM seeds being imported from countries that do not produce GM varieties?

¹ Most of the information in this section comes from James (Global Review of Commercialized Transgenic Crops: 2001, ISAAA Briefs No. 24: Preview, available at www.isaaa.org) but MAF has also used some other sources.

Both *Zea mays* (sweet corn, maize and pop corn) and *Brassica napus var. oleifera* (canola and oilseed rape) are imported in large quantities for planting from countries that grow both GM and non-GM varieties. New Zealand grows a small amount of crook-neck squash/zucchini (*Cucurbita pepo*) from seed imported from the USA (about 10kg of seed per year) where GM varieties are grown. The vast majority of squash grown in New Zealand comes from two species (*C. maxima* and *C. moschata*) that have not been genetically modified. New Zealand grows extremely small areas of soybeans for breeding purposes only (less than 20 hectares). Soybeans can be imported for processing into food under import permit conditions at MAF-approved quarantine facilities, or can be imported as non-viable meal.

Question 3: Can you provide any more information about the quantity and source of imported soybean (*Glycine max*) or crook-neck squash/zucchini (*Cucurbita pepo*) seeds? What assurances are given for any of these seeds that are imported from countries that produce GM varieties?

Cotton is not grown commercially in New Zealand. Cotton seeds can be imported for stock feed, usually from Australia and usually as non-viable meal. Cotton seeds can be imported from other countries, but only under permit and only into a MAF-approved transitional facility for processing into non-viable products. It is rare to import viable cotton seeds and in these cases, MAF will require assurances that the imported seeds are not GM.

New Zealand does not import potato or papaya seeds, and imports a small but unknown quantity of carnation seeds. MAF considers that there is such a low likelihood of unauthorised GM seeds in these species that additional border measures would impose costs without improving assurances.

It is always possible that GM seeds could be smuggled or unintentionally brought into New Zealand through some other unauthorised source. New Zealand's existing biosecurity regulations provide a high level of protection against unauthorised plants and seeds.

Question 4: Are there other species of seeds or other pathways where there is a significant likelihood that unauthorised GM seeds could be released in New Zealand? Are there cost-effective measures that could reduce the likelihood? Do you have any other information about the likelihood that GM seeds could be imported?

4. What are the Current Border Requirements?

The rules for importing GM organisms are implemented through two pieces of legislation. The *Hazardous Substances and New Organisms Act 1996* sets out the assessment and approval process for deliberately importing or releasing new organisms into New Zealand. This act makes it illegal to import or release a new organism, including a GM organism, without approval from the Environmental Risk Management Authority (ERMA). The *Biosecurity Act 1993* provides MAF with powers to control and manage pests, unwanted organisms and suspected new organisms, including at the border. Imported goods can only be given biosecurity clearance if they meet the requirement of the relevant import health standard. A MAF inspector must not give a biosecurity clearance for a new organism. The requirement to have approval before importing a GM organism is clearly explained in the documents that set out the import requirements for seeds².

4.1. TESTING FOR GM SWEET CORN SEEDS

On 1 August 2001, the government introduced a requirement to test all consignments of sweet corn seeds imported into New Zealand for the presence of GM seeds.

² MAF document [155.02.05 Importation of Seed for Sowing](#), available from MAF or MAF's website www.maf.govt.nz

For regular bulk consignments, importers can either:

- have the seeds tested offshore or at the border, in a MAF-accredited laboratory; or
- follow a MAF-accredited quality assurance system that includes measures to avoid GM seeds during production, transport and handling, and which is verified by testing.

For small consignments of seeds for experimental purposes, importers can either:

- have the seeds tested offshore or at the border, in a MAF-accredited laboratory; or
- grow the seeds in a transitional facility until leaf discs can be tested for GM material; or
- provide written evidence of quality assurance measures to avoid GM seeds during production, transport and handling; grow the seeds in a transitional facility; and export all seed after harvest.

5. MAF's Experiences with Seed Imports since 1 August 2001

Since the sweet corn protocol came into force on 1 August 2001, 56,338 kg of sweet corn seed has been imported for sowing in 25 consignments – about two-thirds from the USA, the remainder from Australia. Some companies responded to the new requirements by importing their seeds before 1 August, so these results may not reflect a typical season. Most seed consignments were tested offshore (17 consignments, 54,492 kg), ten of those under a quality assurance scheme (all from one company). Eight consignments (1,846 kg) were tested at the border and one, 2.7 kg of seed from the USA tested in January 2002, tested positive for GM seeds and was therefore refused biosecurity clearance. The seeds were incinerated. Two consignments (4 kg in total) arrived at the border but were destroyed because the importers were not prepared to pay for the cost of GM testing. It is important to remember that despite testing, there is a chance that some GM seeds may not be detected.

Question 5: Have you been affected by the sweet corn protocol and if so, what was your experience? What costs did you incur? Would your costs be less if there were no testing or auditing requirements for seeds from countries that do not produce GM varieties? Have the prices or availability of sweet corn seeds been affected?

5.1. OTHER SEEDS

Regardless of whether or not there is a specific testing protocol for GM seeds, MAF will investigate the suspected presence of any GM seeds as it would for any other case where there is evidence that importation would breach the *Biosecurity Act 1993*. For example, in October 2001 a consignment of cotton seeds from Australia intended for stock feed was stopped at the border because there were no assurances that the seeds did not contain GM seeds. About one-third of Australia's cotton is GM. The importer was given the option of processing the seeds so that they were not viable, or testing for GM seeds. The processing options were not feasible and the importer reshipped the consignment back to Australia.

6. What are the Feasible Options for Border Measures?

The current situation for all seeds except for sweet corn seeds is that the government relies on importers to comply with New Zealand's laws. **The central question is whether this provides sufficient assurance that unauthorised GM seeds are not being imported, or whether the government should seek greater assurances at the border (Question 1).**

Banning seeds from countries that grow GM varieties of those seeds is an option but the government indicated in December 2000 that it would not be feasible because New Zealand relies on imported seeds and the costs to New Zealand would outweigh the benefits.

Another option being discussed internationally is to allow the unintended presence of low levels of GM seeds below a certain threshold. This approach is not feasible either because it would allow GM seeds to enter New Zealand even if they were detected, if they were present at levels below the threshold. This would undermine the approval process for GM organisms. MAF proposes zero tolerance for shipments where GM seeds are detected, but recognises that border control can never be perfect and some low concentrations of GM seeds may remain undetected.

The feasible options are:

- rely on importer compliance (the current situation for all except sweet corn seeds);
- accept a paper trail showing separation and identity preservation (but not necessarily testing) during production, handling and transport; or
- testing/auditing at a frequency less than every consignment; or
- testing/auditing every consignment (the current situation for sweet corn seeds).

It is important to recognise that none of these options (even banning seeds from certain countries) can provide a 100 percent guarantee to exclude GM seeds.

6.1. RELY ON IMPORTER COMPLIANCE

It is illegal to import GM organisms without approval, and this is clearly explained in the import health standard for seeds for sowing. Most importers take great care to act lawfully and to ensure they meet the import requirements.

Assurances about seed purity are part of the value of seeds for planting and there are international standards for ensuring that seeds are produced to high levels of purity, that they are not the result of cross-pollination by other varieties, and that they are not mixed with other seeds. Most seed companies use quality assurance systems and testing to ensure they meet these standards, and can give a high level of assurance that their seeds are not GM. For companies that supply seed that will eventually go into the food supply, there are strong commercial pressures to supply non-GM seeds. But 100 percent purity is not always possible because cross-pollination and accidental mixing does sometimes occur. Under this option the government would not actively monitor the assurances provided by importers.

A variation on this approach would be for industry to voluntarily adopt the protocols proposed in this document, but without compliance being checked by the government.

Question 6: Would it be acceptable to rely on industry compliance if industry agreed to an explicit code of practice, perhaps along the lines of the protocols suggested in this paper?

6.2. PAPER TRAILS AND IDENTITY PRESERVATION

This option would require importers to provide documents showing that seeds had been produced under conditions that avoid cross-pollination with GM varieties while plants are growing, and avoid mixing GM seeds during handling and transport. Testing could also be a requirement at several stages during production, but if it is required before shipment then this option becomes the same as testing every consignment. Many seed producers are already testing their seeds during production.

The main difficulty with this approach is checking compliance and/or auditing. There are no international guidelines or standards for what identity preservation should involve, what sort of documents would be required, or how they would be audited. If compliance was audited using tests at the border, then this option may not have any benefits over simply testing at the border.

Question 7: What would be the costs and benefits of a system based on documents and audit trails, compared to a system based on testing? Is there a cost-effective way of checking compliance or auditing these systems?

6.3. TESTING

Testing for GM seeds is a new technology and international standards are still being developed. There is no single test that can tell whether any seed is GM or not, but there are some tests that work for a range of GM plants. As new GM crops become commercialised overseas, new tests will be required, which means that MAF will have to constantly monitor the situation and change its protocols.

Tests for GM organisms detect either DNA or proteins. In both types of test the seeds are destroyed so it is not feasible to test every single seed. This means there is uncertainty from sampling, because there is a chance that any GM seeds may not be in the sample tested.

Protein-based tests are cheaper, quicker and simpler, but they only detect specific proteins so a separate test would be needed for each type of GM protein (there are at least 4 different GM proteins expressed in different varieties of GM *Zea mays*). These tests are not available for all GM proteins, nor can they distinguish between proteins that might be present in traditionally bred varieties (e.g. conventional virus-infected squash). Therefore they are not suitable for general screening for GM seeds, but could be used to identify or eliminate particular varieties of GM crops. The sensitivity of these tests varies according to the level of protein expression and therefore varies between developmental stages, but tends to be between 0.1 percent (one seed in a thousand) and 2 percent (one seed in fifty).

DNA-based tests use the polymerase chain reaction (PCR) to detect specific DNA sequences. A test for gene fragments such as 35S, nos3' and nptII can be used as a screening test for many GM plants. A positive result for either 35S or nos3' is a strong indication of the presence of GM seeds in *Zea mays* (maize, sweet corn and pop corn), *Brassica napus var. oleifera* (canola and oilseed rape), and *Cucurbita pepo* (crook-neck squash/zucchini). PCR is so sensitive that it can detect single genes but in practice, the limit of detection is between 0.01 percent and 0.1 percent because of limits on the size of a sample. When the uncertainty from sampling is included, the limit of reliable detection is about 0.1 percent (one seed in a thousand). Rather than being a rigid barrier between what is detectable and what is not, this indicates the level where one can be confident that GM seeds will be found. Lower concentrations of GM seeds may be detected, but with much less confidence. False positives are difficult to avoid unless laboratory procedures and operator skills are at a very high standard, so testing would have to be performed in accredited laboratories.

Question 8: Are there any alternative ways of identifying suitable laboratories? Are you aware of any internationally recognised accreditation or certification schemes for laboratories to provide screening tests for GM seeds? Which laboratories do you use or would prefer to use?

Frequency of testing

Testing every consignment provides a high level of assurance and public confidence, although the detection limit of 0.1 percent means that low-levels of GM seeds may not be detected. Audit testing some (but not all) consignments imposes lower compliance and administrative costs but can still create the same incentives for companies to avoid GM seeds – it provides a level of assurance that is very close to the level of assurance provided by testing every line/consignment. Very low concentrations of GM seeds will be difficult to detect no matter how many consignments are tested.

Question 9: What frequency of testing would provide the most cost-effective level of assurance? What evidence or information can you supply to support your position?

7. Costs & Benefits

The benefit of the various options is to provide assurances that unauthorised GM seeds are not released into the New Zealand environment. This backs up the government's requirement that GM organisms must be assessed before they can be approved for release. The different options provide different levels of assurance.

In terms of costs, importing companies would bear the initial compliance costs of any new measures. These may include sampling and testing (\$680 per test plus courier costs to and from Australia), obtaining a declaration that a country does not produce GM varieties, accrediting laboratories, as well as MAF's administrative costs that are recovered from the importers.

However, the greatest potential cost to New Zealand would be the economic impacts of higher seed prices or reduced competitive advantage due to less access to desirable varieties, because seeds are such an important input to a wide range of agricultural industries. New Zealand is a very small market and seed companies may not be willing to make special arrangements to meet our requirements. If trade was seriously disrupted, there would be short-term costs of finding new supplies or substitutes and possible long-term costs if those alternatives were more expensive or less productive. It is difficult to put a value on these costs but the large quantities of *Zea mays* seed imported from the USA and canola/oilseed rape imported from Canada are likely to be the most affected. As a benchmark, MAF estimates that the annual gross margin of *Zea mays* grown in New Zealand is about \$70 million and that maize contributes over \$60 million per year in increased dairy production. The annual gross margin of the oilseed rape crop is about \$1.8 million per year. The experience with sweet corn testing in 2001 shows that trade will continue, though it is not yet clear whether the small disruptions that occurred will have any long-term effects.

Question 10: Can you provide further information about the specific costs and benefits of the various border control options? Can you suggest any improvements?

8. Recommendations

MAF's aim is to provide assurances that unauthorised GM seeds are not being released into the New Zealand environment, while minimising the compliance costs and impacts on trade.

MAF proposes extending the sweet corn protocol to all varieties of *Zea mays*, and changing it to make it simpler, more cost-effective, and targeted to the most likely source of GM seeds. The new protocol would come into force on 1 August 2002. MAF also proposes a new testing protocol, similar to the *Zea mays* protocol, for *Brassica napus* var. *oleifera* (canola and oilseed rape) that would come into force on 1 January 2003. The draft protocols are available from MAF (contact details are on the first page).

MAF does not have sufficient information to assess the likelihood that unauthorised GM seeds from *Glycine max* (soybeans) and *Cucurbita pepo* (crook-neck squash/zucchini) could be imported. Consultation with industry about the source and quantity of these seed imports will help to clarify whether protocols are necessary.

8.1. SUGGESTED CHANGES TO THE SWEET CORN PROTOCOL

All *Zea mays* varieties – The protocol would be extended to imports of seeds of all varieties of *Zea mays* including sweet corn, maize (dent/field corn) and pop corn, as they all have the potential to contain GM seeds.

No testing for countries that do not produce GM varieties – Testing consignments of seeds from countries that do not produce GM *Zea mays* would impose significant costs without providing better assurances. MAF proposes to allow seeds to enter without any GM testing or auditing if they come from a country that does not produce GM *Zea mays*.

At the request and expense of an importer, MAF would communicate with the appropriate regulatory authority in the country where the seeds originate. MAF would seek a declaration that either no GM *Zea mays* has been approved for commercial release, or that it was not being commercially produced and was not produced in the preceding season (often the previous season's seeds are stored and exported). MAF would also take account of other available information about the commercialisation of GM crops. The declaration would be valid for one season for all seed imports from that country. Although the first importer would bear the cost of obtaining the declaration, the industry could agree to share the costs. This approach is similar to the concept of pest-free areas recognised by the International Plant Protection Convention where appropriate regulatory authorities specify area freedom (frequently country freedom) from particular pests.

Audit every third consignment – Every third consignment, rather than every consignment, would be audited to confirm that it had been tested for GM seeds. MAF would require either:

- that a sample be taken at the border and tested, or
- evidence from tests performed offshore (prior to shipping) in a MAF-approved laboratory, provided the seeds are sampled and tested according to the protocol.

Importers will not know in advance which consignments will be audited since this will depend on when other importers bring in consignments. Based on previous seed imports, roughly 10 consignments of sweet corn and 15 consignments of maize would be audited in a season. If GM seeds were found, then all subsequent consignments from that importer would be tested until MAF was confident that the importer could return to an audit approach.

One test per seed line – Sometimes, several consignments can come from a single seed line. Consignments from a single line would only require one test, provided the seeds have been isolated during storage.

No quality assurance pathway – Assessing quality assurance pathways is a costly, time-consuming exercise that MAF does not have the resources to undertake. Given that checking compliance will often involve testing anyway, auditing all seed imports is a simpler and more consistent approach.

nos3' sequence indicates GM – Under the current protocol, a result that is positive for nos3' but negative for 35S is not considered to be conclusive because there is a chance of false positive results from the presence of *Agrobacterium tumefaciens* (from which the nos3' sequence is derived), and all GM sweet corn contains the 35S sequence. However, one GM maize variety contains nos3' but not 35S. MAF is satisfied that false positives are very unlikely so that the presence of nos3' is a strong indication that GM *Zea mays* seeds are present.

9. What Happens Next?

Comments on this discussion paper are due on 28 June 2002. MAF will then analyse the submissions and introduce new protocols as soon as possible. MAF anticipates that the *Zea mays* protocol would replace the existing sweet corn protocol on 1 August 2002 and the new *Brassica napus* var. *oleifera* protocol would come into force on 1 January 2003.

Question 11: Do you want to be notified when the final protocol is decided and if so, how would you like us to communicate with you? How did you find out about this document?

MAF will regularly review these protocols and intends to publish a report by 1 August 2003. MAF also reports quarterly to the Environmental Risk Management Authority (ERMA New Zealand) about containment and border requirements for new organisms. Any significant issues relating to GM seeds at the border will be included in these reports.

Quick Response Form

post to: GM seeds, Ministry of Agriculture and Forestry, PO Box 2526, Wellington
or fax to: (04) 473-0118

This page lists the questions where MAF is seeking specific information and responses. It is meant to provide a convenient way for you to send us some comments, but it is not meant to limit your comments or restrict you to a certain length. If there are other matters you want to raise or if you would like to send us a longer answer, please feel free to do so.

Name

Affiliation:

Address:

Phone number/email address:

1. The current situation for all seeds except for sweet corn seeds is that the government relies on importers to comply with New Zealand's laws. Does this provide sufficient assurance that unauthorised GM seeds are not being imported, or should the government seek greater assurances at the border?
2. Do you agree that it is appropriate to have a different approach for seeds imported from countries that do not produce GM varieties? Do you have any information about the likelihood of unauthorised GM seeds being imported from countries that do not produce GM varieties?
3. Can you provide any more information about the quantity and source of imported soybean (*Glycine max*) or crook-neck squash/zucchini (*Cucurbita pepo*) seeds? What assurances are given for any of these seeds that are imported from countries that produce GM varieties?
4. Are there other species of seeds or other pathways where there is a significant likelihood that unauthorised GM seeds could be released in New Zealand? Are there cost-effective measures that could reduce the likelihood? Do you have any other information about the likelihood that GM seeds could be imported?
5. Have you been affected by the sweet corn protocol and if so, what was your experience? What costs did you incur? Would your costs be less if there were no testing or auditing requirements for seeds from countries that do not produce GM varieties? Have the prices or availability of sweet corn seeds been affected?
6. Would it be acceptable to rely on industry compliance if industry agreed to an explicit code of practice, perhaps along the lines of the protocols suggested in this paper?
7. What would be the costs and benefits of a system based on documents and audit trails, compared to a system based on testing? Is there a cost-effective way of checking compliance or auditing these systems?
8. Are there any alternative ways of identifying suitable laboratories? Are you aware of any internationally recognised accreditation or certification schemes for laboratories to provide screening tests for GM seeds? Which laboratories do you use or would prefer to use?
9. What frequency of testing would provide the most cost-effective level of assurance? What evidence or information can you supply to support your position?
10. Can you provide further information about the specific costs and benefits of the various border control options? Can you suggest any improvements?
11. Do you want to be notified when the final protocol is decided and if so, how would you like us to communicate with you? How did you find out about this document?