Response

to

Draft report for the review of import conditions for fresh potatoes for processing from New Zealand

Biosecurity Advice 2012/14

August, 2012

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Executive Summary

This document examines the "Draft Advice for the review of import conditions for fresh potatoes for processing from New Zealand" which will hereafter be referred to as the "Advice". This Advice will be considered from three perspectives, Background and supporting documentation, Science and Process.

It is the industry's position that DAFF Biosecurity has significantly underestimated the risk posed by the import into Australia of Solanaceous crops in general and fresh potatoes in particular. From all three perspectives the Advice is to be found wanting.

It is unacceptable that an industry should be put at such severe risk through a low standard of work as provided by DAFF. Conservative estimates, based on overseas experience, suggest that potential losses to the Industry should Tomato Potato Psyllid and its associated bacterium arrive in Australia would be in the order of $0.25b

DAFF has continually confused Absence of Evidence with Evidence of Absence. This is inexcusable especially when DAFF claims that it uses a science based approach to its work.

It is difficult to avoid the conclusion that the document(s) produced by DAFF is tendentious and through the use of surreptitious language arrives at the conclusion which is predicated by the final statement in the Advice;

"DAFF Biosecurity will then finalise the import conditions for fresh potatoes for processing from New Zealand, taking into account stakeholder comments."

A predetermined outcome is probably inevitable from this approach.

The assessment of risk is also incomplete. Despite a considerable number of diseases and pests existing in NZ for potatoes only three are considered by DAFF to merit consideration in the Advice;

- PCN
- Zebra-chip complex
- Black Wart Disease

All other potential pests and diseases have been ignored.

The Advice and the supporting Final Pest Risk Analysis which was also produced by DAFF (BA,2009) lacks;

rigour, objectivity, basic scientific method and provides selective presentation of data.

I also note that similar concerns re rigour, lack of objectivity and poor science etc are continually raised by other Australian industries when responding to DAFF and its work (eg Growcom, 2012).

1 General Comments

In preparing this response scientists and industry experts have been contacted from the US, Canada, UK, New Zealand and Australia. These personnel included experts in the fields of genomics, virology, diagnostics, agronomy, IPM, entomology and breeding. Relevant latest research has also been consulted.

According to senior DAFF staff the approach to biosecurity must be science based (Grant pers. comm.). It is therefore disappointing that the Advice does not provide a required standard of science and rigour. Data is out of date, referencing is selective and on occasions where comments may run counter to what would appear to be the DAFF position, they are ignored. This is not merely unscientific but borders on dishonest.

No attempt has been made by DAFF to update their science over the past three years since the "Final pest risk analysis report for "*Candidatus"* Liberibacter psyllaurous" in fresh fruit, potato tubers, nursery stock and its vector the tomato-potato psyllid" (PRA) was produced (Sept 2009) despite the following statement quoted from p5 of the Advice:

"any additional information made available through the literature and the consultation process which is relevant to the assessment of the import risks posed."

Senior DAFF staff noted during discussions with Ausveg that they were keeping up with research and that they would take into account any new information when preparing the Advice as it came to light. However there is only one post 2009 scientific reference (Pitman et al, 2011) and that is quoted only because of its relevance in nomenclature for the disease. I must therefore assume that DAFF either felt the research post 2009 was irrelevant or that they did not keep themselves abreast of what was being investigated around the world. Intriguingly other more important aspects of that 2011 paper, relating to tuber transmission, have been ignored. This will be explored in more detail later in this document.

Of particular concern is the attitude of DAFF to evidence. In discussions with senior DAFF staff it has been indicated that if there are no specific studies available for certain factors essential to the evaluation of risk, then they do not need to consider these factors at all. For example, if there are no specific studies on an organism, then DAFF Biosecurity considers that this does not need to be considered in the risk ratings. Not only is this poor risk management practice and violates recognised procedures for the identification and quantification of potential threats, but it also violates a fundamental maxim of science. To quote the eminent virologist Nessa Carey; "absence of evidence is not the same as evidence of absence" (Carey, 2012).

Due to the lack of detail and rigour provided in the Advice, Australia is being asked to take on trust that DAFF can be trusted to ensure risk is minimised. I would argue that the lack of rigour, selective quoting and the poor application of scientific principles, demonstrated both in the Advice and supporting documentation, create the very antithesis of trust. DAFF has also not demonstrated that it understands how industry operates or the extent to which ancillary risk compounds overall risk. One also must question the ability of the MPI (Ministry of Primary Industries) in NZ to be able to perform the tasks for which it is responsible. The outbreak of PSA in NZ and the recent retail sale of potted strawberry plants from China in NZ

give cause for concern about New Zealand's ability to follow through on procedures and mitigate risk.

In this context, a recent letter to the editor written by New Zealand Primary Industry Biosecurity staff and later published in the NZ Grower (NZ Grower, 2012) a group of NZ MPI staff wrote, that in the last two years there had been a major reduction of quarantine inspectors in Auckland, Christchurch and Wellington and they were almost 30 full time staff short. Additionally the letter to the editor noted concerns that few of the Organisation's senior management have any experience with biosecurity and that through redundancies or replacements many managers are now sourced from the Conservation Department or the Police.

This warning letter from MPI employees should serve as a cause for concern over New Zealand's ability to produce reliable works and reinforce our own requirement to verify any claims made by foreign parties.

Due to the lack of referencing or citation it is hard to separate fact from opinion, in both the PRA and the Advice, unless one has made a study of the literature. It is clear that in both the Advice and the supporting PRA much of what is written are statements of opinion without any basis as fact. Furthermore referencing other than to Government publications is minimal.

One of the prime source documents for the Advice is the "Final pest risk analysis report for "*Candidatus* Liberibacter psyllaurous" in fresh fruit, potato tubers, nursery stock and its vector the tomato-potato psyllid". Before considering the Advice it is therefore necessary to consider the content of the PRA and its validity in preparing the former.

2 The Pest Risk Analysis (PRA) as a source document.

2.1 Background

Zebra chip is caused by a bacterium known as Liberibacter. There are only five Liberibacter spp known or described (Fullerton, 2012) and the one of interest in the Advice *Candidatus* Liberibacter solanacearum (herein after referred to as Lso for brevity) has only been known to science for four years since first being described in 2008 (Liefting et al 2008). The disease first appeared in central America in the early nineties (Abad et al, 2010) and then spread northward into Texas in 1999 (Wallace, 2012). It has since been reported in all states west of the Mississippi in the US except Utah, (Crosslin, 2012). It was first reported in NZ in 2006 (Biosecurity Australia, 2009). In every instance where this pest complex has been reported in the world there has been a devastating effect upon potato production. So severe is the problem in NZ that potato production for French fry production in North Island New Zealand is described as "on a knife edge" (O'Keeffe, 2012).

The Liberibacter so far identified are severe pests and the citrus greening disease (Huanglongbing disease) has decimated the citrus industry in Florida. This disease is spread by another species of psyllid.

To date Liberibacter have been unable to be cultured outside their insect host and appear to be a type of endosymbiont which are essential for insects, such as psyllids that rely upon phloem feeding, to obtain a nutritionally balanced diet (Nachappa et al, 2011). However why they should become pathogenic to plants is unknown. Some have suggested that phages may be involved (Gudmestad, 2012). Currently this whole area is not understood. It is however likely to be a very important part in understanding the genesis of this disease.

2.2 The PRA

Released in September 2009 the PRA was entitled a "Final pest risk analysis for …… tomato-potato psyllid". In itself the title is surprising. The pest for which the analysis had been produced had only been formally identified for a year (Liefting et al, 2008) and its effects only known for less than fifteen years. In 2009 almost nothing was known about the biology, the evolution and the reasons why such a pest complex should suddenly appear. Thus why the PRA should have such a definitive title (i.e. Final) is mystifying? Although our knowledge of the pest complex has advanced since 2009 there is still much that is unknown.

Since 2009 there has been considerable research in all areas relating to biology of not only Lso but also psyllids. However science is still only at the beginning of understanding how Liberibacter become pests and why. Without answers to these questions it must be emphasised that any prognostication about what will happen in any new incursion in a country is entirely speculation. Tomato potato psyllid has changed its behaviour in recent years and gone from being a transient and minor pest to a major pest with year long infestations (Hail et al, 2012). Science has no answer at present as to why psyllids should have changed their habits in this manner (Horne, pers. comm..) and why they should seek alternative host plants (Kent, 2008). There is already evidence that a native Australian psyllid, *Acizzia* has now been identified as a potential new economic pest of eggplant (Kent & Taylor, 2010). This is concerning, as eggplant is in the same family as potato.

As a document the PRA cites 74 references in support of its arguments. Only 27 appear to be papers subject to scientific review. The rest would seem to be either various government publications or sourced from the internet. Thus the bulk of the document, including much upon which the risk analyses are based is from non-scientifically produced material. This is cause for concern.

As already noted and will be elaborated later, when considering the Advice, the PRA is contradictory, selective in its presentation of data and in some places wrong or has been proved to be wrong from research that has been performed since 2009.

The PRA utilizes cut and paste extensively, especially when providing arguments relating to risk assessment pathways. This is both misleading and also continually promulgates false information. Continual repetition of an argument does not make it correct!

2.2.1 Method for Pest Risk Analysis (p13 -22)

Examining the PRA in detail shows a number of problems.
I note on page 13 that;
"careful consideration was given to the potential pathways for entry of the bacterium and its vector B cockerelli into Australia".
Given that the biology and evolution of the complex was virtually unknown at the time of the PRA and is still now only in its infancy one wonders how this statement can be justified?

On page 14 it is claimed that probability of entry pathways are based on scenarios *"depicting necessary steps in the sourcing of the commodity for export, its processing, transport and storage, its use in Australia and the generation and disposal of waste"*. It is difficult to find any evidence that this had been done in the PRA in other than a cursory fashion.

In considering Probability of establishment on p15 BA notes;
"Establishment is defined as the 'perpetuation for the foreseeable future, of a pest within an area after entry' (FAO 2004). In order to estimate the probability of establishment of a pest, reliable biological information (lifecycle, host range, epidemiology, survival, etc.) is obtained from the areas where the pest currently occurs. The situation in the PRA area can then be compared with that in the areas where it currently occurs and expert judgement used to assess the probability of establishment.

Factors considered in the probability of establishment in the PRA area include:

availability of hosts, alternative hosts and vectors

suitability of the environment

reproductive strategy and potential for adaptation

minimum population needed for establishment

cultural practices and control measures. "

As most of such information at the time the PRA was compiled was and is still unknown one is left to wonder how BA could make assessments under these criteria?

Similarly in the section on probability of spread BA notes that *"In order to estimate the probability of spread of the pest, reliable biological information is obtained from areas where the pest currently occurs."*

Once again given the state of knowledge about the complex in 2009 any attempt to apply the criteria described above is at best inspired guesswork. Very little data is supplied by BA to support the rudimentary notes provided.

The PRA describes that mitigation measure proposed by BA will reduce the risk of incursion to very low. On page 17 BA notes that substantial volume of trade will occur. This is not quantified however it is perhaps worth reflecting that in the PRA, a very low level of risk involves a probability range of 0.05 to 0.001. Is one to assume therefore, that the risk associated with imports is such that somewhere between from 1 in 20 to 1 in 1000 shipments/units will result in the likelihood of an incursion?

2.2.2 Pest Information p-25 et seq.

The comments relating to psyllid yellows are contentious and there is still no scientific agreement on this 'disorder'. Part of this reflects the different methods of detection used by researchers in the field (Scott, pers. comm.)

On page 27 the comment on tuber transmission has been shown to be false (Pitman et al, 2011). Tubers will carry the disease and moreover will regrow.

The distribution records on p28 are out of date and the range has expanded (Crosslin, 2012).

The comment on page 29; *"The reason for this vector specificity is not known."* is telling and underlines our concerns about the lack of knowledge on this complex. However what is particularly important is that this statement is no longer true either. We now know that Lso can be vectored by other species of psyllids such as *Trioza apicalis* and into other crops such as carrots (Munyaneza et al 2012a, 2012b , 2012c). There is also now a report of Lso being found in Spain (Horne, pers. comm.).

In considering the biology of the vector on page 30 the information that is provided was all unreferenced so is presumably supposition and is also incorrect. Research by Tran in NZ has found that the psyllid can undergo its life-cycle from 7.1 – 34.1^{o}C (Teulon, pers. comm.). Data also shows that it can take up to 80days to complete its life-cycle (Walker, pers. comm.) and that it can overwinter under very low temperatures, including the Pacific northwest (Crosslin, 2012) and on winter wheat in Canterbury (Pitman, 2012).

On page 31 seed transmission (true seed) is dismissed, however this area warrants further examination. It has been raised in discussions with BA that the work upon which their PRA was based utilised a diagnostic which has since been shown to lack sufficient sensitivity. This is an ongoing issue between researchers in NZ and the US (Scott, 2012) and makes comparison between US data and that from NZ problematic. Data collected in NZ since 2009 consistently shows that many tissue samples that initially tested negative for Lso, have tested positive when more sensitive quantitative PCR has been used. (Scott, 2012 & pers 5omm.). Whether or not Liberibacter can be transmitted by seed remains contentious as the definitive studies have not yet been made for Lso and at present this area must remain in the 'absence of evidence' category. There is some evidence that for the related Huanglongbing disease in

citrus that seed is not a pathway (van Vuuren et al, 2011) but the work on Lso is yet to be done. It certainly does not warrant BA's confident appraisal that it is not seed transmitted.

The whole area of seed transmission is particularly important as this is potentially an important pathway for the entry of Lso into Australia through either controlled or uncontrolled channels. For example amny of the quasi-commercial Goji berry plantations that have been established in Australia are from seed extracted from dried berries imported for food and sold in grocery shops. This is also known to occur amongst gardeners for a range of other Solanaceous crops such as sundried tomatoes. We are unaware as to how DAFF has addressed these potential risk pathways.

This also raises the question as to why Goji berries (*Solanum barbarum* L and *Solanum chinense* Mill.) were not listed under potential Solanaceous host plants in Appendix A in the PRA

2.2.3 Risk assessments for pathways (p33 et seq.)

The risk assessment pathways in this section rely extensively on cut and paste and the risk ratings therein are unfathomable. It is very difficult to avoid the conclusion that the result was predetermined. Papers are selectively quoted, some data is demonstrably false and the risk ratings do not appear to match the arguments presented. For example when considering potato tubers and the risk associated with distribution on p 37, BA have provided a "**MODERATE"** risk, however all the arguments advanced are either untrue, have been shown by later research to be false or provide evidence for enhanced distribution!

It is also significant that BA relies heavily on an article by Kent (2008) which DAFF claims is supportive that no native psyllids are likely to be vectors of Lso. What BA failed to also note was the question posed by Kent, in the same publication, was why this particular psyllid switched to feeding on eggplant. Evidence exists that psyllids can acquire new host plants however DAFF has failed to consider this as a risk. Although TPP was recognized as an occasional serious pest of potatoes in the US prior to 1999, (Cranshaw, 1993) there is currently no explanation as to why TPP has now switched to being a serious pest every year in potato fields of the US west of the Mississippi. Of even greater concern is that further hosts have been identified of Lso in Europe other than TPP, (Munyaneza et al 2012a, 2012b , 2012c). Evidence again ignored by DAFF in the Advice.

The examples cited above are typical of the lack of rigour and subjectivity which pervades this entire section.

Lastly it is noted by BA on p43 that *"existing pest management procedures may reduce the likelihood of infected TPP entering Australia."* At best, this is a throwaway line as absolutely no supporting evidence is provided nor is there any suggestion as to what those measures may be.

2.3 CONCLUSION

The PRA is a deeply flawed document lacking rigour and as a major supporting document to the Advice it should be ignored.

No attempt has been made to keep abreast of the science, some of which contradicts or shows the PRA to be wrong and we would argue that a “stop the clock” principle should apply (Growcom, 2012) as there is simply not enough data available to adequately address the risk.

3 THE ADVICE

3.1 General Comment

Importation of fresh potatoes will result in potatoes infected with *Candidatus* Liberibacter solanacearum (Liberibacter, the organism which gives rise to the condition commonly known as Zebra Chip) arriving in Australia. There is currently no non-destructive test for ascertaining whether or not potato tubers contain Liberibacter. This situation is not formally acknowledged in the advice, however the paper quoted for nomenclature (Pittman et al 2012) makes this clear.

The approach to biosecurity must be science based (Grant pers. comm.) however the Advice does not provide a required standard of science and rigour. Referencing is selective and even in those that are quoted, comments that may run counter to the DAFF position are ignored. This is not merely unscientific but dishonest. No attempt appears to have been made by DAFF to update their science over the past three years since the Pest Risk Analysis (PRA) was produced in 2009. Statements of opinion are expressed as fact and referencing other than to Government publications is minimal.

Based on the lack of rigour, poor application of scientific principles and lack of evidence that is presented in the Advice, Australia can have little confidence in the ability of DAFF to assess risk and to manage the subsequent consequences should this proposal for imports go ahead as presented.

The text below considers in detail the issues raised in the Advice pertaining to importation of fresh potatoes for processing. We question whether industry comment is seriously sought and will be considered given the concluding sentence of the Advice:
"DAFF Biosecurity will then finalise the import conditions for fresh potatoes for processing from New Zealand, taking into account stakeholder comments."

This sentence would appear to indicate that the importation of processing potatoes is a fait accompli!

3.2 Details

From an editorial perspective it would have been helpful for comment if in the Advice paragraphs and sections had been numbered as per normal document control procedures.

For ease of reference, comment will wherever possible follow the sequence and headings as provided in the Advice. Quotation marks are provided on headings copied from the Advice. A similar format to that provided by DAFF will be followed in discussing the advice as it is extremely difficult to apply Document control rigour when the source document does not do so.

" 1 INTRODUCTION" PAGE 5
Page 5, Paragraph 2
I note that DAFF quotes both here and in paragraphs 1 and 2 on page 19 that DAFF has consulted with industry on this advice. The language suggests that this was part of the normal

DAFF process in dealing with industry in Australia. My understanding is that this industry contact was nearly always initiated by industry not by DAFF and was done to raise concerns with DAFF about this proposal. Regrettably all of the concerns and issues raised by industry, many of which related to science and risk management, have been ignored in the Advice.

Page 5 Paragraph 3
DAFF notes that the previous conditions for import of fresh potatoes were taken into consideration. This is not elaborated upon so we are left to ask - how? Presumably they were suspended in the first place because they were inadequate!

We note that the review of import conditions is in response to new information that there are new or modified risks posed by an import pathway. There is little further elaboration on this point. We are thus left to second guess what this new information is. Five components are listed as being taken into account for the review. Unfortunately it is not described as to how they have been assessed or taken into account and therefore this paragraph is meaningless. For example what should we make of dot point 3 which states?

- *"relevant export compliance programs utilised by New Zealand for export of potatoes to other international markets;"*

Does this mean that our risk assessment is based on the principle that if it is okay by another country then it is okay by Australia? Have these other programs been evaluated?

"BACKGROUND" PAGE 6
Paragraph 1 last sentence
The words quarantine approved premises are used a number of times (8) in the Advice. At no stage is this defined other than a loose reference to the "Quarantine Act Sections 46A and /or 66B of the *Quarantine Act*" in paragraph 2 on page 17 (Quarantine Act 1908). As these sections merely prescribe the method for gaining approval for quarantine premises and for construction of Compliance agreements this is not particularly helpful. Consequently we can only assume that the rather nebulous descriptions provided in the Advice are all that is required. These provide no means for auditory compliance and certainly no Hazard Analysis Critical Control Point (HACCP) procedures which is standard industry practice in assessing and monitoring risk. There is thus no quality control or other mechanism by which one can assess the adequacy or otherwise of what is proposed.

In reviewing the current standards for NZ as specified in the document "*MAFBNZ Export compliance programme for the provision of additional declarations (Potato Cyst Nematode and Potato Wart)* (MAFBNZ 2009),"(hereinafter referred to as MAFBNZ), we are left to ask what has changed? This will be considered in further detail when considering the response in relation to PCN.

Paragraph 2
We note that the initial request in 2006 may have been made prior to the official notification re the appearance in NZ of the Tomato Potato Psyllid and Liberibacter

Paragraph 3
In our view the supporting documentation supplied by MPI quoted in the Advice is inadequate in assessing the export requirements from NZ. The MAFBNZ document considers only two pest/diseases; PCN and Black wart. There are a considerable number of other pests

and diseases in NZ not found in Australia yet these have been ignored. Additionally some of the documentation quoted in the MAFBNZ document is not available publicly thus cannot be assessed (eg BNZ Exports (Plants) Policy Directive "Surveillance for Potato Cyst Nematode" 13 December 2004). . What or where are the documents pertaining to other pests and diseases which would pose quarantine risks associated with fresh potato imports from NZ?

"3 Pests and Diseases identified in association with fresh potatoes from New Zealand" Page 7

"In 2007, MPI provided DAFF Biosecurity with a list of pests and diseases associated with potato tubers in New Zealand."
The list furnished by MPI NZ and lists 3 bacteria, 3 fungi, 4 nematodes, 7 arthropods and 4 viruses. Is this list the only diseases and pests found in NZ or the only ones of quarantine concern? The Advice would indicate the former in which case it is incorrect. If the latter what verification procedures has DAFF instituted to verify the completeness or otherwise of the list?

The sentence will be taken to mean what is written. The list is therefore incomplete as a statement of pests and siseases of potatoes in NZ and there are many diseases which we know occur in NZ but are not listed. It is not the industries responsibility to list the diseases that we know occur on potatoes in NZ however we are surprised that common diseases such as common scab, powdery scab, virus Y (and its various forms), *Erwinia*, etc were not included. DAFF should not have accepted it without checking the actual disease status . We also note that there is no mention of Phytoplasmas in this list despite the recent publication by Constable et al. (2011). There is a question as to whether the phytoplasma strain present in NZ is the same as that in Australia (Andersen et al, 2008). The implications for this in plant disease are unknown.

Page 8 para 1
This paragraph discusses pests of regional concern. Once again it is inaccurate. One cannot speak on behalf of the WA or Tasmanian Governments however it is likely that, with their area freedom for PCN, they would be surprised to learn that PCN is of no concern to them. The same could also be noted for other diseases and pests such as virus Y.

Page 8, para 2
"Nomenclature……. Of Solanaceous plants."
The change in nomenclature is noted but one question's why this was not also noted in the document released in April pertaining to importation of planting stock. Whilst not particularly important in the context of this Advice it nevertheless once again demonstrates a lack of rigour and consistency in DAFF's work which undermines confidence in the quality of what is presented.

Page 8 para 4
The statement that the disease can only be transmitted by its vector is unreferenced and as discussed earlier in this document has been shown to be untrue. It thus must rank as uninformed opinion. Whilst a discussion on the origin and evolution of this complex is outside this response it perhaps would have been helpful for DAFF to consider some more recent research. A more expanded discussion around this topic was provided in the first part of this document wherein the PRA was examined.

It must be noted that this disease is new and was only first described in Mexico in 1994 (Secor et al, 2006). It is still poorly understood. and that the Pest Risk Analysis by DAFF upon which this Advice is predicated was produced in 2009 when zebra chip was even less understood. Much new information has been discovered since then although the biology, ecology and evolution of the complex is still relatively poorly understood and the importance of the disease is reflected in the millions that have been spent on the disease since its first occurrence. (Schreiber et al 2012). It is now established that there are at least two strains of the disease and it is thought that these may have evolved independently (Gudmestad 2012, pers. comm.). There is also a suggestion of differences between the US type and that in NZ although the significance of this is unknown as the research is still underway (Smith, 2012). Whilst much could be written about what has been discovered since 2009, it is not the responsibility of Industry to provide updates on a 'Final' Pest risk Analysis (PRA) provided by DAFF. We would merely make the observation that DAFF still reference the 2009 PRA without qualification and this calls into question the vigour with which they pursue new developments in what is a rapidly evolving area of research. It is also intriguing that DAFF considers its 2009 PRA as a "Final Pest Risk Analysis" when the science related to this disease is still regarded as in its infancy in 2012 and had barely begun in 2009.

Page 9 para 2
The MAFBNZ document only covers, PCN and Black wart it makes no mention of any other pest or disease that may be of concern from a quarantine perspective including the rest of the pests listed on page 7, to say nothing of any others which may be of concern. Even more significantly TPP and Lso are not even mentioned. There is therefore absolutely no basis for the statement;
"DAFF Biosecurity considers that a combination of mitigation measures may be required to manage the risks associated with imported potatoes from New Zealand to Australia consistent with Australia's appropriate level of protection. These proposed measures have been outlined in section 6." Without further explanation of the rationale behind DAFF's claim there is no justification for the proposition put forward in the paragraph quoted above.

Page 10 - 4.1.1 and also p17 1st para.
What is DAFF's definition of a "metropolitan area"? Does this include Ballarat, Ulverstone?

"4 Existing policies for potatoes"
Page 10 Para 2?
As discussed earlier, a statement such as the one below is meaningless as it does not describe how or what was taken into account, or why.
"These previous import conditions were taken into consideration as part of this review process to determine whether additional measures are required to mitigate the risks associated with this import pathway. "

Page 10, Section 4.1.2
The last sentence of this paragraph has no basis because, as described above, DAFF has failed to provide any update on its 2009 PRA and thus a great degree of caution is needed in interpreting this opinion from DAFF. Furthermore as noted earlier the PRA is a seriously flawed document that calls into question the ability of DAFF to perform such tasks.

Page 10 last Paragraph

This paragraph is meaningless. What are the requirements of a "quarantine approved premises", what are the "specific standards", what are the "measures" that will "prevent the Australian environment being exposed to any quarantine issues"? Where is the data to support this statement? The word *"prevent"* implies zero risk yet in their own risk based assessment DAFF acknowledges the area of risk assessment is based on probabilities and describes the risk as very low (BA, 2009). Research indicates that we can be reasonably certain that tubers infected with Liberibacter will enter Australia (Pitman, et al 2011).

Page 11
The same comments apply here as directly above.

Section *"4.1.3 New Zealand requirements for exporting potatoes free from potato cyst nematode (PCN) and potato black wart."*

Para 1
It is noted that the MAFBNZ document has been assessed by DAFF and this has helped *"inform the review process"*. For the same types of reasons listed earlier (ie how?, why? and what?) this is another meaningless statement. However as this is the only document from NZ referenced by DAFF, foe which one could access, comments will be restricted to those pertinent to the MAFBNZ document.

"4.2 domestic policy"
Our comments on the appropriateness or otherwise of the PCN protocol will be referenced to the documents cited by DAFF, and other documents that apply to PCN control within Australia. It is also to be noted that the new Australian Draft Guidelines for the PCN management and control have been publicly available since January 2012 (Australian National Potato Cyst Nematode Plan, 2012) and that these propose a very structured view of PCN management which has been accepted by industry. DAFF appears not to have consulted or familiarised themselves with this plan. This will result in a misalignment of standards between what the Australian industry will impose (based on the new EU directive 2007/33/EC, the existing Australian protocol (Anon, 2002) and the rather lax standards used by NZ, which are not consistent with either Australian, the EU or North American standards (D Blaesing pers. comm. 2012).

The draft Australian PCN plan also contained an exhaustive list of references on PCN, of which, few if any appear to have been consulted by DAFF.

It needs to be noted that NZ has two races of Golden Cyst Nematode (*Globodera rostochiensis*) cf to Australia's one and that the pale cyst nematode (*Globodera pallida*) for which resistance is extremely hard to breed, is unknown in Australia.

Page 12
Once again the rather nebulous statement *"The risk mitigation measures recommended under domestic PCN legislation were assessed as part of the review of import conditions process."* No further explanation is given and one is left to take DAFF on trust that they know what they are doing. There is little evidence to suggest that this is the case. Furthermore for reasons already elaborated this type of statement is meaningless.

Page 13

"5 Verification visits
5.1 Potato processing facility"
DAFF notes that they visited a facility in Australia and conducted an assessment as to how the facility would comply with the ICA-44. We note this was not an audit and furthermore the specific areas of the ICA against which the facility was assessed are not mentioned. Clearly some aspects of the ICA were not applicable or if so they are directly contradictory with other aspects of the Advice. Whether or not this has been left deliberately vague is not up for industry to decide but there is a decided lack of rigour in this whole section.

"5.2 New Zealand potato production practices and packing house procedures'
If it is only intended that the potatoes would come from the Manawtu (sic)-Rangitikei region, why was it felt necessary to visit production and packing facilities in Pukekohe?
Similar comments apply as noted above for those pertaining to Australian visits.

Page 14
"6 Proposed risk management measures for fresh potatoes for processing from New Zealand"
This section is almost worthless and reveals a concerning lack of rigour and attention to detail. It also lacks scientific basis. The grounds for our assessment are detailed below.

It was noted earlier that the MAFBNZ document upon which the NZ import request is based only covers two pests/diseases (PCN and Black Wart). None of the other pests and diseases of concern to Australia, including TPP or Lso are mentioned. Furthermore in compiling the Advice DAFF makes no mention of any other pests or diseases apart from TPP and Lso. This beggar's belief. Is one to assume that they are of no interest, were they forgotten or are they not a problem? This appears to be another example of the lack of rigour and detail in the DAFF document. Therefore in this context much of what is written in Section 6 of the Advice has little value or meaning.

The MZFBNZ document has two protocols for PCN control but there is no mention by DAFF as to which one they intend to use. This makes assessment somewhat problematic!
We are unaware of any official protocol or management for control of PCN within NZ and thus all land in NZ would, under the Australian guidelines (2012), be linked and regarded as at risk. A gap of 10 years is not sufficient to guarantee freedom from PCN (Winslow et al 1972, Turner 1996) and this is unacceptable. After 10 years it is very difficult to find PCN through conventional soil testing (Spears 1968) and therefore this timeframe is unacceptable. Furthermore there is considerable doubt as to whether, on the information available, the NZ PCN program conforms to accepted international standards (Blaesing, pers comm.).

The MAF document permits pre-harvest fork testing (page 14, para 3, dot point 2). How would this be useful for PCN detection on resistant varieties? It is also questionable as to whether or not this is reliable for low populations of PCN (Crump, pers comm).

The MAFBNZ document permits the grower to make the decision about the requirement or otherwise for PCN testing. This is an intriguing approach to PCN (or any other form of risk management with international quarantine implications!). Depending upon which of the protocols one uses, there appears to be no requirement in the MAFBNZ document relating to seed quality, farm hygiene, other diseases, and type of testing.

We see no reason why Australia should accept NZ's lax attitude to PCN control. It would be fair to comment that the MAFBNZ document is of a standard that is no better than that provided by DAFF in its Advice.

DAFF has not clarified in the Advice which of the two protocols in MAFBNZ it intends to use. As mentioned earlier in this response one is unable to provide a complete analysis of the MAFBNZ document as some of the key references are not available. Perhaps DAFF could have checked to see why before releasing the Advice?

Page 14 para 6.2 *"Packing House Processes"*
What does practically free from soil mean? What is the potential for PCN to be transferred in the remaining soil in eyes? Where are the studies to indicate that TPP eggs will not be carried as part of the residue on tubers? At the very least some form of documentation or reference should have been provided to support the assertion that risk of soil borne diseases and pests being imported into will be reduced. It is perhaps also appropriate to ask by how much will be the reduction?

Page 15
"6.3 Packing and Labelling"
Dot point 2
What is the basis for the one metre separation? Presumably DAFF have some scientific evidence, which has not been cited, to show that one metre is a critical distance to prevent the spread of any pest or disease which may be of quarantine concern to Australia? Is this distance appropriate for flying insects? What is to stop TPP entering containers or packing units during the loading process? Dust in potato stores and sheds is well documented as a means of spreading spores and propagules (Crump pers comm.). It is noted that this risk is not addressed in the Advice.

Dot Point 3 is clearly not possible

Noted is the use of the word *"ensure"* in the 2nd last paragraph. Once again where is the evidence published to show that this level of confidence is justified?
How is the use of words such as "prevented" as used here and elsewhere in the document substantiated?

Page 16 par 2
We have already provided evidence in our discussion on the MAFBNZ document to show that the claims made in this paragraph cannot be substantiated.
"6.5 Transport to DAFF Biosecurity…… and processing"

Para 2
Door ajar containers.
It is difficult to imagine how this proposal could have been given serious consideration let alone be submitted to industry for comment. What evidence has DAFF that shows the security of door ajar containers being left open on wharves in Australia poses a low risk of incursion? Even the most cursory of consideration would suggest that a door ajar container would provide ample opportunity for a flying insect to escape!

Page 16 last para.

As discussed earlier the scientific data shows that imported consignments will probably contain potatoes infected with Liberibacter. Will this result in the consignment being rejected? It would seem hard to sustain an argument that tubers infected with Liberibacter are not diseased! How will this statement be reconciled with the last paragraph on page 16 and quoted below;
"If live quarantine pests, disease symptoms or contaminants including unidentified plant material, seeds or trash are found, the consignment must be treated (using a DAFF Biosecurity-approved method that suitably addresses the quarantine risk) or re-exported or destroyed."

It is to be hoped that the detection of a tuber infected with Liberibacter will result in consignments being destroyed and subject to deep burial. Who will verify this at the factory given the difficulty of discriminating the disease from other disorders which can cause sugars to accumulate in tubers and also cause darkening during the cooking process?

Page 17
"6.6 Processing in a ……. (QAP)
Concerns have already been raised as to what is meant by this and they are raised again here. There is no HACCP procedure and after reference to sections 46A and 66B of the quarantine Act (1908) one gains very little further clarification. In essence Australia is being asked to trust that DAFF has everything under control. There is little in the documents provided by DAFF to give cause for confidence in this approach.

The issue around proper quality procedures and documents has been raised in prior meetings with senior DAFF staff but there appears to be no recognition of quality control or HACCP in the Advice. This is surprising as HACCP is a key component of most quality schemes where risk needs to be managed. It is also standard practice within industry. Without a comprehensive QA scheme incorporating HACCP it is hard to envisage how DAFF can conduct audits and how risk can be assessed and managed.

Much of what is written in this section (6.6) has little validity as there is no clarification or supporting evidence or any other specifics as to what is meant by statements such as *"secure conditions", "DAFF Biosecurity requirements", "appropriate segregation procedures", "approved quarantine waste management"* etc. and other such vague phrases.

In consulting the DAFF Biosecurity guidelines on waste (DAFF 2012b) it is noted that currently there is no potato processing facility listed on the website under any of the classes of quarantine approved premises. What is the HACCP procedure that is followed when auditing for compliance and against what are they audited?

How does disposal of waste to sewage mitigate against the spread of bacterial wilt? Infected water is a well documented method of spread for Ralstonia solanacearum (Mulder and Turkensteen, 2005).

The statement in the 2nd last paragraph that DAFF will audit weights is also intriguing. How will moisture loss from tubers be considered?

The last paragraph once again mentions auditing procedures. Once again meaningless and previous comments on the ability to audit without a QA procedure apply.

Page 19
The issue associated with consultation was highlighted at the beginning of this document and at best the comments in the Advice relating to consultation are disingenuous.

3.3 Conclusion

In its present form this Advice is both lacking in rigour, detail, science and logic. It is completely unacceptable as even a reference point and the defects lead us to question the veracity of the process, the competence of those and the organisation involved in its preparation.

The Advice fails to even consider a large number of pests and diseases that would be of concern from a quarantine perspective.

The standard of work is so poor that one is left to wonder how DAFF can believe it should be taken seriously when it suggests it has assessed risks, premises and compliance and is able to set guidelines?

4 The Process

Mention has been made in various parts of this document as to what is considered a seriously flawed process that lacks transparency and rigour. One can only echo the comments made by Growcom (2012) that DAFF has an illogical approach to IRAs, their rigour is low and seriously flawed. No peer review of their documents appears to occur (It is believed that the Expert Panel has not met in more than two years, DAFF pers. comm.), industry and scientific comment is not addressed directly and furthermore it is unclear as to how it is either dealt with or dismissed when it is submitted.

As noted by Growcom;
"According to the Quarantine Regulations 2000, the burden of evidence does not necessarily rest with industry. Regulation 69G(1) clarifies that where further information is required to complete an IRA and where the proponent or another party may be able to provide that information, the Chief Executive may request that the proponent or other party provide that information."
Why is this ignored by Daff?

It is also hard to disagree with Growcom's comments relating to trade and quarantine risk, as quoted below;

"In discussions with DAFF Biosecurity, senior staff have indicated that potential future legal challenges under trade agreements influence their decisions while conducting IRAs. This is highly inappropriate and contrary to the ideal that an Import Risk Analysis should be an independent, purely scientific process. Regulation 69B in the Quarantine Regulations 2000 defines a risk analysis in the context of an IRA as the assessment of the level of quarantine risk associated with importation (or proposed importation) and, where necessary, the assessment of risk management options. There is no reference and no scope to consider trade implications of any potential decisions made in the IRA process. The Quarantine Act 1906(sic) considers quarantine to include measures that prevent or control the introduction, establishment or spread of diseases or pests (Part I 4 (1) b). Again, trade implications of quarantine decisions are not considered in the Act. In considering trade implications of an IRA decision, DAFF Biosecurity is clearly stepping outside the regulations governing the IRA Process" (Growcom, 2012)

5 RECOMMENDATIONS

Both the PRA and Advice on import of fresh potatoes for processing are seriously flawed and should be rejected.

DAFF needs to be more accountable in producing documents to an acceptable scientific standard.

The available data on TPP and Liberibacter is currently not adequate enough to conduct a thorough risk assessment and a *"stop the clock"* option should be exercised until the biology and evolution of these potentially devastating insects and bacteria are more thoroughly understood.

Import Advices should consider all pest and diseases not just a few that DAFF considers worthy of merit and fails to justify why.

Standard risk management procedures such as HACCP should form part of every advice so that a transparent and auditable procedure can be constructed. HACCP is a standard risk assessment tool and there appears to be no reason why it should not apply in Biosecurity. Furthermore in addition to noting potential risks HACCP provides an opportunity for highlighting weaknesses in current data and thus indicating areas for further research.

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