Risk Management Proposal: Proposed amendments to the IHS 155.02.05 Seeds for Sowing (November 2019)

To: Plant Germplasm (Imports) Team
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Date: December 2019

NZPPI supports the feedback from the NZ Grain and Seed Association.

About NZPPI

New Zealand Plant Producers Incorporated (NZPPI) is the peak industry body for the businesses that propagate and grow plant for forests, ecology, food, wines and amenity plantings. Plant production is also referred to as 'nursery' production.

Our members produce the plants that the grow food that Kiwis eat and export, that regenerate New Zealand's forests, beautify our urban landscapes and are planted by millions of Kiwis in their backyard.

Our industry underpins the success of New Zealand's thriving primary industries, including forestry, horticulture, viticulture and farming.

Employing approximately 4000 people, New Zealand's plant production sector is worth an estimated $500 million per annum.

Background

The emergency measures covering pelleted seed testing were put in place in May 2016 (under section 104(1) of the Biosecurity Act 1993) following the detection of the weed *Abutilon theophrasti* (velvetleaf) in the New Zealand environment.

At the time that these rules were first applied, MPI stated that the purpose of the testing was to provide data for a further review of this pathway.

Following the implementation of the emergency measures, MPI indicated that they were preparing proposals to review the IHS, targeting a June 2017 consultation period. The consultation process has been delayed until December 2019, due to a lack of resourcing and other priorities within MPI.

In the meantime, importers of group 2 glasshouse seeds have been required to submit seed samples for testing at a frequency of 1 in 10 consignments, at cost estimated at over $255,000 in testing costs and more than $40,000 in lost seed. The cost related to delayed, or lost plant sales from lost seed, has cost nursery businesses an estimated many hundreds of thousands of dollars since the measures began.

Introduction

The implementation of the emergency measures requiring testing of pelleted seed has disproportionately impacted the importers and growers of group 2, glasshouse ornamental and vegetable seeds.

While the emergency measures for velvet leaf and other serious weeds were intended to target high risk seed imports, including fodder beet and field sown crops, the design of the programme has unnecessarily and disproportionately captured minor seeds from low risk sources.

Factors such as the higher frequency of imports, the wide range of species, wide range of pack types, and the small quantity of seed in consignments has meant that group 2 seed has worn the greatest cost and burden from this programme, despite being the lowest risk pathway. Data from 3.5 years of testing show that the number of tests of group 2 seed is 4 times that of other, higher risk, groups despite having the lowest (possibly nil) level of contamination.

NZPPI has requested the reduction, even withdrawal, of this programme for group 2 seeds on the grounds that there has been no material biosecurity risk identified in the pathway after more than 400 tests, including almost a million seeds tested.

The effort and cost of this programme is a burden to seed importers, nurseries, to MPI and to NZPPI. Given the limited resources available and the other serious biosecurity priorities facing the primary industry, we question why MPI has continued to pursue the testing of group 2 seeds in the absence of evidence of risk. Our collective effort and resources (including over $250,000 invested in testing costs) are better spent in higher priority areas of biosecurity.

If MPI intends to continue with the testing programme for group 2 seeds, we are seeking a testing programme that addresses these issues. This includes a vastly reduced testing regime that is

statistically based and avoids unnecessary cost, risk, complexity and barriers to the safe importation of pelleted seed.

We are also seeking greater engagement. The pelleted seed testing programme should be an active process that encourages open collaboration between industry and MPI to understand and manage the risk and costs associated with the pathway. Given the high cost of the programme, seed importers and nurseries are seeking better feedback and value from it.

Our initial analysis of the test data provided by MPI has highlighted the potential for cross contamination of seed samples in the sampling or testing process. We request that MPI explore this issue as a matter of priority before progressing with the further development of the RMP, or considering changes to the IHS.

Our feedback (this document) is largely focussed on the proposed seed testing programme as it relates to glasshouse grown, ornamental and vegetable seeds propagated and grown as seedlings in controlled plant nurseries. These seeds are categorised as Group 2 seeds.

Our feedback relates to the named sections and numbered points in the RMP document.

<u>Feedback on the Risk Management Proposal</u>

Part 3: Risk Assessment

Summary of risk: Entry and exposure.

43: We disagree with the statement that weed seeds and regulated pests are considered to have entered NZ if viable seed of a species other than the commodity are present together with the host seed pellet…

If viable seed of a species able to be imported into NZ (e.g. listed on the PBI) is present in a sample of host seed pellets, then this is not a biosecurity risk. When these species are found infrequently (as shown in the test data to date), they should be noted, with no change to the sampling frequency. If the frequency of contamination increases, or shows an emerging pattern, follow up action to identify the root cause of the contamination should be initiated and appropriate action taken.

45: The IHS states that seeds for sowing must be free from ‘unidentified seed’, as defined in the Seed for Sowing IHS.

We agree that viable, whole seed that is unable to be identified, or of an or unknown species, presents a potential biosecurity risk. The incidence of this is rare in the pelleted seed supply chain, which includes well known, easily identified species.

It appears that this category is used as a default when recording a seed that can’t be quickly recognised during testing, is modified (e.g. the seed coat removed or seed is polished, damaged, or unusually small).

As ‘unknown’ seed has treated to date by MPI as a serious biosecurity risk, possibly resulting in an increase in testing frequency, the use of this category must be used appropriately and justified.

Before categorising an ‘unidentified seed’ as a biosecurity risk, it should firstly be confirmed that the seed is whole and viable. In addition, a reasonable effort must be made by the laboratory and MPI to identify the seed, e.g. a viability / germination test completed and identification via a DNA test before the test result is finalised.

Seed that is unidentifiable because it is damaged, and/or is unable to germinate, should be categorised as a ‘contaminant’.

51: The data presented in this section (51) of the RMP shows that the rate of contamination found in Group 2 seed lots was far lower than other groups. We question the interpretation of this data, which inaccurately implies that the presence of other flower seed is a biosecurity risk, overstating the risk. If other flower seeds were excluded from the interception results, then the rate of contamination for group 2 species would reduce from the 4% reported, to less than 0.1% (relating to a single Agrostis seed).

54: This section presents an analysis of the frequency of contamination of group 2 species.

We question the validity of this data and request that the interception data for Group 2 species is reanalysed, reclassifying flower species that are acceptable for export to NZ. This will provide a more accurate assessment of the actual biosecurity risk associated with this group of species, enabling a more realistic assessment of the biosecurity risk and therefore enabling more appropriate measures to be applied. The data presented in figure 3 (page 16) should also be revised accordingly.

The RMP proposes to use 2 categories of contaminants, quarantine seeds and contaminants. We believe that these categories are insufficient to account for the range of likely scenarios and recommend that the following categories are established in the IHS to more appropriately describe the contamination of pelleted seed:

1) Quarantine seeds – serious weed seeds, GM seeds, or seeds unable to be imported

2) Contaminants – including dead seeds, husks, stems, soil, inert matter, etc.

3) Unidentified seed – viable seed that is not able to be identified

4) Other seed – seed other than from group 1, 2 or 3.

Cross contamination: An initial analysis of the test results provided by MPI has identified a number of examples where seed of the same species handled in the previous test is found in the sample. This indicates the possibility of cross contamination of samples in the sampling for

laboratory processes.

Examples:

- Lisianthus tested on 25/ 08/19 showing Begonia, noting that Begonia seed was tested in the prior sample.

- Senecio tested on 15/ 10 /19 showing contamination with Begonia, where Begonia was tested prior.

We request that MPI undertakes an analysis of all test data collected to date and the sampling / testing procedures to assess if cross contamination of samples has occurred.

If there is any doubt about the accuracy of any of the test result, the result should be removed from the test data, the data amended accordingly, and the assessment of risk in the RMP reconsidered.

55: There is no evidence to support the statement that seeds grown outside the exporting country are more likely to have weed seeds present in the consignment. As the interception data for group 2 species does not show any weed seeds present, no conclusions can be made about the source of weed seeds.

56: Figure 3 (page 16) provides an analysis of the contamination rate of group 2 species. The notes define contamination as 'the percentage of lots tested with contaminants (other regulated seed species) (sic). However, the interception data for group 2 species does not show any regulated species. We request that this is data is revised, removing the non-regulated species to provide a more accurate view of the biosecurity risk.

58: In this statement MPI provides an explanation of how they assess the risk of establishment of a pest, on the basis that is can form a self-sustaining population.

From the test data, MPI has identified the presence of a single Petunia seed in a sample of dichondra and highlights that this as a potentially serious biosecurity risk, as Petunia may be from a GM source.

We note that this incidence may be due to cross contamination, however, Petunia is an example of a species that is unable to establish a self-sustaining population in NZ, therefore the risk associated with the GM status of this interception is negligible and should be revised.

Similarly, we note that all of the species intercepted in group 2 seeds are unable to establish self-sustaining populations in NZ.

81: This section provides an assessment of the risk associated with the interception of a seed of *Portulaca* in a consignment of *Lobelia*. While we agree with the assessment of the serious risk associated with *Portulaca oleraceae* and CGMMV, there is no evidence that the species found was *P oleraceae*. We believe that this sample is from cross contamination in the laboratory, from an earlier test of *Portulaca*, and is likely to be a low risk, horticulture species.

The high risk *Portulaca* species is highly unlikely to be present in the Group 2 supply chain, however for the purpose of confidence, in future, when seeds that have high risk relatives (within the same genus) are intercepted, a greater effort should go into identifying the species before a biosecurity risk is confirmed.

Part 4: Risk management

86: The RMP proposes that purity testing is undertaken in accordance with ISTA methodology. It is generally agreed that ISTA does not provide an appropriate methodology for testing small seed lots, typical of group 2 species. We therefore recommend that a more appropriate, statistically based, testing procedure is developed that is appropriate to the nature of group 2 pelleted seed, including:

- small number of seeds in a consignment, compared with bulk seed
- the consequence of losing high value seed
- large number of seed types and species
- high throughput of consignments (often requiring daily sampling)

89 – 90: We agree that the application of post clearance conditions for flower and greenhouse crop species is justified as these species present a lower level of risk. See feedback on Option 5.

Part 5: Proposed IHS requirements:

Feedback: Option 4.

We do not agree with the proposed sampling process for group 2 seeds.

The proposed option provides for a tiered sampling regime, whereby:

i. One in 10 consignments are tested. If compliance is found in 10 consecutive tests, the sample frequency moves to 1 in 20 consignments.

ii. If a non-conformance (weed seed or contaminant) is identified the testing frequency moves back to I in 10. If a further contaminant is found, each consignment is tested.

The following factors must be considered in the design of the proposed sampling plan for group 2 seed:

- high cost of testing
- hazards associated with handling seed coating material (fungicides & insecticides)
- high value of seed destroyed in testing
- low frequency of contamination
- the high throughput of consignments requiring repetitive sampling
- small quantity of seed in each consignment
- risk of cross contamination when handling many samples at once

We are uncertain if the proposed sampling regime is statistically based and appropriate for the objectives of the testing programme. The proposed sample frequency of 1 in 10 and 1 in 20 appear to be round numbers and result in a high frequency of sampling. We would like to understand their statistical basis and if an appropriate level of confidence can be achieved from a smaller, more appropriate sample frequency.

Also, the proposed sample size proposed (10% of seed up to 31,540) is large for group 2 seeds, that are made up of small consignments. Our assessment of this proposal is that the proposed sample size vastly exceeds what is required or needed to effectively monitor the pathway.

We expect that the sampling frequency and the size of the sample are statistically validated and based on and approach that is appropriate to objectives of the sampling programme, the size of the samples, the low level of risk, safety, and the high cost of sampling. It is widely recognised that the ISTA sampling methodology significantly over-samples small seed lots and is inappropriate for group 2 seeds.

NZPPI is seeking an independent assessment of the proposed sampling process and we will provide an opinion shortly.

Safety risk: Seed coating formulations can include additives such as fungicides and insecticides. (e.g. thiram). The risk from exposure to these hazardous substances is well documented and advice accompanying pelleted seed to avoid unnecessary contact with the seed. The risk from exposure to these substances is increased when the seed coat is wet, as happens when removing the seed coat and preparing the seed samples. It is important that exposure to the slurry produced when processing pelleted seed is minimised. This is achieved by minimising the quantity of pellets processed and only processing the minimum quantity of seed required.

Feedback on Option 5

NZPPI welcomes alternatives to border testing of pelleted ornamental seeds. We agree with MPIs conclusion that the contamination rate is extremely low and seeds planted in controlled greenhouse environments are unlikely to lead to establishment of quarantine weed seeds.

Option 5 describes the proposed post clearance conditions for ornamental flower pelleted seeds. This option is essentially a grow-out test and we think it could also be applied to Group 1 field-sown species (not *Beta vulgaris*), managing risk by inspection during the growing period in place of pelleted seed testing.
NZPPI considers the proposed post-clearance conditions need some adjustments to make this option workable. Our comments are included below each of the 4 steps proposed in the draft RMP, and our recommendation is given at the end of this section.

Steps proposed by MPI

The pre-consultation post-clearance conditions propose that:

1. Individual pelleted seed lots [are] to be moved to a MPI-approved transitional facility after border inspection for visually regulated pests.

In many cases, pelleted seed are not inspected at the border but inspected at an MPI-approved

transitional facility by a border inspector e.g. Egmont Seeds TF in New Plymouth, inspected by Logan MacDonell; Terranova Seeds, inspected by Auckland Metro team. This step could be skipped and start with #2 below.

2. Seed lots must be held in a transitional facility approved to the MPI facility standard for Standard for Transitional Facilities for General Uncleared Risk Goods (TFGEN).

We think this is workable. Egmont seeds have areas registered under TFGEN within their larger facility. Logan MacDonell advises that it would be easy enough to extend the areas registered to TFGEN to include additional areas for holding pelleted seeds with Post-clearance conditions (PCC), eg. to cover their Bond store and Chill room. It is likely that other pelleted seed importers could hold pelleted seed in a facility, or part of a facility registered to this standard.

3. Transitional facilities are approved by MPI and will be used to ensure the post-clearance conditions are met.

Seed lots are held in seed warehouses/cool stores but the seeds will be grown in greenhouses. This step implies that MPI expects all plant producers/greenhouses to register their facilities to TFGEN. We do not consider this is feasible. This requirement would be resource intensive and expensive to implement, for both MPI and industry. Egmont seeds supplies seeds to 400+ growers and some commercial businesses operate multiple facilities, eg. Zealandia who have multiple growing sites in Auckland and Christchurch.

TFGEN facility and operator registration, operator training and ongoing refresher training would be a significant upfront and ongoing cost for both the Verification team and industry. The costs would easily overrun the costs for seed testing, making this an uneconomic option.

The TFGEN standard is for holding uncleared risk goods, not goods which have been cleared but with post-clearance conditions.

We recognise that TFGEN standardises some of the operating procedures and processes around management of goods in the facility. We agree that MPI must have an up-to-date list of the facilities including business identity, location and contact details. We also agree that facilities will need to develop and document procedures for handling, maintaining traceability, inspecting and notifying MPI of any issues. However we consider that these requirements can be built into the PCC (see Post clearance conditions).

4. Plants derived from the pellet seed lots are required to be grown under greenhouse/glasshouse conditions and must be visually inspected by MPI for the presence of a quarantine weed seeds and/or contaminants during the growing season at the appropriate times, as determined by the MPI Officer.

It is unworkable for all pelleted seed lots to be inspected by MPI during the growing season. Seed lots are shipped to multiple locations, with growing periods of 4 to 12 weeks. As seed is repeatedly sown through the season, at multiple different sites, this requirement would over-inspect pelleted seed lots several times over.

This places a large inspection burden on the MPI Verification team. At least 99% of the inspections are likely to not identify any foreign seedlings, this would not be a great use of time for MPI inspectors and be an unnecessarily expensive compliance cost for greenhouse operators.

This option is only workable if the requirement for visual inspection is delegated to greenhouse managers or their staff, with MPI performing a verification audit to determine that agreed processes are being followed.

Recommendation for post clearance conditions

The costs and logistics make Option 5 unworkable as currently worded. While the post-clearance conditions could be specified in the IHS, we think it would future-proof the IHS if an option for post-clearance conditions was given in the IHS with a general specification, but the post-clearance conditions were imposed by the inspector giving biosecurity clearance to the seeds under section 26 of the Act.

It might work like this:

a) Seed is directed to the TF and inspected by the MPI-inspector;
b) MPI-inspector issues the PCC to the TF Operator for pelleted seeds which are being cleared (i.e. not being tested under option 4);
c) TF Operator sends PCC with the pelleted seeds to a registered customer and maintains a record of the transaction (which could be inspected / verified by MPI during the next TFGEN audit, or any time otherwise deemed necessary);
d) The greenhouse manager receives the seed lots and PCC. They document appropriate processes for inspection and traceability, and build an inspection plan that fits with their fortnightly business logistics and operations;
e) A staff member, delegated and trained according to the inspection & traceability procedures by the greenhouse manager, inspects growing plants during the growing period for foreign seed contaminants,
    a. Unexpected instances of contamination could be photographed and reported to the greenhouse manager, who will note them in their records and advise the Operator of the TFGEN seed warehouse/store;
    b. The TF Operator could notify MPI of the detection.
f) Records of inspections would be maintained by the greenhouse manager and staff and be made available to MPI at any time, or during an annual audit (for example).

Post clearance conditions

Under section 27A of the Act, an inspector who gives a biosecurity clearance under section 26 of the Act may impose post-clearance conditions on the goods if the post clearance conditions are approved by a Chief Technical Officer.

The conditions may:

- specify the use to which the goods must be put;
- specify the restrictions or conditions on the use of the goods;
- specify how long a restriction or condition lasts by reference to a period of time, a date, or an event;
- specify how the goods must be managed or disposed of;
- specify the place or area within which the goods must be kept, managed, or used;
- require notification of a change in circumstances that affects the goods;
- require reporting to an inspector or another specified person in specified circumstances on specified matters;

- deal with any other matters reasonably necessary for the effective management of the risks associated with the goods.

Feedback on categories of seeds and contaminants

Although the intent of the testing programme was to identify serious weed seeds, particularly targeting velvet leaf, data from the testing programme has been extended to identify a wide range of contaminants and other plants.

The Interception data from Appendix 2 (Page 30) summarises the weed species and contaminants found in seed samples taken between 1st May 2016 and 15th October 2019.

Our interest in this data relates to seeds from ornamental flower species (previously categorised as Group 2). These include, Begonia, Dianthus, Dichondra, Juncus, Lobelia, Lisianthus, Petunia, Portulaca and Senecio.

The test results for group 3 seeds has identified the following types of seeds that have been categorised by MPI as 'contaminants':

Other seeds: Pelleted seed for ornamental species is high value (in terms of cost per seed) and has been shown through testing and other evidence to provide seed that is high quality and has a high level of purity (99.5 – 99.9% purity). It is recognised that the pathway does not provide seed at 100% purity, but the low level of contamination that has been found is largely from other ornamental flower species including Gentian, Lobelia, Viola, Begonia and Spergularia, that are eligible for importation into NZ. These species are listed on the plant biosecurity index (PBI) and therefore, while imported through a legitimate pathway, pose no serious biosecurity risk. It is understood that this seed is likely to be from cross contamination, either in pelleting equipment, or in the sampling or testing process.

Portulaca: The Interception data shows that a single seed of Portulaca spp was found in a sample of Lobelia. This seed was not identified beyond its genus and MPI has suggested that the seed may be from a species of Portulaca that is classified as a serious weed. Our assessment is that it is highly likely that the seed found was a horticulture species of Portulaca commonly imported and grown in NZ and likely due to sample contamination or from the pelleting equipment, or in the sampling or testing process.

Unidentified seeds: The interception data has identified 2 examples of 'unidentified seed' and MPI has expressed concern that these may be from a risk species. As these seeds were not further explored, it is unknown why they were unable to be identified. It may be that they were damaged, or dead, in which case it is unknown what species that aware form and if they presented a biosecurity risk.

GM Seed: Petunia is the only group 2 species with a genetically modified (GM) variety that has been historically propagated overseas. GM Petunia is considered a new organism under the Hazardous Substances and New Organisms Act (HSNO) 1996. The IHS schedule for Petunia requires certification that seed is not GM.

Petunia seed was found as a contaminant in one batch of group2 pelleted seed during border testing. A traceback of this seed was inconclusive, however Pan American do not grow GM varieties of Petunia seed and all batches imported into New Zealand are tested and certified. It is

extremely unlikely that contaminant Petunia seed would be a GM seed. The consequences should a contaminant Petunia grow in the New Zealand environment is zero, as Petunia does not self-seed in New Zealand and therefore cannot form a self-sustaining population.

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