Import risk analysis: Honey Bee Products

Review of Submissions

Biosecurity New Zealand
Ministry of Agriculture and Forestry
Wellington
New Zealand

10 November 2005

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Approved for general release

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EXECUTIVE SUMMARY

The initial risk analysis on honey bee hive products and used beekeeping equipment, written by a consultant on behalf of MAF Biosecurity Authority, was released for public consultation in July 2002. Public consultation raised a number of issues of concern, and MAF decided that it was necessary to re-write the risk analysis, in line with current procedures and processes.

The revised risk analysis on honey bee products was released for public consultation in December 2004. The honey bee genetic material risk analysis of 2003 was used as the template for the re-write, and for consistency the same hazard list was adopted. The original commodity definition was modified by excluding used beekeeping equipment, on the grounds that there was too much uncertainty regarding the risks of disease transmission by that pathway.

The amended commodity definition included the following products:

- Honey
- Chemically extracted propolis
- Pollen
- Royal jelly
- Beeswax that has been held in a molten form for at least 2 hours
- Bee venom

In this risk analysis, these commodities were considered only in pure form. That is, because of the vast range of manufactured products that contain small amounts of various mixtures of honey bee products, and the diversity of specific manufacturing processes used for such products, it was considered that a general risk analysis of this kind could not address such products, and decisions on these will made by MAF on a case by case basis, applying the principle of equivalence.

Since honey bee pathogens are highly adapted to *Apis* species, the likelihood of any of the organisms on the hazard list causing unwanted harm to New Zealand native insects is considered to be negligible.

The risk analysis concluded that the risk was non-negligible, and that safeguards were justified, for the following organisms:

- *Paenibacillus larvae* subsp. *larvae*, the cause of American foulbrood
- *Melissococcus pluton*, the cause of European foulbrood
- *Braula coeca*, the bee louse
- *Aethina tumida*, the small hive beetle
- Parasitic mites of the family *Varroidae*

MAF received 19 submissions on this risk analysis. Submissions raised concerns regarding the risks posed honey bee viruses, particularly deformed wing virus, and the saprophytic bacterium *Paenibacillus alvei*.

The majority of stakeholder concerns were related to uncertainty in regard to the fragility of viruses (particularly deformed wing virus) and the conclusion that *P. alvei* was not a hazard. Some stakeholders advocated a more cautious approach in the light of limited knowledge of bee viruses.

Many submissions raised issues that were beyond the scope of the risk analysis, such as the economic effects of importation on the local beekeeping industry.

This review of submissions concludes that the recommendations of the risk analysis are valid, and that an import health standard can be developed for honey bee products.

INTRODUCTION

The MAF risk analysis on honey bee products was released for public consultation on 15 December 2004, and submissions closed at the end of February 2005. Extensions to the final closing date for submissions were made for several groups and organisations.

MAF received submissions from the following (in date order):

	Date	Name	Organisation represented / location
1	undated	Brian Lancaster	Apiarist, Canterbury
2	undated	Lindsay Feary	Scenicland Apiaries, Westland
3	20/12/04	Robert Churchman	Nelson
4	February 2005	Dr R M Goodwin	Hamilton
5	15/2/05	Kim Rahiri	Papamoa
6	24/2/05	not stated	Honeyland NZ Ltd, Palmerston North
8	24/2/05	M A Pollard	Hamilton
9	24/2/05	Geoff Ryan	Biosecurity Australia
10	25/2/05	Tom Devlin	New Zealand Honey Producers Cooperative Ltd
11	25/2/05	Jacqui Todd	Auckland
12	28/2/05	Roger Bray	National Beekeepers Association
13	28/2/05	Roger Bray	Ashburton
14	28/2/05	Jane & Tony Lorimer	Hillcrest Apiaries, Hamilton
15	28/2/05	Aaron Owen	South Australia
16	28/2/05	Frank Lindsay	Wellington
17	8/3/05	Ross & Bruce McCuster	Heathstock Apiaries, North Canterbury
18	Faxed 10/3/05	Bruce & Jenny McCuster	Heathstock Apiaries, North Canterbury
19	5/4/05	Tim Leslie	Federated Farmers

This document reviews each submission in turn, focusing on technical issues of contention rather than agreement.

The submissions are included in Appendix 1.

Several submissions expressed concerns that indicated it would be desirable to clarify MAF's consultation policy for risk analyses, New Zealand's international trade obligations and MAF's processes for the development of Import Health Standards.

Risk Analyses are carried out by MAF in the context of Section 22 of the Biosecurity Act 1993, which lays out what MAF is required to do in regard to issuing Import Health Standards (IHSs) to effectively manage the risks associated with the importation of risk goods. The major requirements are specified in section 22 (5) of the Act.

Risk Analyses are conducted in accordance with MAF's policy statement on "Conducting Import Risk Analyses and Applying them in the Development of Import Health Standards", which can be found on the MAF website:
http://www.biosecurity.govt.nz/pests-diseases/risk-policy.htm

The policy states that Risk analysis provides the best means of ensuring that Chief Technical Officers (CTOs), or those acting under their delegated authority, fulfil their legal obligations under section 22 of the Biosecurity Act when developing import health standards (IHSs). The policy also states that Risk analysis is a management tool that incorporates scientific methods to enable regulators to gather and assess information and data in a thorough, consistent, logical and transparent way, to ensure that:
a) organisms that may cause unwanted harm are identified;
b) the likelihood of these organisms being introduced into New Zealand and the nature and possible effect on people, the environment and the economy is assessed;
c) appropriate biosecurity measures to effectively manage the risks posed by these organisms are developed, and;
the results, conclusions and recommendations arising from the analysis are effectively communicated amongst interested parties.

Section 22 (5) of the Biosecurity Act 1993 also requires CTOs to have regard to New Zealand's international obligations when carrying out risk analyses to support the issuing of IHSs. Of particular significance in this regard is the Agreement on Sanitary & Phytosanitary Measures (the "SPS Agreement") of the World Trade Organisation.
MAF's Policy Statement on the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures is also available on the MAF website:
http://www.biosecurity.govt.nz/sps/resources/policies/raspspol.htm

A key obligation under the SPS agreement is that Sanitary and phtyosanitary measures must be based on scientific principles and maintained only while there is sufficient scientific evidence for their application. In practice, this means that unless MAF is using internationally agreed standards, all sanitary measures must be justified by a scientific analysis of the risks posed by the imported commodity.

Therefore, risk analyses are by nature scientific documents, and they conform to an internationally recognised process that has been developed to ensure scientific objectivity and consistency. This methodology is outlined in section 2.3 of the risk analysis. As stated, a comprehensive description is available in *Import Risk analysis Animals and animal products* (Murray 2002)[1].

Every step has been taken to ensure transparency of the document. The risk analysis provides a reasoned and logical discussion, supported by references to scientific literature. The document has been peer reviewed internally and then externally by the experts listed on page v of the risk analysis, who were chosen on the basis of their status as acknowledged experts in their field. The process dictates that the critiques provided must be reviewed and, where appropriate, incorporated into the analysis. This process has parallels with the review of scientific literature for publication.

[1] Murray N (2002) *Import Risk analysis Animals and animal products*. MAF, Wellington, New Zealand.

The consultation on the risk analysis is for technical issues. For this reason, the review of submissions will answer issues of science surrounding likelihood[2], not possibility[3], of events occurring. Speculative comments and economic factors other than the effects directly related to a potential hazard are beyond the scope of the document.

[2] Likelihood**:** The quality or fact of being likely or probable; probability; an instance of this.
[3] Possible: Logically conceivable; that which, whether or not it actually exists, is not excluded from existence by being logically contradictory or against reason.

REVIEW OF SUBMISSIONS

1 BRIAN LANCASTER

1.1 The submission contests the view (in section 20.2.3 of the risk analysis) that the importation of tetracycline-resistant strains of *Paenibacillus larvae* subsp. *larvae* would not have consequences significantly different to non-resistant strains. The submission states that the use of oxytetracycline would be inevitable if European foulbrood (EFB) were introduced into New Zealand, and that the presence of resistant strains of American foulbrood (AFB) would mean that the effects of AFB would immediately be worse than otherwise.

MAF Response: The submission assumes the introduction and establishment of EFB. Sanitary measures have been recommended that reduce the risk of introduction of EFB to an acceptable level. With regard to resistant strains of *P.l. larvae* section 20.2.3 of the risk analysis states that "..without the continuous selection pressure for resistance in the form of antibiotic use, the persistence of these strains could reasonably expect to be limited." If New Zealand's EFB status were to change the sanitary measures for these resistant strains would be reviewed.

1.2 The submission expresses concern that oxytetracycline (OTC) fed for control of EFB suppresses the clinical signs of AFB and so may result in difficulties in recognition of AFB and therefore a potential increased level of AFB spores in bee products

MAF response: Section 20.2.1.1 of the risk analysis states that although *P. l. larvae* spores are frequently found in honey, the higher the concentration of spores in honey the greater the likelihood that disease would be detected in the hives of origin. The number of spores in honey or other products is primarily a result of spore growth in infected larvae. In a hive with no clinical signs there will be few infected (dead) larvae and therefore low spore numbers. If there are no clinical signs of infection, regardless of OTC usage, the risk is considered acceptable.

1.3 Concern about OTC residues is expressed.

MAF response: As stated in section 2.2 of the risk analysis the document is an analysis of the biosecurity risk posed by the importation of the stated honey bee products in pure form. Antibiotic residues are not a biosecurity risk, and so are beyond the scope of this risk analysis. NZFSA is aware of this potential issue and will act appropriately.

1.4 The submission expresses concern, with regard to *M. pluton*, that the potential risk of some wholesale packs of honey has not been adequately addressed. It is stated that in the worst case scenario a 200 litre drum may be imported, dropped and spilt. Concern is expressed that even a 20 litre pail may provide an unacceptably high number of CFUs.

MAF response: The 6D reduction recommended reduces the number of organisms by 99.9999%. This pathway is hypothetical, furthermore the risk analysis concluded that the risk is acceptable regardless of the pack size.

1.5 In conclusion, there is concern expressed that the recommended measures are insufficient to protect the industry.

MAF response: As stated in section 2.3 of the Risk Analysis, the recommended measures represent the appropriate option or combination of options that achieve a negligible[4] likelihood of entry, spread of establishment, whilst minimising trade effects. Alternatively, if the risk estimation for an organism is negligible then the organism is not classified as a hazard, and risk management measures are not required.

2 LINDSAY FEARY

2.1 The submitter opposes the importation of honey in the belief that "negligent" importation would increase the risk of unwitting importation of product thought to be safe, or fraudulent importation, and consequent disease incursions.

MAF response: The submission does not explain what is meant by "negligent". It is assumed to be a matter of certification which will be addressed in the import health standard.

2.2 Concern is expressed that government funded surveillance and pest management strategies are inadequate and leave the industry economically vulnerable in the case of incursion.

MAF response: This issue is beyond the scope of the risk analysis.

3 ROBERT CHURCHMAN

3.1 The submission presented an opinion regarding the risk of "foulbrood" (assumed both American and European). The submission contended that the risk in untreated honey is non-negligible, and that "it only takes one empty jar at the tip to spread this NZ wide". Concerns were expressed regarding the economic cost of incursions.

MAF response: Sections 20.3 (AFB) and 21.3(EFB) discuss risk management options and recommend sanitary measures that that achieve a negligible likelihood of entry, spread and establishment, whilst minimising trade effects. Appropriately treated honey is considered to be of negligible risk. The consequences of introduction are considered in the consequence assessment section of each chapter.

[4] From the Oxford English Dictionary: Negligible: Of a thing, quantitiy, etc.: able to be neglected or disregarded; unworthy of notice or regard; *spec.* so small or insignificant as not to be worth considering."

4 DR. RM GOODWIN

4.1 Dr Goodwin compliments MAF and the authors on the quality of the document, but expresses concern that there are still a number of methodological and technical issues that require attention.

4.2 Concern is expressed that import health standards may not be complied with and that a full assessment of risk would be broader and include evaluation of risks relating to compliance, detection of incursion and eradication.

MAF response: The likelihood of detection is considered as part of the consequence assessment, and also in the epidemiology of the disease. Certification issues are considered in development and implementation of import health standards. Issues of surveillance and response are beyond the scope of the risk analysis.

4.3 The submission notes that there is no definition given for the words *"negligible"* and *"non-negligible"*

MAF response: The normal or dictionary definitions of these words have been used: "Negligible: Of a thing, quantity, etc.: able to be neglected or disregarded; unworthy of notice or regard; *spec.* so small or insignificant as not to be worth considering." (Oxford English Dictionary).

4.4 The submission states an opinion that there is insufficient evidence that certain viruses are present in New Zealand, and states that viruses should not be considered to be present in New Zealand until reports of the original work are sighted and refereed or the presence verified in an independent laboratory.

MAF response: There is no reason to coinsider the cited reports to be inaccurate, nor is MAF aware that there has been any dispute since the reports were published in an industry journal in 1988.

4.5 Dr Goodwin asserts that because the risk analysis is dealing with bees, MAF assumes the consequence of making an inappropriate decision is unimportant.

MAF response: This assertion is incorrect. MAF recognises the enormous value of the beekeeping industry to New Zealand.

4.6 Dr Goodwin states that the sanitary measures recommended should offer the same surety of safety regardless of the consequences of introducing a pest or disease. Comparisons are made to FMD.

MAF response: There are significant areas of uncertainty in the available literature on honey bee diseases, and the comparison with Foot and Mouth disease is inappropriate. Foremost, the reason that there is so much caution exercised internationally concerning the risk of FMD in various commodities is that FMD is recognised as having catastrophic effects on international trade in animals and animal products for a number of species. As a result of that recognition, a considerable body of research has accumulated over many years characterising the

risk involved with trade in different commodities and the status of different countries with respect to this virus.

Under the SPS agreement it is not acceptable to simply conclude that, because there is significant uncertainty, measures will be selected on the basis of a precautionary approach. Measures selected must be consistent with other measures where equivalent uncertainties exist. The wealth of information on FMD means that there is not an equivalent uncertainty.

4.7 Dr Goodwin outlines the importance of honey bees for pollination of horticulture and pastoral systems. The consequences of the introduction of *Varroa destructor* are used as an example of the fragility of the "pollination service". Concern is expressed that potential lower honey prices and the potential of development of resistance by varroa to the current control products may make pest management economically unfeasible.

MAF response: The effect on pollination services was considered as part of the consequence assessment for all of the potential hazards. However, under the WTO SPS framework the effect of competition on honey prices, and any economic flow-on effects from that, cannot be considered in a risk analysis.

As can be seen in Table 2, p156 of the risk analysis, of 38 organisms and 4 types of genetic material identified as potential hazards, only 3 (powdery scale disease, chalkbrood and gregarine disease) were considered to have a negligible consequences following a non negligible release/exposure assessment. Other diseases were considered to have non- negligible or severe consequence assessments. Those identified as hazards have risk management measures proposed, while others were identified as non-hazards as the release or exposure assessments were negligible.

4.8 Dr Goodwin is of the opinion that ERMA should be made aware that new organisms will be introduced with honey bee products.

MAF response: As stated in section 2.3 of the Risk Analysis the recommended measures represent the appropriate option or combination of options that achieve a negligible likelihood of entry, spread or establishment.

4.9 Dr Goodwin suggests that the conclusion stated in section 13.2.1 p37, paragraph 2 of the RA is incorrect as, in the article cited (Calderon et al., 2003[5]) live but crawling bees, as well as dead bees were negative for virus.

MAF response: In the cited article live bees inside the colony tested positive for DWV whereas bees outside that were crawling or dead were negative. The same diagnostic test was used for all bees. The inference from this statement was that moribund bees could not support the virus as virus survival for a significant time requires the full metabolic function of the bee.

[5] Calderon RA, Van Veen J, Arce HG, Esquitel ME (2003). Presence of deformed wing virus and Kashmir bee virus in Africanized honey bee colonies in Costa Rica infested with *Varroa destructor*. *Bee World* 84(3), 112-116.

4.10 Dr Goodwin sates *"The potentially large economic cost of an introduction of DWV suggests that only a very low risk of introducing DWV should be acceptable. As survival of deformed wing virus in bee products has not been tested nor has the survival of any other virus, along with the wide range of physical characteristics of bee products it is not possible to conclude from the risk analysis that the probability of introducing DWV is low.*

Bee products should not be introduced to New Zealand until the risks of introducing deformed wing virus can be properly assessed."

MAF response: After careful consideration of all the relevant scientific information, the risk analysis concluded that the likelihood of introducing deformed wing virus through the importation of bee products is negligible. The reasoning behind the conclusion is clearly laid out in section 13.2.1 and 13.2.2 of the risk analysis. This conclusion has been based on the available scientific evidence and consultation with experts. In the absence of specific evidence it is reasonable to extrapolate from related viruses. As stated in section 13.2.1 of the risk analysis the conclusion is similar to that accepted for bee semen[6], and is supported by current observations.

4.11 The submission expresses concern that in section 21.2.16 (European foulbrood) all methods of venom collection may not have been considered, and proposes possible mechanisms of contamination of venom.

MAF response: The risk analysis must consider likelihoods, not possibilities. For the reasons outlined in section 21.2.1.6 of the risk analysis, the risk analysis concludes that there is negligible likelihood of the organism being present in the commodity.

4.12 The submission contests the conclusion in section 21.2.4 that the likelihood of exposure for EFB is negligible for propolis, because propolis will at times be attractive to bees, and because there is potential to add propolis to other products such as honey.

MAF response: This argument has been considered. As stated in section 2.2.2 of the risk analysis the propolis considered is chemically extracted. The process of alcohol extraction and recovery in a retort is believed to prevent survival of the organism.

The risk analysis acknowledges that when honey is added to anything it becomes attractive to bees. The import health standard will address different forms of propolis.

4.13 In section 21.3.2.3, p.77 para.2 "*An alternative to the above measures, for royal jelly and pollen only, is to import the pollen in a form that is not considered to be attractive to bees, such as consumer-ready capsules or tablets packaged for direct retail sale*."
Dr Goodwin advises that the words "and royal jelly" have been omitted after "*is to import pollen"*

MAF response: This omission has been noted.

[6] Import Risk Analysis; honey bee (Apis mellifera) genetic material. MAF Biosecurity Authority, June 2003.

4.14 The submission states that capsules or tablets could be damaged, discarded or even fed to bees. It is suggested that the products should be unattractive to bees and that a package size should be stated to prevent mining of contents.

MAF response: The recommended sanitary measures, as stated above, state that products should be unattractive to bees by being packaged for direct retail sale. It is considered that this provides an adequate safeguard. However, the matter of packaging will be further addressed in the development of the Import Health Standard(s).

4.15 Concern is expressed that the differences in thermal death times between honey types noted by Wootton et al. (1981)[7] have not been addressed in the work of Ball et al. (2001)[8].

MAF response: In the work of Wootton et al. there was no simple relationship between thermal death time and pH or moisture content. This was considered by Ball et al. in the preliminary investigations for the experiment. Nine honeys were characterised and the blend chosen represented the middle range of values for moisture, pH, free acid, lactone and total acid. Furthermore, for the data given in table 2 of Wootton et al. (1981) the values for all honeys were within the 95%CI of the mean value for all honeys. The safeguards provide a wide safety margin.

4.16 The submission argues that it is not possible to evaluate the risk posed by *M. pluton* in honey as the range of concentrations in honey and the dose required to infect a colony are not known. In particular Dr Goodwin disputes the accuracy of the value of 3.5 log 10 cfu/ml used as the normal concentration of *M. pluton* in honey.

MAF response: 3.5 log 10 cfu/ml is the highest concentration cited by Wotton et al from an examination of honeys from naturally infected colonies. The experiments used by Ball et al (2001) and consequently Cox and Domijan (2004)[9] started with 40 to 3000 times this "normal" concentration (p74 para. 3 of the RA) as a strongly conservative approach. The argument for heat treatments is clearly presented in section 21.3.2.2 of the risk analysis. Knowledge of the exact initial concentration of *M. pluton* in honey and exact infectious dose are not necessary to conclude that a 6D (99.9999%) reduction in numbers provides a very high level of protection for honey.

4.17 Dr Goodwin states that due to the above concerns, the lack of knowledge of the effects of uneven distribution of *M. pluton* in honey and lack of understanding of *M. pluton* numbers in all commodities, the proposed measures are insufficient. In particular concerns regarding potential contamination of pollen are expressed.

MAF response: MAF considers that the available scientific literature and the modelling of heat inactivation strongly supports the conclusion of the risk analysis.

[7] Wooton, M, Hornitzky, M, and Ryland, L (1981) Thermal destruction of Streptococcus pluton in Australian honeys and its effect on honey quality. *Journal of Apicultural Research*, 20, 115-120.
[8] Ball B.V., Wilson JK and Clark S (2001) Unpublished study commissioned by the Ministry of Agriculture and Fisheries Biosecurity Authority.
[9] Domijan K, Cox N (2004). Modelling thermal destruction of virusesand bacterial cells. Unpublished report to MAF Biosecurity on the analysis of data of Ball et al (2001).

4.18 The submission states that there is bias in the conclusion that *P. alvei* is not a "hazard".

MAF response: Section 22.1.4 of the risk analysis explains that the reasoning behind the conclusion is that *P. alvei* is an opportunist secondary invader of *Apis mellifera* larvae under field conditions, not a primary pathogen of honey bees.

4.19 The submission compares the conclusion made for *P. alvei* and that for including apis iridescent virus as a potential hazard.

MAF response: Apis iridescent virus is recognised as a primary pathogen of honey bees. It is therefore included as a potential hazard.

4.20 The submission presents arguments regarding the conclusion that "Under field conditions *P. alvei* is a saprophyte and not a primary pathogen of *Apis mellifera"*. The submission states that of the references used to support the conclusion, only Bailey et al (1973)[10] can provide experimental evidence to back up their assertion that *P. alvei* is not a primary pathogen.

MAF response: MAF disagrees with this interpretation. In the experiments described by *Bailey (1963)* 10^5 *P. alvei* spores were inoculated into at least 50, 0-24 hour old larvae in their comb to no apparent effect. In addition the same paper proposes that the spores of the *P. alvei* germinate and proliferate after the larvae have died and voided virtually all *S. pluton* cells, thereby explaining the presence of dead pupae containing *P. alvei* spores but no *S. pluton.*

4.21 The submission questions the conclusion of Bailey et al (1973), asserting that they may have fed vegetative cells of *P. alvei* that may be non-infectious.

MAF response: In the method section of the paper, Bailey et al (1973) it is stated that sporulated cultures of *Bacillus alvei (P. alvei)*were used.

4.22 The submission questions the conclusion of Bailey et al (1973), asserting that 10^5 cells may have been less than an infectious dose. The rapid decline in susceptibility of honey bee larvae to *P. larvae. larvae* (10 spores causing infection at 0-24 hours, millions at 2d old) is used to illustrate the argument.

MAF response: There is no report in the literature in the ensuing 30 years to support this argument. In addition Bailey, (1963)[11] reported no effect on 0-24 hr old larvae with 10^5 spores of *P. alvei.*

4.23 The submission proposes alternative reasons for the heterogeneity of *P. alvei* compared to the relative homogeneity of *M. pluton* and *P. larvae* as discussed in *Djordjevic et al (2000).* The first possible alternative explanation proposed in the

[10] Bailey L, Fernando EFW, Stanley BH (1973). *Streptococcus faecalis, Bacillis alvei* and sacbrood virus in European foulbrood of the honey bee. *Journal of Invertebrate Pathology,* 22, 450-453.
[11] Bailey L (1963). The pathogenicity for honey-bee larvae of microorganisms associated with European foulbrood. *Journal of Insect Pathology*5, 198-205.

submission is that homogeneity of *M. pluton* and *P. larvae* in Australia could be due to the homogeneity of the material introduced to Australia.

MAF response: If *P. alvei* were in fact a primary pathogen of honey bees it too would be expected to show homogeneity if the homogeneity of *M. pluton* and *P. larvae* in Australia was due to the homogeneity of the material introduced to Australia.

4.24 *Djordjevic et al (2000)* compared the whole cell DNA profiles of of 30 *P. alvei* isolates from different geographic regions in the Eastern half of Australia. Results of restriction endonuclease analysis and immunoblot analysis were compared to results of studies of *M. pluton* and *P. larvae* subsp. *larvae* also from geographically diverse areas of Australia. Genetic diversity is essential for bacterial adaptation to fluctuating environments. The high degree of genetic heterogeneity and the biochemical variability of *P. alvei* was compared with the homogeneity of *M. pluton* and *P. larvae* subsp. *larvae* isolates, as well as other paenibacillus species that have known close relationships with roots of grain crops. The homogeneity of these organisms is accepted as evidence that they have evolved to form close host-parasite relationships. The paper therefore presents the heterogeneity to support the hypothesis that *P. alvei* is not a primary pathogen of honey bees.

The second possibility presented is that the findings merely reflect that *P. alvei* infects other material, rather than it not being a pathogen of honey bees.

MAF response: This is a possibility; however there is no evidence to support this hypothesis. The genetic profile of the species suggests an adaptation to the local environment rather than a specific host relationship.

4.25 The submission provides further references that may contain evidence that *P. alvei* is pathogenic to 2-4 day old honey bee larvae and may have increased the death rate of honey bees with Nosema infections.

MAF response: As conceded in the submission the references are not available in English, and it is therefore not possible to critically analyse the studies. However, the abstracts do not suggest that they provide any further evidence. Even if these studies provide a limited body of evidence that *P. alvei* is capable of killing honey bee larvae on its own in the laboratory, there is no evidence that this occurs naturally.

4.26 The submission provides some references to experiments on *P. alvei* as a potential bioinsecticide. The submission suggests that this shows *P. alvei* may also be a pathogen of honey bees.

MAF response: Although there was some pathogenicity demonstrated in artificial conditions there is nothing in the mainstream scientific literature to suggest that *P. alvei* is anything other than a saphrophyte that invades larvae killed by EFB. It is known to produce a heat labile soluble toxin which would have insecticidal activity. *P. alvei* is an aerobe and therefore cannot grow in the gut of normal larvae.

4.27 The submission also provides a reference reporting that the spores of *P. alvei* can adhere to the cuticle of honey bee larvae and multiply there, indicating pathogenicity.

MAF response: The fact that *P. alvei* can colonise the surface of larvae does not indicate that it is pathogenic. Moreover, the fact that the same article incorrectly states that *P.alvei* is "one of the major causative agent[s]" of EFB casts doubt on its conclusions more generally.

4.28 The submission argues that the report of *P. alvei* in New Zealand in 1980 was unconfirmed.

MAF response: The diagnosis of *P. alvei* was made at the Rothamstead Experimental station in the UK in 1979-1980.

4.29 The submission disputes the conclusion of the risk analysis that "there is insufficient evidence to suggest that this organism would interfere with the diagnosis of foulbrood in the absence of *M. pluton.*" The submission asserts that *P. alvei* can infect larvae killed by pathogens other than *M. pluton*. The submission also states that *P. alvei* is likely to produce clinical symptoms that could be confused with AFB.

MAF response: P. alvei has not consistently been associated with pathogens other than *M. pluton.* Although *P. alvei* has been reported from larvae that were purportedly killed by sacbrood, Nosema and AFB, *P. alvei* has not been recognised as a significant issue in countries or zones where *M pluton* is absent. Therefore, it does appear that a strong link between this organism and EFB exists, although its precise nature remains unknown. In addition, there is little evidence supporting the assertion that *P. alvei* would significantly complicate the diagnosis of AFB under the Pest Management Strategy in New Zealand. MAF remains convinced that this conclusion is correct, and the risk analysis did not consider that the level of uncertainty surrounding the likelihood that this organism would significantly interfere with the AFB PMS was sufficiently high to warrant imposing risk management measures on imports of honey bee products for this organism.

4.30 The submission advises that sanitary measures for bee louse and small hive beetle should be based on experimental data on the organisms in question, not on data from closely allied species.

MAF response: It is reasonable to extrapolate the recommended measures for these organisms. As an additional safeguard the recommended measures have allowed a conservative margin of error as they have been extrapolated.

5 KIM RAHIRI

5.1 This submission contained issues primarily regarding an unsuccessful attempt to import a bottle of salad dressing.

MAF response: This issue is beyond the scope of the risk analysis.

6 SUE WALKER, HONEYLAND NZ LTD, PALMERSTON NORTH

6.1 The submission states generally that the risk analysis does not contain sufficient safeguards to prevent the accidental importation of unwanted organisms and diseases into New Zealand. It concludes that further research needs to be undertaken, and that extreme caution is necessary.

MAF response: During the development of the risk analysis MAF commissioned several pieces of research to explore areas of uncertainty. The risk analysis concluded that there was sufficient evidence to ensure that the recommended safeguards are appropriate for managing the identified risks.

6.2 The issues of undeclared honey due to consumer confusion and country of origin labelling are beyond the scope of the risk analysis.

6.3 A question is asked regarding the consistency of requirements. " I would like to question whether the same set of rules would be apply[ied] to all honey that was imported…" and whether the requirements for imported honey will be consistent with the code of practice being developed for beekeepers in New Zealand and food safety.

MAF response: These issues raised are beyond the scope of this review of submissions. MAF aims for consistency in requirements from all countries although in each instance treatments deemed necessary will reflect the disease status of the exporting country. These issues will be addressed during the development of the import health standard(s).

6.4 The submission states that the beekeepers fund the pest management strategy (PMS) for AFB, which aims to eliminate the disease, and this requires every government support. To do this imported honey should be free of all pests and diseases, and specifically that there should be no detectable AFB spores in honey.

MAF response: Sanitary measures cannot be put in place for endemic diseases not under official control. Where there is an official control program requirements cannot be more stringent than the requirements of the PMS. As stated in section 20.3.2.2 (p.63 para. 5) the figure of 500 000 spores/l is derived from the lowest level reported to cause infection with a 2 order of magnitude safety margin. MAF believes honey bee products treated to this level pose a negligible risk.

6.5 The submission suggests the following possible routes of exposure of bees to AFB:

- Discarded honey containers at dumps
- Honey fed to birds and available to bees
- Repackaging of foreign honey by supermarkets
- The use of the repackaged (cheap) honey for feeding

MAF response: Sections 20.3 (AFB) and 21.3(AFB) discuss risk management options and recommend sanitary measures that that achieve a negligible likelihood of entry, spread and establishment, whilst minimising trade effects. Appropriately

treated honey is considered to be of negligible risk, regardless of consequent exposure.

6.6 The submission states that sampling procedures must produce a truly representative sample.

MAF response: MAF agrees. Protocols for sampling are evaluated to ensure that this is done.

6.7 The submission recommends that all bee products that are attractive to bees are irradiated with cobalt 60.

MAF response: Irradiation is one of the recommended sanitary measures presented for the 6 organisms requiring sanitary measures. The level of radiation required varies according to the organism in question. The other proposed measures are believed to achieve a negligible likelihood of entry, establishment and spread.

6.8 The submission advises that stringent batch testing should be used to verify that the required procedures are being followed.

MAF response: For an import health standard to be developed MAF must have confidence in the integrity of the authorities of the exporting country. It is these authorities that have the responsibility to verify that the requirements have been met.

7 M.A. POLLARD, HAMILTON

7.1 Mr Pollard expresses dissatisfaction with the methodology used in the risk analysis, particularly the perceived lack of use of the laws of probability, numerate expression and coherence. The submission outlines the method of Expected Utility Analysis, and discusses its use in improving the current RA methodology, Mr Pollard concludes that the current method needs to be recast in the numerate form and become more clear and coherent.

MAF response: Detailed comment on this submission is beyond the scope of the review of submissions. MAF endeavours to be clear and consistent in its approach. The methodology used is internationally recognised and well regarded. Although quantitative techniques have been developed and are used in certain import risk analysis scenarios, a qualitative approach is appropriate and more transparent in situations such as this where extensive data is unavailable and unfeasible to obtain.

8 BIOSECURITY AUSTRALIA

8.1 The submission asks why a time period of 24 hours at 120°C has been proposed as a measure for American foulbrood in honey, pollen, royal jelly and beeswax when:

- this is based on information relating to beeswax only
- Heating honey to 120°C for more than 3 minutes affects honey quality

MAF response: It is necessary to recommend measures that ensure inactivation in the commodity. The key assumption is that it is necessary to have this time temperature combination to inactivate spores regardless of the substrate. Until further information is available a less stringent measure cannot be recommended. For commodities such as honey, where this particular recommendation is unsuitable, alternative sanitary measures are recommended.

8.2 AQIS requests that time temperature treatments for European foulbrood be given in 5°increments for flexibility.

MAF response: This is possible for temperatures between 50°C and 80°C. A table is provided below and could be provided in the import health standard. An inactivation time for any temperature between these values can be calculated, using the computer model developed for this purpose.

Temperature	6D Inactivation time (min)[12]
50	3238
55	1361
60	577
65	247
70	108
75	48
80	23
85	11
90	6

8.3 The submission requests detail on the temperature for freezing of comb honey for bee louse and small hive beetle.

MAF response: The required temperature is. -18°C.

8.4 The submission questions the recommendation that honey be heated for 24 hours at 50°C, given that Navarro et al 2003 showed that 3 hours gave adequate control of storage beetles.

MAF response: Although it is commonly believed that heat is an effective treatment for small hive beetle there are no published studies on exact temperature requirements. The work of Navarro et al was on storage beetles in dates, and the time included a phase for emigration of the insects and then a time for mortality. The results have been extrapolated to small hive beetle in honey, and so a safety margin has been incorporated. Bulk honey is often heated to above this temperature/time recommendation when removing granulated honey from drums.

8.5 AQIS proposes that comb honey and pollen should be held for 10 days, not 14 days as recommended in the risk analysis, as the work of De Guzmman et al cited in section 33.1.4 found a longest survival time of 102 hours on comb and 132 hours on pollen.

[12] Mean inactivation time rounded to whole minutes.

MAF response: The work cited was undertaken at only 2 temperatures, 26°C and 13°C, and used wax comb (no honey). Again the results have been extrapolated for honeycomb and the safety margin used is believed to be reasonable for this substrate.

9 TOM DEVLIN, NEW ZEALAND HONEY PRODUCERS COOPERATIVE LTD

9.1 The submission states that importation of honey should remain prohibited. Reasons are outlined, but are not technical critiques of the risk analysis and so are beyond the scope of this review of submissions.

10 JACQUI TODD

10.1 The submission expresses concern regarding the conclusion "that the likelihood of the [relevant virus] being present in the imported commodities is considered to be negligible" for sections 4,5,9,13,14,18 and 19. Research is presented in support of the arguments. It is stated that the relationship between honey bees and their pathogenic viruses is complex and not fully understood, and is in turn complicated by varroa mite. The submission states that there is sufficient evidence to suggest that the viruses could be present in imported products and so these products could pose a risk. It is suggested that bee products could be tested for the viruses as a risk reduction measure.

Specific studies are discussed that suggest viruses could be in honey bee products and persist long enough to infect bees that may consume the products. These are detailed in the following discussion.

10.2 A referenced discussion of the potential pathway of contamination of pollen is presented. It is stated that for some viruses the amount of virus in pollen should be researched, as apparently healthy, infected bees may contaminate pollen, and the level of contamination is unknown and may be high.

MAF response: The likelihood of contamination of pollen is acknowledged in the risk analysis in section 5.2.1 (ABV) and 9.2.1 (BBV). The conclusion of the release assessment for these viruses is however negligible i.e. that the virus may be present in pollen but will rapidly degrade.

10.3 The submission extends the above argument to DWV. It is stated that as clinically normal bees infected with DWV as adults can collect normal pollen loads, and so products can be contaminated. Testing would be necessary to ensure that infective particles are not present.

MAF response: As stated in section 13.2.1 of the risk analysis, these bees infected post emergence could contaminate hive products. MAF considers that there is sufficient evidence to support the conclusion that DWV is unstable and there is a negligible likelihood of infective virus being present in the commodities.

10.4 The submission advises that studies should be undertaken to determine level of virus in honey from colonies severely infected with DWV and SPV. As virus in the hypopharyngeal glands is believed to contaminate nectar and consequently honey, a larger proportion of bees will be infected in a colony with varroa infestation.

MAF response: No new evidence is presented for this point. For the reasons outlined in section 13.2.1 and 18.2.1 it is believed that the likelihood of any of the commodities carrying DWV or SPV is negligible.

10.5 The submission discusses the work of Todd and de-Miranda (2004)[13]. This study has shown that KBV can persist in honey at detectable levels for 10 days and after heating to 65°C, raising the possibility that this could also be the case for other bee viruses. The tests for DWV did not work adequately, and it is not known whether these particles also persisted in the honey for more than one day.

MAF response: The information in this study is of value. As acknowledged by the submission the samples were tested using reverse transcriptase PCR[14]. This is a very sensitive testing method and will detect virus RNA even at very low levels, including RNA of denatured or non-viable viruses. It is not known whether viable virus particles were at a high enough concentration to cause disease in bees that consumed the honey, but the possibility cannot be discounted without further investigation. However, MAF is confident that the viruses are fragile and the likelihood of viable virus being in the form of commodity imported is negligible.

10.6 The submission points out that Bailey and Ball (1991)[15] conclude that any sacbrood virus placed into pollen loads by infected bees would remain concentrated and would be likely to infect young nurse bees that consumed it. The studies conducted on APV and CPV in pollen (see above) do not indicate how long the pollen was infective, but it must have been long enough for the pollen to be collected and analysed. Without testing the persistence of other viruses in pollen it is impossible to be sure that viruses posing a risk to NZ could not be imported in pollen that was collected from infected colonies.

MAF response: The likelihood of contamination of pollen is acknowledged in the risk analysis in section 5.2.1 (ABV) and 9.2.1 (BBV). The conclusion of the release assessment for these viruses is however negligible. As stated in section 13.2.1 of the risk analysis, these bees infected post emergence could contaminate hive products. MAF is confident that the viruses are fragile and the likelihood of viable virus being in the form of commodity imported is negligible.

10.7 The submission raises the possibility that the viruses may persist for long periods under other circumstances as well. Shimanuki *et al*, (1992)[16] stated that SBV remains infective in the remains of larvae that died from the virus for up to 3 weeks at 18ºC, that dried smears of larvae freshly killed by SBV remain infective for up to 10

[13] Todd J and de Miranda J (2004) Development of a RT-PCR testing procedure for diagnosing deformed wing virus infections in New Zealand honey bees, varroa mites and honey samples. HortResearch Client Report No. 13510.
[14] Information on the principles of PCR and reverse transcriptase PCR can be found in *Manual of diagnostic tests and vaccines for terrestrial animals (mammals birds and bees), Vol. 1,5th edition.* OIE, Paris, 2004.
[15] Bailey L, Ball B (1991) *Honey bee pathology.* Academic press, London..
[16] Shimanuki, H, Knox DA, Furgala, B, Caron DM Williams JL (1992). Chapter 25*: Diseases and pests of honey bees*. In: Joe M Graham (Ed.) The Hive and the Honey Bee. pp. 1083-1152. Dadant and Sons, Inc., Illinois, USA.

months at 18ºC and semi-purified virus stored in royal jelly at 5ºC remained infective for at least 3 weeks.

MAF response: The detail on survivability of SBV is interesting. Of particular interest is the infectivity of semi purified virus in royal jelly. Unfortunately the primary reference for some of this information is unpublished work and so cannot be obtained. It is widely stated by experts working in the field, including the author of the submission, that DWV in particular and bee viruses in general are unable to survive outside the host cell for a long period (Chen (pers. comm.)[17], de Miranda (pers. comm.)[18], Todd and de Miranda (2004)[19]). Information on transmission and survival of bee viruses will be monitored, however MAF considers that the conclusions reached in the risk analysis are justified.

10.8 The submission states that tests need to be conducted on the persistence of the unwanted viruses in bee products before we can be certain that bee viruses will not be introduced in imports of these products.

MAF response: There is sufficient evidence to support the conclusions reached in the risk analysis.

10.9 The submission argues that if viruses that pose a risk to NZ are able to persist in bee products, as KBV is able to persist in honey, then these viruses could then be infective to bees that consumed any contaminated products. References are cited.

MAF response: The risk analysis concluded that it was likely that bees could be infected with a virus by consumption of honey and other products, if the virus was present in the commodity. Consequently the exposure assessment for all of the viruses identified as potential hazards is non-negligible. A summary table can be found on p.156 of the risk analysis.

11 ROGER BRAY, NATIONAL BEEKEEPERS' ASSOCIATION OF NEW ZEALAND (INC.).

11.1 The submission expresses concern that "the non-negligible risks as outlined do not fully appreciate the significant over all risks to New Zealand as a whole."

11.2 The submission expressed concern regarding issues of consequence assessment, in particular the fragility of the honey bee population and the commercial importance of honey bees.

MAF response: These are important issues and have been considered in the consequence assessment of organisms with a non negligible release assessment.

[17] Judy Chen, Bee Research Laboratory, USDA-ARS, email to K Owen dated 7 October 2005.
[18] Joachim de Miranda, Penn State University, USA, email to H Pharo dated 28 January 2004.
[19] Todd J and de Miranda J (2004) Development of a RT-PCR testing procedure for diagnosing deformed wing virus infections in New Zealand honey bees, varroa mites and honey samples. HortResearch Client Report No. 13510.

As can bee seen in Table 2, p156 of the risk analysis, of 38 organisms and 4 types of genetic material identified as potential hazards, only 3- powdery scale disease, chalkbrood and gregarine disease were considered to have a negligible consequence assessment following a non negligible release/exposure assessment. Other diseases were considered to have non- negligible to severe consequence assessments. Those identified as hazards have risk management measures proposed, others were identified as non-hazards as the release or exposure assessments were negligible.

11.3 The submission argues that the exposure and consequence of any introduction of unwanted organisms has not been assessed fully in the document and in a lot of cases it has been assumed that the risk is negligible so consequences will not result from an introduction.

MAF response: This interpretation of the process is not entirely correct. According to the OIE methodology if the risk of release is negligible then the risk estimate is negligible. The correct interpretation is as follows: If a potential hazard has a negligible likelihood of being present in the commodity, New Zealand animals or humans cannot be exposed to the hazard, and there cannot be any consequences. This is outlined in section 2.3 of the risk analysis.

11.4 The submission expresses concern that the risk analysis only deals with known pathogens. Introduction of a serious unknown unwanted organism is an unacceptable risk.

MAF response: Speculation about the possibilities of unknown organisms cannot be included in a risk analysis.

11.5 The submission expresses concerns that the risk mitigation measures for European foulbrood may be impractical to monitor and verify.

MAF response: Issues of compliance and certification will be considered during the development of the import health standard(s).

11.6 The submission expresses concern that the general public may be confused and inadvertently bring in untreated honey.

MAF response: Consequences of such activity are beyond the scope of the risk analysis, but the compliance of risk goods to import health standards is carefully checked at all ports and airports.

11.7 The submission states that spore loading in honey should be at a level equivalent to New Zealand domestic honey, and come from areas verified free of AFB. The NBA suggests measures for the import health standard.

MAF response: MAF is unable to place more restrictions on imports than domestic products without a scientific justification. In the case of AFB this means that measures imposed on imported honey bee products cannot be more stringent than the measures stipulated in the AFB PMS. The measures recommended in section 20.3.2.3 represent the appropriate option or combination of options that achieve a negligible likelihood of entry, spread of establishment, whilst minimising trade

effects. Sanitary measures cannot be put in place for endemic diseases not under official control. Where there is an official control program requirements cannot be more stringent than the requirements of the PMS. As stated in section 20.3.2.2 (p.63 para. 5) the figure of 500,000 spores/l is derived from the lowest level reported to cause infection with a 2 order of magnitude safety margin. MAF believes honey bee products treated to this level pose a negligible risk. If there are no clinical signs of infection, regardless of OTC usage, the risk is considered acceptable.

11.8 The submission suggests that other risks such as risk to the integrity of the honey industry should be considered. For example that unscrupulous people may blend imported honey with New Zealand honey and could potentially harm the integrity of the industry.

MAF response: This is outside the scope of the risk analysis as stated in section 2.2 of the risk analysis.

12 ROGER BRAY, ASHBURTON.

12.1 The submission contains several issues beyond the scope of this review of submissions. It outlines the importance of the bee industry, and states that the market is fully supplied by New Zealand beekeepers. The health of New Zealand bees and the safety and integrity of the products are mentioned, as are the benefits of the prohibition of imports of bees and bee products. It strongly opposes the importation of hive products in bulk form for reprossessing.

12.2 The history of AFB in New Zealand is outlined. The submission states that there is no indication of AFB spore level in New Zealand domestic honey, and " …I would expect a risk analysis such as this to ascertain the spore loading in both random samples from beekeepers and samples from commercially packed lines".

MAF response: As stated in section 20.3.2.2 (p.63 para. 5) the figure of 500,000 spores/l is derived from the lowest level reported to cause infection with a 2 order of magnitude safety margin. Honey bee products treated to this level are believed to pose a negligible risk. For this reason it is not necessary to know the exact spore level in New Zealand honey.

12.3 The submission states that good management, including the prohibition of importation of honey bee products, has resulted in the absence of EFB in New Zealand.

MAF response: The submission acknowledges that there is a considerable improvement in scientific methods. It is this scientific improvement that allows safe importation of bee products if treated according to the recommended sanitary measures.

12.4 Mr Bray states that "there are probably unidentified organisms which could cause harm to bees." He expresses the belief that a cautious approach should be taken. The example of the spread of varroa is used.

MAF response: The risk analysis cannot consider hypothetical risks. There has been a great deal of progress in the understanding of bee health communication and the commercial bee industry. The risk analysis and any import health standard(s) will be reviewed in the light of any new information or organisms. As outlined in the introduction of this document any importation would be from countries with an infrastructure and industry that has been satisfactorily evaluated by New Zealand authorities.

12.5 The submission states that "In the scientific perspective the risk of importing diseases and pests has been given the overall view of being relatively minor if certain conditions are met." Practical considerations are suggested regarding potential exposure through contamination or feeding bees with imported products.

MAF response: The aim of the recommended sanitary measures is to achieve a negligible likelihood of entry, spread of establishment, rather than a "relatively minor" risk. The "normal" or dictionary definition of negligible has been used[20]. As explained in the methodology, if a potential hazard has a negligible likelihood of being present in the commodity, New Zealand animals or humans cannot be exposed to the hazard, and there cannot be any consequences. This is outlined in section 2.3 of the risk analysis.

12.6 Theoretical negative consequences to New Zealand honey exports are outlined, including increases in testing procedures.

MAF response: Testing procedures would be unaffected as long as the health status of New Zealand honey bees was maintained.

12.7 Potential effects of fraudulent rebranding of imported honey as a New Zealand product are outlined.

MAF response: This is beyond the scope of the risk analysis. It is an industry integrity issue, rather than a biosecurity concern.

12.8 Potential chemical adulteration and extension of importation honey with (e.g.) fructose is mentioned.

MAF response: Chemical residues are not a biosecurity risk, and so are beyond the scope of this risk analysis. NZFSA is aware of this potential issue and will act appropriately.

12.9 The viability of the industry in the event of an incursion is questioned.

MAF response: Again this is beyond the scope of the risk analysis. Comments are noted.

[20] From the Oxford English Dictionary: Negligible: Of a thing, quantity, etc.: able to be neglected or disregarded; unworthy of notice or regard; *spec.* so small or insignificant as not to be worth considering."

13 JANE AND TONY LORIMER, HILLCREST APIARIES.

13.1 The submission asks that an independent person review the submissions, and states that it is inappropriate for MAF to do so.

MAF response: The consultation on the risk analysis is for technical issues. The review of submissions will answer issues of science surrounding likelihood[21], not possibility[22], of events occurring. Speculative comments, issues of acceptable level of protection and economic factors other than the effects directly related to a potential hazard are beyond the scope of the document. It is standard process for MAF to undertake such a technical review.

13.2 The submission states generally that the risk analysis makes too many assumptions.

MAF response: There is sufficient scientific evidence for the conclusions reached. Where definitive information is lacking risk analysts have no choice but to make reasonable assumptions based on deduction from known facts. The key point of process is to make these assumptions transparent, so that if stakeholders believe they are unreasonable assumptions they can be challenged on the basis of pertinent facts.

13.3 The submission were under the impression that the risk analysis has not been distributed widely to other government agencies. ERMA and NZFSA are mentioned in particular.

MAF response: The project team included representatives from the Ministry of Health, DoC and NZFSA. Members of the project team are involved throughout the risk analysis process. As part of this consultation NZFSA was sent a copy of the risk analysis in July 2004 and comments were received in November 2004. Further consultation will occur during the development of the import health standard(s).The issues are beyond the responsibility of ERMA.

13.4 The submission states "The risk analysis process that is outlined in figure 1 should detail who carries out the risk assessment. Is it industry and horticulture who have the greatest amount to lose if the risk assessment is proven wrong, or is it MAF who are trying to facilitate trade and see our industry as not being important enough to safeguard at all costs? The risk assessment will be quite different depending on what is trying to be achieved and we would argue that this assessment needs to be done from an Industry and Horticulture perspective."

MAF response: Risk analysis, under the WTO/SPS framework must be based on science, and as such aims to be impartial. The methodology is outlined in section 2.3 of the risk analysis, and follows an internationally recognised framework. For those organisms that pose a non negligible risk the recommended measures represent the appropriate option or combination of options that achieve a negligible likelihood of

[21] Likelihood**:** The quality or fact of being likely or probable; probability; an instance of this.
[22] Possible: Logically conceivable; that which, whether or not it actually exists, is not excluded from existence by being logically contradictory or against reason.

entry, spread or establishment, whilst minimising trade effects. An outline of international obligations is provided in the introduction of this document.

13.5 The submission gives examples of illegal importations of honey, and expresses concern that there would be confusion regarding legal and illegal imports.

MAF response: Consequences of such activity are beyond the scope of the risk analysis. Furthermore, the compliance of risk goods to import health standards is carefully checked at all ports and airports.

13.6 The submission requests that work should be undertaken regarding the survival of specific bee viruses before allowing imports as the assumption that bee viruses will behave in a similar manner to DWV may not be correct.

MAF response: There is no evidence that the assumption is incorrect. This conclusion has been based on the available scientific evidence and consultation with experts. In the absence of specific evidence it is reasonable to extrapolate from related viruses. As stated in section 13.2.1 of the risk analysis the conclusion is similar to that accepted for bee semen[23], and is supported by current observations.

13.7 The submission states that there should be a regular review of the risk analysis because of the easily changed genetic nature of viruses.

MAF response: Risk analyses and import health standards are reviewed and updated where possible when new scientific evidence is available.

13.8 The submission states that DWV should be on the unwanted organisms list [register].

MAF response: For the purposes of the risk analysis there would be no benefit in DWV being on the unwanted organisms register as it has been identified as a hazard. The reason for determining an organism to be unwanted is so that powers under the Biosecurity Act can be exercised against those organisms as and when necessary. In addition there is no obligation on MAF to take action against an unwanted organism simply because it has that status.

13.9 As the submitter believes that New Zealand beehives are able to tolerate higher numbers of varroa mites as DWV is not present, it is inappropriate to use inference in concluding that the DWV will not be a problem in an imported product. The submission advocates a cautious approach to allowing imports, stating that there should be government funded surveillance an all honey products.

MAF response: There is sufficient evidence that the release assessment for DWV in the defined commodities is negligible.

13.10 Concern is expressed that the PMS for AFB will be compromised through importation of other organisms such as *P. alvei*.

[23] Import Risk Analysis; honey bee (Apis mellifera) genetic material. MAF Biosecurity Authority, June 2003.

MAF response: As acknowledged in the submission *P. alvei* infection may imitate AFB only in conjunction with EFB. This scenario assumes that EFB was introduced and established. Sanitary measures have been recommended that reduce the risk of introduction of EFB to an acceptable level.

13.11 Concern is expressed that the PMS for AFB will be compromised through importation of AFB spores. The submission states that the only sanitary measure acceptable would be to import from a country or territory free from AFB.

MAF response: Sanitary measures cannot be put in place for endemic diseases not under official control. Where there is an official control program requirements cannot be more stringent than the requirements of the PMS. As stated in section 20.3.2.2 (p.63 para. 5) the figure of 500,000 spores/litre is derived from the lowest level reported to cause infection with a 2 order of magnitude safety margin. MAF believes honey bee products treated to this level pose a negligible risk.

13.12 The submission discusses issues related to obtaining a representative sample for testing spore levels.

MAF response: These issues will be considered fully during development of import health standard(s).

13.13 The submission states that if imported honey still has detectable AFB spores, viruses or EFB, these could potentially infect larvae when fed the honey, whether this is by robbing or direct feeding of imported honey. The product should be treated to totally eliminate diseases.

MAF response: Measures have to be science based. The risk analysis has concluded that a reasonable measure in the absence of a control program would be 500,000 spores/litre.

13.14 The submission maintains that importing consumer ready capsules or tablets would not be an adequate measure for EFB in royal jelly and pollen. The submission outlines an exposure pathway whereby royal jelly was imported in capsules, which were then broken open to be utilised for other products. At this point this royal jelly could be taken and fed back to bees.

MAF response: This is a hypothetical pathway. The recommended sanitary measures, as stated above, advise that product should be unattractive to bees by being packaged for direct retail sale. It is believed that this provides an adequate safeguard. The matter of packaging will be fully explored and addressed in the development of the Import Health Standard(s).

13.15 The submission asks " We have heard that in other countries *P. alvei* is being used as a biological insecticide on flies. If this is the case, then we ask what might be the implications for our Native fauna – in particular our insects should *P. alvei* come into the country?"

MAF response: A few reports of *P. alvei* being tested as a potential bio control agent for insects such as mosquitoes are available. There is no evidence for an effect

outside the laboratory. Notwithstanding these reports, it would seem that *P. alvei* has never been recognised as a suitable bio control agent for these insects under natural conditions.

13.16 The submission asks if there has been any testing carried out to ensure that our native fauna will be unharmed?

MAF response: This issue was not addressed in the risk analysis as the organism was not a potential hazard. If a consequence assessment were necessary, then these issues would have been addressed. Furthermore, the Department of Conservation did not express any concerns of this nature in the review of the risk analysis, but since honey bee pathogens are highly adapted to *Apis* species, the likelihood of any of the organisms on the hazard list causing unwanted harm to New Zealand native insects is considered to be negligible.

13.17 The submission asks if the Environmental Risk Management Agency would allow the importation of *Paenibacillus alvei* for biological control measures given its high degree of genetic heterogeneity and biochemical variability.

MAF response: This question is not relevant to a risk analysis under section 22 of the Biosecurity act. There are many more significant potential pathways of introduction of a ubiquitous saphrophytic organism such as *Paenibacillus alvei* including human beings.

13.18 The submission states that: "accompanying a consignment of packed honey" is one possible entry vehicle for arthropod parasites.

MAF response: Each of the unwanted species identified as potential hazards are discussed fully in the risk analysis, and measures to reduce the risk of introduction to an acceptable level are recommended where appropriate.

14 AARON OWEN, SOUTH AUSTRALIA

14.1 This submission expressed support for the risk analysis and consequent development of import health standard(s).

15 FRANK LINDSAY, WELLINGTON

15.1 The submission expresses concern that more virulent strains of organisms already present in New Zealand may be introduced with imported products.

MAF response: As outlined in section 2.3 of the risk analysis, the process does include the consideration of the question "If the organism is present in New Zealand, are more virulent strains known to exist in other countries?" If consideration of the best scientific information available determines that this is so the organism would be classified as a potential hazard in the risk analysis. If new strains become known the import health standard can be reviewed.

15.2 The submission states that DWV should be on the unwanted organisms list.

MAF response: For the purposes of the risk analysis there would be no benefit in DWV being on the unwanted organisms register as it has been identified as a hazard. The reason for determining an organism to be unwanted is so that powers under the Biosecurity Act can be exercised against those organisms as and when necessary. In addition there is no obligation on MAF to take action against an unwanted organism simply because it has that status.

15.3 The submission states that the low virus levels in New Zealand bees allow them to be resilient. The submission expresses concern that "old research and a suggestion" have been used as a basis of the conclusion that viruses do not survive for long away from live bees. It advocates a very cautious approach with a high level of "surveillance" of products to be imported.

MAF response: There has been considerable discussion with experts and analysis of available scientific evidence during the development of the risk analysis. These experts include Brenda Ball, acknowledged by the submission as a leader in the field of virus research. MAF is satisfied with the evidence that bee viruses are fragile, but will be willing to review the situation should any new scientific evidence become available to the contrary.

15.4 The submission questions the validity of the data used in section 16.1.4 of the risk analysis and expresses concern that more virulent strains of KBV are present overseas. The situation of KBV associated with varroa in Canada is used to illustrate the concern.

MAF response: As stated in section 6.1.4 of the risk analysis, there is no evidence in scientific literature that KBV strains of different virulence exist overseas. All strains of KBV are highly virulent. The virus exists as an inapparent infection in adult bees, but disease is known to be inducible by injection of foreign protein, which probably explains the severe disease in association with varroa.

15.5 The submission outlines the commitment of the industry in New Zealand to the AFB PMS. It expresses concern that commitment is not so high overseas.

MAF response: Sanitary measures cannot be put in place for endemic diseases not under official control. Where there is an official control program requirements cannot be more stringent than the requirements of the PMS. The measures recommended in section 20.3.2.3 of the risk analysis represent the appropriate option or combination of options that achieve a negligible likelihood of entry, spread of establishment, whilst minimising trade effects.

15.6 The submission expresses concerns regarding sampling of honey.

MAF response: Issues regarding sampling will be fully investigated during the development of the import health standard(s).

15.7 The submission recommends that all bee products entering New Zealand are irradiated using cobalt 60.

MAF response: As recognised in the submission, irradiation of all products is contrary to the SPS agreement. The measures recommended in the risk analysis represent the appropriate option or combination of options that achieve a negligible likelihood of entry, spread or establishment, whilst minimising trade effects.

15.8 The submission describes the increasing stresses on bees with loss of pollen sources, due to scrub clearance on farms, and expresses the belief that the consequences of the introduction of EFB would be consequently severe.

MAF response: MAF aims to protect the health of the bee population of New Zealand, and believes that the measures outlined in section 21.3.2.3 of the risk analysis will achieve a negligible likelihood of entry, establishment and spread of EFB. The reasons for this are clearly laid out in section 21 of the risk analysis.

15.9 The submission outlines potential pathways of entry of small hive beetle, including as a hitchhiker with a consignment of honey. It proposes that consignments from countries with small hive beetle should be fumigated on arrival in New Zealand.

MAF response: Section 30.3.2.3 provides recommended measures for treatment of bulk extracted honey or honeycomb and their packaging to reduce the risk of importation of small hive beetle to an acceptable level. MAF is concerned with hitchhiker organisms and believes that insuring that the outside of packaging is free of substances attractive to small hive beetle prior to treatment is adequate to mitigate this risk.

15.10 The submission states that the study by Ball et al (p 160 of the risk analysis) should not have been used as it had an unreliable conclusion, was not peer reviewed etc.

MAF response: The unpublished study was commissioned by MAF specifically to address an important gap in scientific knowledge. Although not published it has been subject to peer review as part of appendix 1 of the risk analysis.

15.11 The submission suggests that a small number of batch tests could be done on arrival to verify that procedures and safeguards are being followed.

MAF response: Importation would not be allowed unless the integrity of the certifying authorities and their procedures and methods was not to the satisfaction of MAF. As this is so, certification and any necessary batch testing done in the country of origin would be adequate.

15.12 The submission expressed concern about consumer confusion and subsequent illegal importation of honey thought to be safe. It also suggests a need for labelling of treated honey as well as country of origin labelling.

MAF response: These issues are beyond the scope of the risk analysis.

16 ROSS AND BRUCE MCCUSKER, HEATHSTOCK APIARIES.

16.1 The submission expressed concern about the integrity of officials in some overseas countries. Concern for the industry if the high health status of New Zealand's bees is compromised is also expressed.

MAF response: These issues are beyond the scope of the review of submissions. The importance of the health status of the bee population is recognised and the aim of the organisation is to protect this status. The integrity of the authorities in exporting countries will be thoroughly assessed if an application to import is received.

17 BRUCE AND JENNY MCCUSKER, HEATHSTOCK APIARIES.

17.1 The submission states a strong objection to the importation of foreign honeys from countries other than the Pacific Islands. The reasons stated are the importance of the bee industry, the current high health status , and the difficulties of eradication of disease following an incursion. An example of experience in the Ostrich industry is used to illustrate the concerns.

MAF response: MAF aims to protect the health of the bee population of New Zealand, and believes that the measures outlined in the risk analysis will achieve a negligible likelihood of entry, establishment and spread of organisms recognised as hazards, whilst upholding New Zealand's international obligations. The reasons for these conclusions are clearly laid out in the risk analysis.

18 TIM LESLIE, NEW ZEALAND BEE INDUSTRY GROUP (NZ BIG), FEDERATED FARMERS.

18.1 The submission states the view of members that honey bee products should not be permitted as the risk of exotic incursion is too great.

18.2 NZ BIG contends that the risks analysed are not minimised enough to justify honey bee product imports.

18.3 *MAF response:* MAF disagrees with this view, for which no technical argument is provided by BIG.

18.4 NZ BIG recommends that to protect New Zealand's honey bee product industry and New Zealand's agricultural and horticultural industries from a pollination shortfall bought on by pressure from unwanted exotic pests and diseases imports of honey bee products that any application for importation be assessed on a case by case basis.

MAF response: Non risk based measures such as these are contrary to the SPS agreement. The measures recommended in the risk analysis represent the appropriate option or combination of options that achieve a negligible likelihood of entry, spread or establishment, whilst minimising trade effects.

18.5 If honey bee product imports are to be permitted, treatment to destroy known honey bee pests and diseases should be carried out pre-border at the importers expense under Biosecurity NZ supervision.

MAF response: It is the responsibility of the exporter to ensure that the conditions of the import health standard are met. If they are not, the goods are not given biosecurity clearance.

18.6 To ensure that the process of submission review is perceived to be transparent, NZ Bee Industry Group requests that an independent review of submissions be undertaken

MAF response: MAF endeavours to be transparent in its approach. The methodology used is internationally recognised and well regarded. An independent review of submissions is not necessary.

CONCLUSION

The majority of stakeholder concerns were related to uncertainty surrounding the fragility of viruses (particularly deformed wing virus), the classification of saprophytic bacterium *P. alvei* as not a hazard, and the economic effects of importation in the industry. There was evidence that the risk analysis methodology was not fully understood. Some stakeholders advocated a cautious approach in the light of limited knowledge of bee viruses.

As a result of this review of submissions, MAF considers that the conclusions of the risk analysis are valid, and that an import health standard can be developed for honey bee products.

One submission raised the issue of the potential attractiveness to bees of imported propolis of different forms, with particular reference to the risk of introduction of EFB. The diversity of forms of internationally traded propolis is acknowledged in the risk analysis, and MAF is confident that the process involving alcohol extraction and retort recovery is adequate to completely destroy the organism. However, less processed forms of propolis may pose a different level of risk and MAF will reconsider optimal safeguards in developing IHSs. The sanitary measures recommended for other commodities will also be required for propolis that has not been produced by alcohol extraction and retort recovery.

APPENDIX 1: COPIES OF SUBMISSIONS

1. Brian Lancaster

I would like to make a submission to the Import Risk Analysis of honeybee Imports

On page 60, paragraph 20.2.3, it states that the importation of strains of AFB with resistance to Oxytetracycline (OTC) is not of any consequence as OTC is not allowed to be fed due to the AFB PMS.
While this is factual, it fails to address the fact that the primary function of OTC around the world is killing EFB. (This is stated on pg71, paragraph 21.2.3). A significant by-product of its actions is that it suppresses the symptoms of AFB. To treat EFB hives takes very little OTC but world wide it is taking ever-increasing amounts to suppress AFB, which has led these producers firstly into residue problems, and then secondly into resistance problems.
When EFB is introduced to NZ through importation of honey, OTC would need to be available to Beekeepers in the initial acute stage to enable Beekeepers to survive. It is therefore imperative that OTC resistant strains are not imported into NZ, as NZ beekeepers deserve the chance to develop 'best practices' with an integrated pest management strategy that would prevent residue and resistant problems.
We deserve better than to become the victims of sloppy management practices imported from overseas just because that was the easiest option (or "quick fix") for these producers at the time. It will be a sad day if we were to lose this option that we have maintained for the last 90 years and sink to the lowest common denominator.
For these reasons Resistant AFB strains should be considered non-negligible and treated as a disease/pest that isn't present in NZ and appropriate actions recommended.
Paragraph 20.3.2.3 recommended sanitary measures, gives options to prevent the infection of NZ hives. These options fail to outline that the hives should not have been fed OTC. Remember that OTC suppresses the clinical signs of AFB. (My question is how can any competent person with any integrity sign off a hive as having no clinical signs of AFB if they know full well that hives are treated with OTC in the last 12 months?)
OTC feeding also raises the question of what residue levels will be acceptable to NZ. Current residue levels of OTC in NZ honey is Nil.
I would hope that NZ consumers are important enough for NZFSA to demand the same residue levels and testing regimes that are required for NZ Beekeepers to export to Europe or Japan. This issue is yet to be addressed and needs to be included in any import standards. We need the same requirements applied to honey whether it is exported or imported.
Options 1,2 &3 should all have to be completed to enable importation. Only then will the playing field be level for NZ beekeepers and allow us to pursue our stated goal of eliminating AFB from NZ.

Under the heading EFB pg75, section 21.3.2.2 it states that a bee would have to consume 300ml of honey to pick up a single CFU.
Any amount of honey disposed of outside will eventually be completely consumed by bees in the immediate area. The reality is that imported honey could easily be imported in 20 litre pails (i.e. 30 kg) for ease of handling in the food ingredient/additive area. If any of these containers are disposed of for

any number of reasons, it would put up to 100 CTUs into the environment under this scenario. This is a totally unacceptable situation, as it would guarantee an infection in the immediate area.
This question needs to be answered to eliminate this risk- What treatment needs to be given to the largest size wholesale pack (e.g. 30kg pail) to render its contents safe in the NZ environment? -One could argue the largest wholesale pack imported would be a 200 litre drum (i.e. 330 kg) These drums can be dropped very easily which causes them to rupture and spill their contents.
This point has not been adequately addressed.

The future of NZ Beekeeping as we know it depends on keeping out unwanted organisms especially ones that vector in honey. It is a real pity that the individuals who authored this document Livelihoods doesn't depend on the success of the measures that they have tauted to keep us safe. If this was the case I am sure more care would have been given to safeguarding this precious industry.
NZ Beekeepers are being asked to carry the potential risk of losing their industry for little gain. NZ Beekeepers are subject to world prices and have the ability to exceed NZ consumption annually. We produce a premium product of NZ origin which will be brought into doubt with dishonest brokers re-labelling foreign honey. (Remember the recent fiasco in Aust). This is a situation, which I find deplorable.
Remember honeybees directly or indirectly pollinate 70% of everything you eat. It is crazy and irresponsible to threaten this balance with importing unwanted organisms when NZ produces all the honey the country could ever want.

Thank you for considering my submission and I look forward to your reply to the points raised.

Yours sincerely
Brian Lancaster
Apiarist
Canterbury

2. Lindsay Feary

Scenicland Apiaries
Limited
Bulk honey producer
Rata - Kamahi - Manuka - Multifloral

Debbie Pearson
Director Preclearance
Biosecurity New Zealand
Ministry of Agriculture and Fisheries
ASB Bank House
P.O. Box 2526
Wellington

Import Risk Analysis
Honey Bee Products

Dear Debbie,

Thank you for giving me the opportunity to write this submission.

I am totally opposed to the importation of honey, no matter how small the risk of introducing bee disease may be perceived.

Perhaps sterilization of honey may reduce the risk, but it still leaves our borders open to disease due to negligent or fraudulent importation. Successive Governments and bureaucratic malevolence have seen our industry seriously jeopardized in recent years, with funding for surveillance operations severely depleted.

For example, Varroa may have been detected and eradicated if effectively funded systems had been in place.

How many pest management strategies are we expected to pay for? Our industry has been dealt a severe economic blow. Surely our beekeeping industry is of more economic importance to New Zealand than the importation of foreign honey.

Our forefathers saw the economic benefit of having our borders closed to honey imports, so why should this change? We produce a surplus of honey, why import more? Our country has enough exotic pests and diseases.

Yours Sincerely,

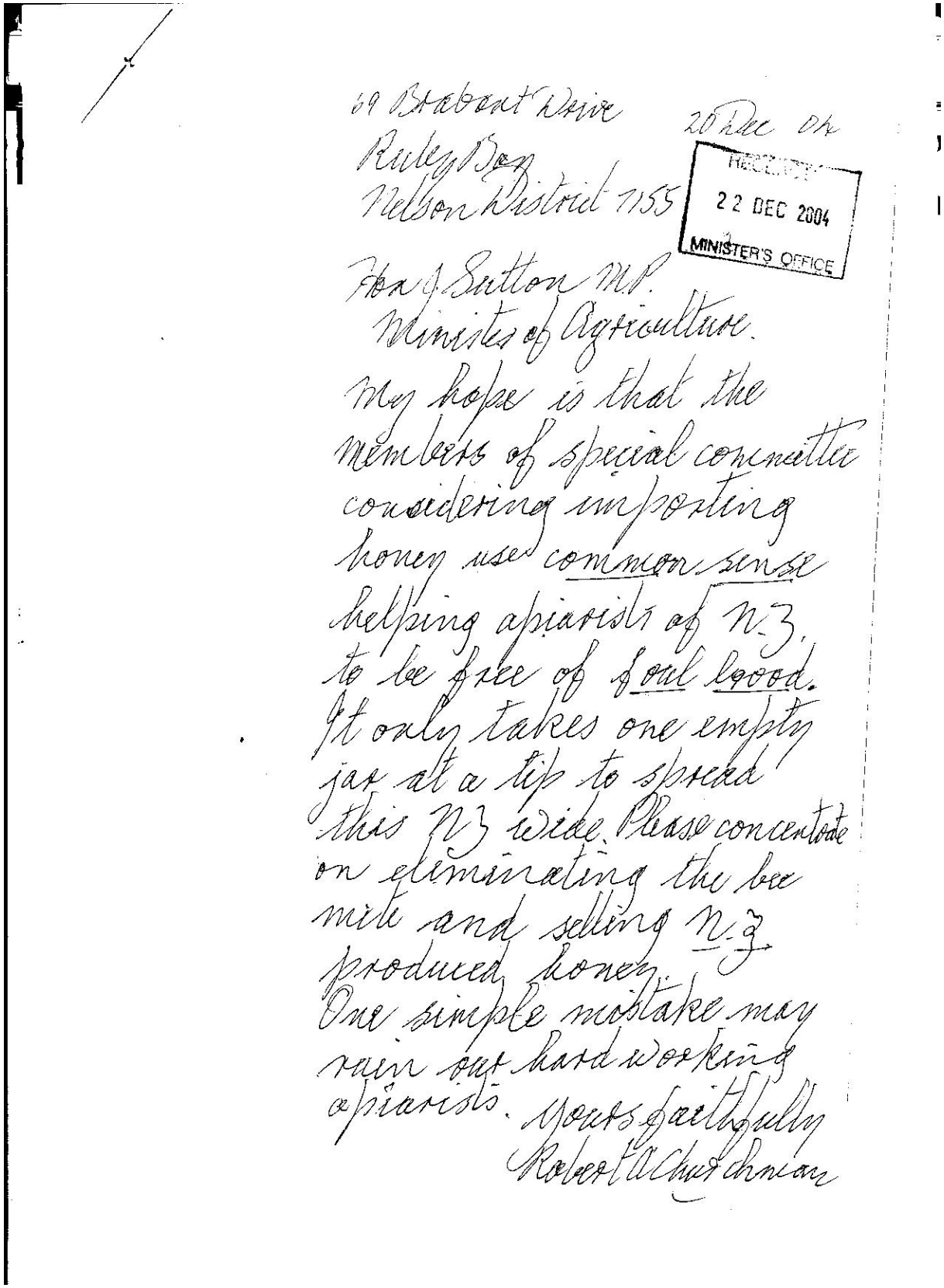
Lindsay Feary
Managing Director, Scenicland Apiaries Ltd.

3 Mawhera street
Dobson
Westland

(03) 7625 691
Fax (03) 7625 691

sceniclandapiaries@clear.net.nz
GST No. 79-901-445

3. Robert Churchman



69 Brabant Drive
Rabbit Bay
Nelson District 7155

20 Dec 04

RECEIVED
22 DEC 2004
MINISTER'S OFFICE

Hon J Sutton M.P.
Minister of Agriculture.

My hope is that the members of special committee considering importing honey use common sense helping apiarists of N.Z. to be free of foul brood. It only takes one empty jar at a tip to spread this N.Z wide. Please concentrate on eliminating the bee mite and selling N.Z produced honey. One simple mistake may ruin our hard working apiarists. Yours faithfully

Robert Churchman

4. Dr R M Goodwin

Due to the length of Dr Goodwin's submission only the table of contents and introduction from his submission is include here. A full copy is available by contacting Martin Van Ginkel at MAF, P O Box 2526, Wellington or martin.van_ginkel@maf.govt.nz.

INDEX

INTRODUCTION

The Risk Analysis is a well-written document and very comprehensive. It is probably the best document of its type produced on the risks associated with the trade of honey bee products anywhere in the world. Both MAF and the authors should be complemented on this.

There are however a number of issues that need to be addressed further to do with several of the pests and diseases. There are also several general issues to do with the Risk Analysis methodology.

Some of the issues are serious enough that significant parts of the Risk analysis should be rewritten. Because of the importance of the changes a further round of consultation should be required.

5. Kim Rahiri

From: Kim Rahiri <krahiri@clear.net.nz>
To: <vanginkelm@maf.govt.nz>
Date: 15/02/2005 22:01:24
Subject: Submission to the Import Risk Assessment: Honey Bee Products

Thank you for sending me the Import Risk Analysis: Honey Bee Products dated 15 December 2004.

I am an interested member of the public who was innocently affected by the tight controls on imported products containing minute quantities of honey. I was really put through the wringer with the black/ white MAF people and was treated abysmally.

I cannot comment on the technical aspects of the 171 page document as to do so I would need to be a scientist (which I am not). It is far too technical for me.

But I do wish to see the product I bought being allowed into this Country. If the rules are altered to allow me to do so I wish to be notified immediately as last I knew my Salad Dressing that I have had pleasure in eating in the past was still at Customs.

The shop keeper who sent me the salad dressing enclosed scientific documentation about it and Australian Govt health approval info - but NZ MAF bureaucrats did not even bother to assess the information. Yet another example of "New Zealand Political Correctness" - there is no in-between - it is just black and white.

I wish to state the product I purchased contained 2 litres of salad dressing. In 200 litres of the dressing there is '20 ml's of honey' (yes 20ml - 4 tsp) - that would by my judgment equate to an amount less than the size of my little fingernail in a 2 litre bottle. To say this is a risk is absolutely absurd. I have kept every piece of documentation on the stressful ordeal MAF put me through.

I am hoping the outcome of this review will enable me to have my dressing forwarded to me.

Please inform me of the outcome of the review and whether I will or will not be able to have this salad dressing in the future.

I look forward to receiving the results of this review.

Kim Rahiri
31 Savannah Place
Papamoa

Ph - 07 5722447 (eves) 07 5796654 (wk)

6. Sue Walker, Honeyland NZ Ltd

HONEYLAND NZ LTD

36 CLIFTON TCE, PALMERSTON NORTH, NEW ZEALAND
telephone/fax 64 6 354 0206, EMAIL honeyland@xtra.co.nz

24 February 2005

Submission on the "Import Risk Assessment: Honey Bee Hive Products"

As a beekeeper and exporter involved in the Beekeeping Industry for the past 28 years, I am greatly concerned to read the Import Risk Assessment for Honey Bee Hive Products. I do not believe that it contains sufficient safe guards to prevent the accidental importation of unwanted organisms and diseases into New Zealand. I would also like to point out that all beekeepers in New Zealand are currently working on compliance to the compulsory Code of Practise, controlling all stages of their beekeeping practise according to the guidelines set by New Zealand Food Safety Authority. I would like to question whether the same set of rules would be apply to all honey that was imported from other countries (especially the developing countries such as China). Surely it would be a nonsense to have differing standards applying to imported honey, exposing the consumers of New Zealand to risk. And I would like to be reassured as to how this honey will be monitored to prove that it is 'safe' for consumption, both with regard to antibiotic residues, as well as protection from unwanted organisms and diseases.

AFB PMS

In New Zealand the control of this disease is regulated under the Biosecurity Act. New Zealand beekeepers are world leaders in their efforts to control AFB and have taken the initiative to institute measures towards a stated aim of elimination of this disease, at their own cost and time. Such a courageous stance should be given every possible government support.

Risk

Honey coming into New Zealand with AFB spores could be a potential threat to our AFB PMS. We have assumed up to this time that discarded honey containers at dumps could be a potential source of infection and surveillance is centered on some of these areas to detect diseases. However in recent times we have had cases reported to the industry where honey was being fed to birds and thus available to bees. Once a consumer has purchased honey there are no controls as to how that honey is used, or disposed. And of course, the consumers who may buy this honey for alternative purposes are likely to use the cheapest honey available which generally comes from supermarkets. It is these same supermarkets, which are mostly Australian owned, that are pushing to find sources of cheap imported honey to pack into containers under their own brand. I believe that they are the main drivers to open New Zealand markets to imported honey.

As a country having the objective to eliminate AFB, honey coming into New Zealand should be free of all diseases and viruses. Heat treatment has been suggested to kill spores but it doesn't not kill 100% of the spores, without affecting the honey. It has been suggested that we allow 500,000 spores per litre as this is far below the 5 million spores per litre needed to infect a colony.

However with individuals actually feeding honey or making it available to bees there is a heightened risk and therefore we should be adopting a policy where there are no detectable AFB spores in honey.
I agree with the statement (page 63, Para 4) that an equivalent level of protection to that achieved under the NZ NPMS should be demanded of importing countries.
Sampling.
In this country beekeeper provide samples for testing and surveillance but there a number of methods used. Some have elaborate means where there is a continuous sample taken off when honey is pumped into a drum. Others take representative samples through the pumping process and the lazy one perhaps take a sample at the end or the beginning of the drumming process.
Honey testing is now an exact science but sampling is not. Australia has implemented honey sampling for AFB yet this procedure has failed to reduce the incidence of AFB. We do not know whether spores stratify in honey drum as different honeys do or whether they are equally distributes through the mass of the honey. We need to be very sure that the procedures set down produces a sample that truly reflects what is in the drum. This needs to be researched to produce a method we can recognize to produce a representative sample we can depend upon.
In the mean time until heating procedures used to deactivate Clostriduin botulinum spores developed in the USA are developed to treat honey, I would recommend all bee products entering New Zealand that are attractive to bees, be irradiated using cobalt 60. This would successfully eliminate any chance of viruses, AFB and EFB entering New Zealand.Further, I believe it is this country's interest to do stringent batch testing to verify that procedures and safe guards are being followed.

People entering New Zealand.
Once imported honey is permitted entry into New Zealand it will be very difficult to distinguish whether it has been treated or not unless the label clearly specifies this. Consumers may see the same brand in New Zealand as they do in Australia and bring back a similiarcontainer without thinking of the necessity to make a declaration. Once again, I would question whether the New Zealand Government will be prepared to carry the cost of informing the New Zealand public of this heightened risk, and explaining the exact procedures required for imported honey. This is a major task and commitment.

Country of Origin Labeling
It is essential that legislation on this should be enacted before any honey is imported into New Zealand. We would require labelling that clearly distinguishes imported honey from local honey and from blends of honey.

In conclusion, I would suggest that the risks of importing diseases and organisms into New Zealand through imported honey remains at an unacceptable level. Further research needs to be undertaken to ensure that unwanted diseases are not accidently introduced to New Zealand, which will decimate our Beekeeping Industry which already under threat after the arrival of varroa. It is time to proceed with extreme caution. The ideology of 'Free World Trade' was not designed to cause the decimation of such a key industry as beekeeping.

7. M.A. Pollard

Martin van Ginkel
Biosecurity New Zealand
P.O. Box 2526
Wellington
New Zealand
Mr M A Pollard
I Whatawhata Road
Dinsdale
Hamilton
24/02/2005
Dear Martin van Ginkel,

Thankyou for the opportunity to make a submission on Import risk analysis: Honey bee products. It is hoped this submission is of some use. I shall be most interested to hear what other submitters have to say and what the responses of BIOSECURITY New Zealand are to them. Again thankyou for the opportunity to make a submission.
Yours sincerely

M A Pollard.

Submission on Import risk analysis: Honey bee products.

Biosecurity New Zealand
I5 December 2004
Ministry of Agriculture and Forestry.

Submitter. Mr M A Pollard
I Whatawhata Road
Dinsdale
Hamilton
(07 8475I6I)

We want to know if there is any system of sanitary measures, import restrictions and so on for Honey bee products (HBP) that would leave us better off than we are now. If there is such a system we would like the Author or Authors (henceforth Authors) of the Import Risk analysis: Honey bee products (IRA:HBP) to find that system and tell us about it in a convincing way.

The idea behind this submission is simple. As it is the IRA:HBP can not do either of these things because the Authors of the IRA:HBP do not use the laws of probability, the methods of Expected Utility analysis and the essential concept of coherence. And worse the Authors of the current IRA:HBP refuse the use of numbers to express the

probabilities of particular events happening, and the consequences of particular events happening. This lack of numerate expression is bad as it hinders both the analysis needed to make a good decision and the ability to communicate clearly the reasons for that decision.

The case for Expected Utility analysis is put forward by D. V. Lindley in Making Decisions second edition.
John Wiley and sons London I985
Most of the rest of this submission is an attempt to point out where, in my view the IRA:HBP could be made more complete, or better by using the methods of Expected Utility analysis. Indeed, the Authors of the IRA:HBP have (apart from failing to discuss the effectiveness and cost of different regimes of sanitary measures) done most of the hard work. Often all this is required is some numerate expression and calculations to see if the analysis is sensible. By sensible it is meat coherent; or perhaps consistent is a better word, unfortunately consistent has been put to work describing other concepts so we will have to make do with coherent.

Once we have gathered some background context and history from suitable sources and got to grips with what needs to be decided, we need a handful of concepts and a systematic method for combining these in a useful way.

A decision is a course of action, or rather a choice between alternative courses of action. The course of action we chose depends on three things and the links amongst them. The three things are; the possible courses of action available, possible events that might influence our course of action, and the consequences of these events. The links are provided by the laws of probability and the methods of Expected Utility

Events come in two kinds: an event about which we are informed as to whether it did (or will) occur or not is called a certain event, all other events are called uncertain events. A course of action leads to consequences, desirable ones get a high value, undesirable ones get a low value. The desirability of a outcome is referred to as the utility of the outcome. It is a number, a measure of worth on a probability scale. This number obeys the laws of probability.

Probability can be thought of as a number between zero and one. Probability is a numerical measure of belief. An event with a probability of zero can, we think never happen, an event with a probability of one is an event we are certain has or will happen. The values of zero and one are usually reserved for logical propositions.

Probability obeys three laws:
I. Convexity. p(E/H) lies between zero and one.
$0 \leq p(E/H) \leq I$
(p (E/H) is read the probability of the event E, given History, H)

2. Addition if two events are exclusive then on information H
$p(E_I \text{ or } E_2/H) = p(E_I/H) + p(E_2/H)$

3. Multiplication laws.
For any events E_I and E_2 and information H

$P(E_I \text{ and } E_2/H) = p(E_I/H)\ p(E_2/E_I \text{ and } H)$
For any events E_I, E_2, E_3 that are independent events that all depend on information H the law is much simpler.
$P(E_I \text{ and } E_2 \text{ and } E_3) = p(E_I)p(E_2)p(E_3)$
H is the History or background information that our probabilities may depend on. It is a convention that if all the arguments in an equation depend on H, then explicit reference to H can be omitted. H is not forgotten it is always present.
Independence. An event E, is independent of another event if the probability of E, p(E/H) is unaltered by any information concerning other events.

The two numerical quantities of probability and utility can be combined to yield expected utility and the best course of action is one that we think will lead to the highest expected utility. (Note this use of expected utility is distinct from the concept of a longrun return in a repeated bet or play situation)

From the outset let us be clear, the assessments of both probability and utility are those of the decision maker be it one person or a committee. We can argue over probabilities and utility and dispute what is a really well supported probability or utility assessment: but the probabilities and utilities cannot be wrong- except in one essential way. They can, at times be inconsistent, or incompatible with one another, or as Lindley would say they can be incoherent.

If our decision-making becomes incoherent we can select for ourselves a set of alternatives such that no matter what events happen to turn-out we could have done better by calculating and then selecting a coherent decision. The methods or expected utility offer the best hope of securing coherence. The methods or expected utility analysis are not yet complete and errors will get through; but the second part of the prescription, a systematic method for thinking about now events and decisions are linked with consequences is useful in its own right.

The skeleton of the method is given below.
List the available decisions $(d_I, \ldots d_m)$ (Possible decisions)
List the uncertain events $(\theta_I), \ldots (\theta_n)$ (Relevant events)
Assess and attach probabilities to the events. $p(\theta_I), \ldots . p(\theta_n)$ In practise some of these probabilities will be assessed and other will be derived none is any more basic than the other.
Assess and attach utilities $u(d_i\theta_j)$ to the consequences $(d_i\theta_j)$
Pick the decision that maximises

$$u(d_i) = \sum_{j=I}^{n} u(d_i\theta_j)\ p(\theta_j).$$

The list of decisions must be made such that each decision or set of decisions is exhaustive and exclusive.
Exhaustive. The list of decisions or set of decisions reasonably exhausts all the possibilities that are available.
Exclusive. If one of the members of the list is chosen then no other member on the list can be chosen. This needs some elaboration. Following Lindley; on a restruant menu the entrees, the mains and the deserts are listed in groups this is not what we what for our list. The type of list we want is a type sometimes found in Chinese restruants, here each possible combination of entrée, main and desert is listed and numbered. So all individual things are listed, all pairs of things and all triplets of things are listed and given a number. Clearly, in practical problems it is useful to either keep the number of

elements fairly small or to construct good computer programs to store the information and the calculations needed to make the who analysis work. Clearly, if each item on the expanded list has a number then exclusive means we can select only number and the set of items collected under that number.

Before going on to use these new terms and the methods they introduce it is best to discuss some terms from the current IRA:HBP that have proved troublesome. First there is no room in this submission for the term negligible. As a term used for clear communication the word negligible is treacherous. The term is a relative term like small: a small elephant is still a large animal and what is a negligible quantity for one decisionmaker may be quite a moderate quantity for another decisionmaker, with neither knowing what the other means by negligible. The term negligible turns-up in different parts of the IRA:HBP and it is used variously to mean, I think;
a small or rather an extremely small probability so small in fact that the possibility of the event attached to the negligible probability is taken to be zero.
An extremely small product of probabilities.
An extremely small expected utility, or an extremely small change in an expected utility.
Such loose use of a relative term where precise numerate expressions and nouns are available is not helpful and in this submission an attempt will be made to be consistent and precise in the use of terms.

Where the chance of an event happening is thought to be so small as to be practically zero we will from now on say, that such and such an event is thought extremely remote and its occurrence is assigned a provisional zero. In the course of the analysis the assignment of a provisional zero means that we disregard an event but we do not forget that event: we remain mindful of Cromwell's rule and the possibility that on reflection or calculation we may have to revise our assessment of a provisional zero as our ideas or amount of information changes. The use of provisional zeros should be cautious and moderate as the assessment of a provisional on an event amounts to thinking that for the purposes of the analysis underway the event is irrelevant. Note often these assessments are used in the subjective mood they express a hope or a wish they are not (usually) statements of facts for example.

The writers of the I997 OIE International animal Health Code (OFFICE INTERNATIONAL DES EPIZOOTIES. Paris I997)
seem to be altogether to keen to assign provisional zeros. Care needs to be taken as a moments reflection on the expected utility equation shows that even absolutely small probabilities can give rise to large expected utilities if the consequences of an event are massive enough.

Risk is another troublesome term. Sometimes risk simply means danger; yet risk has several special defined meanings one of is defined by what we have called the Expected Utility equation. The term risk will not be use furthering this submission.

The authors of the current IRA:HBP produce a term that has a special meaning in its own right but the authors seem to use the term as an 'elegant varitaion' on the word Probability. On page II of the IRA:HBP the authors say "The OIE… if the likelihood of release is negligible…" Now, page 33 of the OIE 1997 edition uses the word probability in the same context. In English Probability and likelihood are near synonyms but each term has a special technical meaning and in a work that deals with expected utility it is best to be clear. Probability has been defined above: and likelihood in this submission means, $p(X/\theta_j)$ 'the probability that the piece of information, X becomes known to us given that the event θ_j obtains'

Probability and likelihood are linked by Bayes' theorem. Bayes' theorem (in simplified form) can be stated as "The posterior probability is proportional to the prior probability multiplied by the likelihood"
Prior probability being $p(\theta_j)$
Likelihood being $p(X/\theta_j)$
The posterior probability $p(\theta_j/X)$
Clearly these quantities are different. On page I2 of the IRA:HBP the words used when talking about the possibility of hazards being on or in particular product so it seems the reference on page II of the IRA:HBP to likelihood really does just mean probability.

It would have been nice to take time, the readers time, to discuss the various arguments and justifications given in the IRA:HBP for arriving at the initial (and other?) ps hinted at in the table on pages I56 and I57 of the IRA:HBP. Such a discussion would have been interesting and useful; for example the need to classify statements of ignorance. We can be ignorant of things for different reasons; we may be ignorant because little or no work has been done on a subject, or a great deal of work has been done and little found because of the technical difficulty of the subject; or a great deal of work has been done by competent people to find evidence of a particular thing and still little or no evidence has been found. The conclusions or rather inferences that can be drawn legitimately are quite different for each of the different classes although they are all types of appeals to ignorance. This aside, some of the arguments put forward in the IRA:HBP are compelling; for example some of those are bee viruses. Yet others are disturbing, as one reads them a fair case for a particular, usually non-zero probability is developed, only to arrive with a disconcerting bump, at the assignment of a provisional zero. Examples that spring to mind are the assessments for Gregarine disease (a provisional for E") Spiroplasmas (a provisional for p and E" ie a judgement of irrelevance.

Excursions into these assessments would have been fun but ultimately unsatisfing. First because the special circumstances of Hazards of Honey and Honey bee products may give a useful shortcut that makes the analysis shorter and perhaps more full. Second but more importantly going into these points in detail would distract attentional away from the need to make the whole analysis, including the effectiveness of sanitary measures, the changes in behaviour that might follow the introduction of import Honey and honey bee products etc. The analysis must include a serious numerate contemplation of the relative sizes of gains and losses that might follow from the importations. the authors of the IRA:HBP might have used rather more provisional zeros that other might, and it matters but it is much more important to stress and for the reader to realise that the whole IRA:HBP must be made numerate and coherent. Otherwise it is difficult if not impossible to tell if the decision selected is the best available. A complete analysis is desireable but coherence is essential.

In making decisions about complex affairs they have to be reduced to a much simpler, and it is hoped a more tractable version of reality. It seems the writers of the IRA:HBP have a piece of good fortune that a handful of hazards associated with honey bee products are widespread, well understood and also rather hard to kill. So hard to kill are some of these hazards that if they were to successfully killed by some suitable physical method (say great heat or ionising radiation) that this treatment if done properly would, as a by product very probably ensure the death of any of the lesser known and lesser understood hazards that might be on or in imported honey bee products.

The OIE methodology is not well set-up to handle this dependence of probabilities on decisions, as the OIE methodology demands at least an attempt at a full analysis for each hazard.

It would seem better to accent from near the outset that some hazards will deman stringent sanitary measures: some hazards are so mild that they will give us hadly any trouble at all. There are though a fair number of both less well studied and less well understood, hazards. Of these hazards some are of special concern as the individual hazards are often not too bad when they are the sole challenge to a hive but in combination with other hazards and perhaps other forms of stress these apparently modest hazards can be quite bad. So, here where Mills' methods may be unreliable because the interrelationships between these hazards are subtle. This interrelationship is also a problem in our expected utility analysis as it is not appropriate to use the simplified multiplication law when the hazards are not independent. So, perhaps we should form a hazard class for those hazards that are less well studied and another for groups of hazards that form syndromes for example the syndromes that form around V Destructor, and set these aside for further study rather than feeling pressured into making a hasty assessment of the trouble they might bring.

The sanitary measures or at least the physical ones that will kill the most virulent and difficult hazards like m.Pluton would if carried out properly very likely kill any of the lesser know or lesser understood harzards that might be in or on honey or honeybee products. We must be careful to keep our eye on the ball here as the suggestion is an alluring one. It is suggested that the worst of the hazards taken together are so hard to deal with that they dominate all the concerns that, at least at present we have about the lesser known hazards; and so bad are the worst hazards that in every relevant dimension we can think of, be it geographic distribution, difficulty to kill by heating, cooling, irradiating etc that these worst hazards are the most resistant to treatment. If we accep this line of thought we can do two things.

First, the analysis then telescopes to one of finding out how much confidence you have in the methods for dealing with the worst hazards and the amount of confidence that you have that the measures that will kill the worse hazards will also kill the less well known and understood harasds(or the things that might carry them the term hazards has been used rather loosely)

Second, if a modification is made to the OIE methodology we can produce a good reason for doing more work on how some of the lesser know hazards get about and behave in the presence of other hazards. This work can go on as we could suspend judgement on these lesser know hazards as we would be fairly though not totally confident that the probability of one of these lesser/known hazards becoming essablished GIVEN THE FACT THAT all imported honey products have been physically treated to a standard that we are very confident will kill even the most resistant of hazards. This is better than the approach that seems to be taken by the authors of the IRA:HBP. Regardless of the exact approach taken utility analysis will be useful so we return to that theme.

The assesements of probability and utility are subjective; the method allows the decisionmaker to asses an event with almost any probability the decisionmaker chooses. As work progresses the decisionmaker is constrained to combining probabilities in such a way that the other probability assessments in the analysis make sense. Here the Authors of the IRA:HBP and before them the writers of the OIE I997 may have run into trouble. As mentioned earlier the absolute size of probabilities, even probabilities that some might judge as being negligible can <u>NOT</u> guarantee that the expected utility of an event happening will also be negligible or trivial. So we must also keep in mind the rules of probability. On page II of the IRA:HBP the Authors state '…where the likelihood of release is non-negligible but the exposure assesement concludes that the likelihood of exposure… is negligibile…' (here Likelihood is taken to p) Now, this is an

application of the simplified of the multiplication law. This form of the law is often used to asses small probabilities as a product of more basic probabilities. The simplified version of the multiplication law must be used with caution, each of the basic probabilities used must be independent. By independent it is meant that the p(E/H) is unaltered by any information concerning other events. That is a demanding requirement and if it cannot be met the more complicated conditional form must be used. Omitting H according to the convention,

$P(E_I \text{ and } E_2 \text{ and } E_3) = p(E_I)p(E_2/E_I)p(E_3/E_I+E_2)$

This is often the very thing we are interested in finding out when thinking about the consequences of say V Destructor and other things that form syndromes. Or where we are thinking anout the possibilities of multiple failures in say, a sanitary measure, say heat treatment. Here we must be careful to see if there is independence amongst the various events we are interested in and pick the correct form of the multiplication law; yet we must be on guard as in our eagerness for simplicity we may opt for easy judgements of independence it is possible to think a failure can happen in only one way. This need not be so and if failures can happen in several ways and the ways are exclusive then the probabilities of failure must be added together!

Judgements of independence and dependence are everybit as subjective as assesements of probabilities, but it is a concern that not once In the IRA:HBP is the conditional form of the multiplication law mentioned or as far as we can tell used, nor is Bayes' theorem used nor the extension of the conversation. The best that can be said is that the Authors of the IRA:HBP have not bothered to burden th readers of the IRA:HBP with calculations. For some the calculations are a comfort rather than a burden. The doubt builds that the Authors of the IRA:HBP have troubled themselves with the difficulties of keeping track of the various probability and utility assessments they have used. This is fine for a start as the method gives great latitude for eccentric probability and utility assessments but this freedom is always constrained by the laws of probability and the need for coherence. Without calculation it is very hard for even modest problems to be sure that the probabilities and utilies that one is producing are really in line with ones ideas.

What the decisionmaker can do is find two consequences C, the best consequence and c the worst consequence of all the consequences in the problem or analysis. If it helps C and c and be taken to be consequences outside the problem so long as C is better than the best consequence in the problem and c is wosre than the worst consequence in the problem. Now imagine the decisionmaker is offered a gain of C with chance u and c with I-u; how does this compare with C_{ij}? Well, there must be a number such that the decisionmaker is indifferent between C_{ij} and the gamble C with chance u, and c with I-u. So for any consequence we want to contemplate we can find a number that expresses exactly how much we like a particular consequence compared to all the other consequences in the problem. Again note the number, u, is a measure of worth on a probability scale and must obey the laws of probability; and when consequences are combined they must be combined in a coherent way with their respective probability assessments.

The authors of the IRA:HBP have not bothered to use the above method instead they have without explanation adopted a method that will be called 'pseudo binary'. The Authors of the IRA:HBP seem to put all probabilities, products of probabilities, and products of utility and probability are put into one of either two amporphous groups, labelled 'negligible' and Non-negligible. (some of the non-negligible are sometimes, for a short while called significant but shortly thereafter they will end up back in the amorphous grouping of either Negligible or Non-negiglible There is work enough in

this last paragraph for a modest monograph. It is enough to say that the 'pseudo binary' approach is the antithesis to the the coherent Expected utility approach. As best as we can determine it, the pseudo binary approach is not capable of producing coherent results. And there is no easy recourse for the Authors of the IRA:HBP to a fall back on sound arguments for each of the various assesements used for each hazard. as few of the arguments used are deductive and fewer still are sound. Worse we require not only individual arguments but the proper comparison and combination of arguments. Expected utility analysis is far from perfect but of the alternatives available for this job it is the best and if it is followed then eventually and at length the Authors of the IRA:HBP will have to make explicit comparisons amongst different utilities.

Both the authors of the OIE I997 and the Authors of the IRA:HBP mention determining the "acceptable level of risk". Now exactly what they mean by this is not clear as already mentioned 'risk" or rather the loose way that term has been used in the IRA:HBP has been identified as troublesome. The phrase "acceptable level of risk" could mean the acceptable level of expected utility or some sought of minimum expected gain or loss from allowing the importation to go ahead, but in the context of hazards and 'risk assesement' we take it that the acceptable level of risk means either; the amount of probability that we are prepared to take to get a particular gain; or its means the likely amount of gain we want in order to accept a particular probability of a release of a hazard. Either way Expected utility analysis has it covered.
In determining the "acceptable level of risk" it could be that the Authors of the IRA:HBP have in mind a relative frequency notion. The Authors of the IRA:HBP would be mistaken if that is so as the importation of honey beeproducts is a 'oneoff' and relative frequency notion for the "acceptable level of risk" is not sensible.

Expected utility analysis gives us two different ways of thinking about a quantity that could be thought of as the acceptable level of risk. First there is the fixed probability method. Here there is a probability

$\hat{p}$ and for every possible consequence the decisionmaker has to think how big the gain G (offered with chance $\hat{p}$) and how big the loss L, (offered with change I-$\hat{p}$) would have to be before the decisionmaker were indifferent between the gamble and the decisionmakers current assests N with the status quo.

The other method available from expected utility analysis is the Fixed state method. Here the decisionmaker has to consider an initial position with assets, N, and the status quo; and against this the decisonmaker is offered a gamble where the decisionmaker could gain G or lose L the decisionmaker then has to pick what probability, p of G, and (I-p of L) would make the decisionmaker indifferent between the assets, now, N, and the gamble. This second method is easier to work with as we can often make rough calculations about the possible sizes of the gains and losses that might follow the importation of honey bee products and the hazards that might come with it.

Note the probability derived in the paragraph above is <u>NOT</u> an assesed probability it is a probability derived from a standard that relies on indifference. And here at last the Authors of the IRA:HBP have no refuge in eccentric probability assessments, no camouflage under the use of loose or ambiguous terms, here at last the Authors of the IRA:HBP must make explicit calculations about the size of N, G, L, and the size of p that gives indifference. Included somewhere in the calculations must be some measure of aversion to loss or risk aversion. It would be rare for any decisionmaker even one as well resourced as a Government to be linear in risk when the size of possible losses associated with the hazards of honey bee products is far too big to be regarded as trivial. Two examples are obvious, the first is the size of the loss that would result if some

virulent hazard killed all the wild bee population and there were a complete loss of free (PUBLIC GOOD) pollination of hill country white clover, native trees and domestic gardens. There could be losses too, of other soughts if the way decisions were made were seen to be 'not playing by the rules of proper trade'. We can conclude that if we take the Government as the ultimate bearer of risk and we can infer that different parts of Government will have calculated for purposes of their own utility functions (They should probably all use the same one but this is a separate issue) it might be useful to get those utility functions and see how they square with the attitude to risk the Authors of the IRA:HBP have in mind.

The introduction of a standard based on indifference be it from the fixed probability method or from the fixed state methods means explicit comparison of expected utilities can not be escaped; nor can the need for a numerate approach and coherent calculation be delayed any further. The lack of explicit calculation for the "acceptable level" of risk" used by the Authors of the IRA:HBP is an irreparable flaw in the IRA:HBP. While much of the needed work has been done a good deal remains unfinished and no coherent decision about which regime of sanitary measures is bes can be made. We cannot yet form the essential equation for the expected utility equation and fill it with coherent probabilities and utilities.

Whatever analysis is done following the OIE methodology and whatever analysis is done following the methodology of LINDLEY there is no getting around the concept of indifference, and thus the concepts of probability that can be build-up from the concept of the concept of indifference. Once indifference is introduced the concept of coherence is not far behind and the need for numerate analysis follows as a more or less practical necessity. It is fortunate that numerate expression is both flexible and precise enough to express any probability, utility, or combination of the two that we can think of. The clarity, the definiteness of numerate expressions is a great help in getting ideas from one mind into another mind. There is another advantage of definite expression; definite expressions can bring forward definite objections. And better still the expected utility framework can handle definite objections and if necessary revisions quite well: the objection can be categorised and if necessary calculations can be made that will show if the objection is well founded, we lose nothing but a little time and we may gain some useful insight.

To be clear and to remove any bit of doubt, the Authors of the IRA:HBP are entitled to their assessments of probability surrounding various hazards and the decisions the Authors have made about what hazards are and are not relevant. Indeed in the Expected utility world such assesements and the companion assements of utitity that the Authors of the IRA:HBP have made are near enough inviolate. Before the Authors express any happiness, if they accept the last paragraph which, is, afterall just an expression of a general principle of Expected utility analysis, the Authors must accept the conclusion in the next paragraph as it too is just a general expression of the implications of expected utility analysis.

The authors of the IRA:HBP have not shown any explicit calculations of the probability and the utilities that they have used in reaching their conclusions. We can wonder one of two things; perhaps the Authors of the IRA:HBP are shy of showing their calculations. They might perhaps speculate that showing a set of calculations might deter others from having a say. (This is unlikely, and in the submitters experience people often find it rather a lot easier to find flaws in the probabilities and utilities in a given framework than they find the task of creating and filling-in a utility analysis) Or in our darker momemts, we reflect that in the other branch of utility analysis, the one dealing with Games there are developed good reasons for keeping ones calculations to ones self.

We will not dwell on that dismal branch of utility analysis and say only if you have the calculations for your Expected utility analysis for goodness sake show them otherwise there is no other conclusion than you will not show them because you have not done then and know that on failing to do the calculations necessary to avoid incoherence you have fallen into incoherence. Without calculation it is extremely unlikely that in an analysis as large as the one attempted in the IRA.HBP that incoherence could be avoided by good fortune and that is about the only way incoherence would have been avoided.

After all this what should be done? Well the clear thing to do is to begin the analysis again, even if it is in the simplified form suggested earlier. Collect background information from old papers that gave the reasons why New Zealand did not allow the importation of honey bee products. Resolve from the outset to make the analysis numerate. Collect information about how well different physisical sanitary measures work in practice. (the OIE allows for this see page 40 ? article I.4.2.5. I997. Work out the possible sizes of gains in the home market for Honey bee products and workout the likely gains in foreign markets and similarly the lossess. Pick a method (the fixed state method) for the acceptable level of risk and apply that method. Having assembled enough information to build the expected utility equation it would be easy to calculate the value of either perfect or partial for each of the particular hazards thus giving an excellent case for a research budget and similarly for the syndrome forming hazards. This is, it must be admitted a lot of work especially if the full analysis is done and all branchs of the analysis are followed, Yet it is the only way to lead to a fully coherent and complete analysis.

The Authors of the IRA:HBP will probably be thinking'if that submitter thinks it all so easy why s has he not provided his own calculations?. That would be a fair question and there is no proper reply only that the full analysis is of more than forthy hazards and a fair number of events even if things are not gone into. For example a simple analysis would say, what is the probability of say, a heat treatment failing? Well it depends on the kind of process being used; is it a continous one of a particular kind or a hatch one? What is the probability that a treatment is reported as being successful when, in fact, is is not and vice versa. This submitter would be only guessing, which is alright if the analysis is carried through to the end and one gets the chance to revise one can see if some ghastly error or ill judgement has slipped through, and in a big analysis they will. So the sheer volume of work is one thing and the fear that an incomplete analysis would be worse than useless. Second the whole submission was prompted by the thought 'why don't we see Australian honey on the shop shelves?' A little reflection provided the answer 'the game is not worth the candle'. Some further thoughts about the size of the Public good benefits from the work of live bee from wild hives were surprising. Yet the calculations could be wrong quite easily as they depend a lot on the acreage of land under clover (White) and ryegrass etc and the regime of resowing that might be followed. Although on reflection too, it seemed the structure of the home market would make it competitive and that the home price would be close to or below the world price at least for commodity products. So the gains would come from blending or reprocessing perhaps but of these things, we can only guess at. So any calculations available to me are likely to be one sided as it is easier to calculate the losses and rather harder to calculate the gains. The other thing being the loss of free pollination, would be a deadweight loss whereas some of the other losses from the escape of hazards would be transfers rather than losses. Still the possible size of the deadweight loss was rather surprising and it seemed best to see what the people with the information at hand would say.

A simplified analysis, for instance one that dealt with the worst hazards and the three or four best physical sanitary measures for controlling them might be enough to see if further investigation was needed. If the gains from importing honey products turnout to be rather small and this may well be and the losses, should one or two of the very worst hazards make it through seem rather large, then the sanitary measures used against declared or improperly labelled imports might have to be very good indeed to justify the possibility of loss. One way to find this out would be to find what others who are expert in the analysis of lose think. For instance, what would be a fair premium to charge for accepting all the losses should any of the possible hazards associated with honey bee products arrive regardless of how it got here?. The insurers would follow something like the analysis suggested by Lindley although the insurers may attempt to charge a little more than the fair rate as usually the insurer is a good deal less averse to risk than we are and the insurer very probably knows that.

In the meantime the status quo should remain. The case for honey product and bee product imports is simply not good enough and the analysis in the IRA:HBP is very probably wrong, wrong in the sense that it is incoherent.

That analysis has to be recast in numerate form and the language of the analysis has to be made clear and systematic. This submission has given hints on how to do it. It would seem to be a valuable exercise to make the analysis conform to the model of Lindley as nothing in his model conflicts with anything in the OIE methodology. Indeed the two are complementary. And once the framework of risk analysis in the expected utility framework has been written down and made systematic it will be of great help in doing risk analysis work for any other product in any other country. For this reason, and the reason that without the calculations to check them assessments of utility are very probably incoherent it would seem worth the effort to workout how to adapt the methodology suggested by Lindley for the work of risk analysis.

8. Biosecurity Australia

02627233099

Australian Government

Biosecurity Australia

TO:	Martin Van Ginkel		
ORGANISATION:	Pre Clearance, Biosecurity New Zealand		
FACSIMILE NO.	64 4 474 4133		
FROM:	Geoff Ryan		
SECTION	Ruminants and Honeybees, Animal Biosecurity		
FACSIMILE:	(02) 6272 3399	PHONE:	
DATE:	24 Feb 2005	PAGES:	2

MESSAGE:

Edmund Barton Building Barton ACT GPO Box 858 Canberra ACT 2601 Tel +61 2 6272 3933 www.daff.gov.au/biosecurityaustralia

DEPARTMENT OF AGRICULTURE, FISHERIES AND FORESTRY

Australian Government
Biosecurity Australia

24 February 2005

Martin Van Ginkel
Pre Clearance
Biosecurity New Zealand
Ministry of Agriculture and Forestry
PO Box 2526
Wellington
NEW ZEALAND

Dear Martin,

IMPORT RISK ASSESSMENT: HONEY BEE HIVE PRODUCTS

The following comments relate to the import risk assessment (IRA) conducted by The Ministry of Agriculture and Forestry (MAF) and the summary of recommended sanitary measures for the above products.

1. **American Foulbrood (AFB)**
   One of the risk management measures states that honey, pollen, royal jelly and beeswax can be heated to 120°C for 24 hours. According to the relevant literature review, this information related to beeswax only. Other research showed that heating honey at 120°C for longer than three minutes would affect honey quality. Why has a time period of 24 hours been proposed as an overall measure in the light of this information? As the measure relates to beeswax, it would be appropriate to highlight this in the requirement.

2. **European Foulbrood (EFB)**
   Time-temperature treatments for reducing *M. pluton* by 6D have been shown in 10°C increments. Can the time periods be shown in 5°C increments to allow for flexibility in treatments and ease of certification by AQIS?

3. **Bee Louse**
   What temperature for freezing of comb honey is being recommended (eg. below 0°C, -10°C)?

4. **Small hive beetle (SHB)**
   What freezing temperature is being recommended for comb honey and bulk extracted honey? In an alternative risk management measure for bulk extracted honey, it is stated that honey be heated for 50°C for 24 hours. However, Navarro et al. (2003) showed that three hours gave adequate control of storage beetles. What justification is there for heating honey for 24 hours?

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DEPARTMENT OF AGRICULTURE, FISHERIES AND FORESTRY

5. ***Varroa destructor* and other varroa spp.**
With regards to comb honey and pollen, the literature review showed that varroa spp. can survive for a maximum of 102 hours (or 4.5 days). The recommendation that comb honey be held for two weeks appears to be excessive. I suggest that 10 days be considered, as this provides a 2.2x safety margin. In addition, comb honey is required to be frozen for 48 hours, what temperature is being recommended?

Yours sincerely,

GEOFF RYAN
Manager Ruminants and Honeybees

9. Tom Devlin, NZ Honey Producers Cooperative

NEW ZEALAND
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25 February 2005

Ministry of Agriculture and Forestry
PO Box 2526
Wellington

Attn – Martin Van Ginkel

Good morning,

Re – Submission – Import risk analysis – Honey bee products

The New Zealand Honey Producers Co-operative [NZHPC] represents nearly 100 shareholders located throughout New Zealand who produce an annual honey crop of over1200 tonnes of all honey varietals. NZHPC is a major industry influence with domestic and export sales being 55% and 45% respectively of total annual sales.

Our submission is that – Importation of honey remain prohibited.

In support of our submission we provide the following information –

New Zealand is a net exporter of honey. Most exporters are adding value via on shore processing employing local staff and sourcing packaging, labels, freight and general materials locally.

New Zealand enjoys an international reputation for the variety, quality, purity and uniqueness of its honey sources together with an absence of most diseases that threaten honey production.

The industry is presently fragmented with many small production/packing units and is under going rationalisation. Stronger and larger units will emerge but the industry needs a reasonable period of time to adjust.

New Zealand produces one of the widest ranges of honey in the world. There are no varietal gaps that warrant import substitution.

New Zealand honey prices reflect the world commodity prices. The local market is dominated by 2 major supermarket chains, both successfully selling product across all price points. There is no pressure from New Zealand supermarkets or consumers for imported honey due to price, quality, range, variety or supply issues.

New Zealand is an island and as such is protected from many pests and diseases. The New Zealand bee industry has been free of these due to existing controls. In the past 3 years Varroa mite has been discovered and spread throughout the North Island. It is only a matter of time before it affects the industry nationally. Treatment by apiarists is approximately $35 per hive annually. Consequently some beekeepers have not been able to fund the cost of Varroa prevention and have exited the industry.

New Zealand is free of some exotic bee diseases and pest species which place the bee keeping industry in a unique position in the world – allowing the production of honey and bee products without the use of chemicals.
The importation of honey may provide the vector to carry European foulbrood into the country. European foulbrood would be to the honey industry as foot and mouth is to farming mad cow disease is to the beef industry.
No matter what protocols are set in place there can be no guarantee that the protocols will be adhered to in the exporting countries. The risk cannot be ignored.

QUESTION - Does New Zealand allow the importation of beef from countries where foot and mouth or mad cow disease occur – so why punish/destroy the honey industry ?????.

Other bee products may also carry into New Zealand pest species that do not occur here now – small hive beetle.
Risk analysis and computer models cannot predict or counteract the human error or human mismanagement.

Yours faithfully

Tom Devlin
Director

Cc – Hon. Jim Sutton
Minister of Agriculture and Forestry
MP Aoraki

10. Jacqui Todd

Miss Jacqui Todd
5/5 Renfrew Avenue
Sandringham
Auckland
Phone: 021 1575 821

25 February 2005

Ministry of Agriculture and Forestry
Te Manatu Ahuwhenua, Ngaherehere
ASB Bank House
101-103 The Terrace
PO Box 2526
Wellington
New Zealand

To Whom It May Concern:

Submission on the Import Risk Analysis: Honey bee products

I would like to express some concerns I have about the conclusion reached in the Import Risk Analysis on the likelihood of introducing new honey bee viruses to New Zealand through the importation of honey bee products. The sections of the risk analysis I am addressing are Sections 4 (Apis iridescent virus), 5 (Arkansas bee virus), 9 (Berkeley bee virus), 13 (deformed wing virus), 14 (Egypt bee virus), 18 (slow paralysis virus), and 19 (Thai sacbrood virus). In particular, I would like to draw attention to the conclusion reached in each of these sections that states "that the likelihood of [the relevant virus] being present in the imported commodities is considered to be negligible". I would like to present some research that was not included in the risk analysis and which I believe should be considered before a conclusion can be reached about the likelihood of these viruses being present in bee products.

A large body of research has been conducted into the impacts of honey bee viruses on honey bees worldwide, and, since 2001, I have been involved in this research area in NZ in collaboration with a number of overseas and local experts (e.g., Todd *et al*, 2005). Some of our research is mentioned in the risk analysis. I have read widely on this topic and have come to appreciate that the relationship between honey bees and the viruses that infect them is complex and not yet completely understood. This relationship is further complicated by *Varroa destructor* mites that are able to acquire and transmit several of the bee viruses, resulting in the spread of viruses through the colony. At least two of the viruses that have not been detected in NZ have been implicated in varroa-induced colony collapse in other countries: deformed wing virus (DWV) (Bowen-Walker *et al*, 1999) and slow paralysis virus (SPV) (Ball, 1997). The introduction of these viruses to NZ could, therefore, have serious negative impacts on honey bee populations in this country. This would have implications for both the production of bees

and bee products in NZ, and the ability of NZ producers to export their products to other countries, especially those in which these viruses have not been detected. I believe that there is enough evidence available to suggest that these viruses could be present in imported honey bee products and that, therefore, the importation of these products could pose a risk to NZ. Reduction of this risk could be achieved by carrying out tests for these viruses in bee products to ensure bees could not become infected following consumption of the product.

The risk analysis states that there are seven honey bee viruses that have not been found in New Zealand: Apis iridescent virus (Section 4), Arkansas bee virus (Section 5), Berkeley bee virus (Section 9), DWV (Section 13), Egypt bee virus (Section 14), SPV (Section 18), and Thai sacbrood virus (TSBV) (Section 19). Because of this, these viruses have been identified as potential hazards. In each case, the risk assessment concludes that the likelihood of any of the commodities carrying the virus is negligible. I believe that the results of the following studies suggest viruses could, in fact, be present in honey bee products, and could persist there long enough for bees that consumed the products to become infected.

Several viruses have been detected in pollen loads that are brought back to the colony by infected bees, as acknowledged in the risk analysis (e.g., p21 - Arkansas bee virus, sacbrood virus (SBV), chronic paralysis virus (CPV) and acute paralysis virus (APV): p28 - Berkeley bee virus). Note that two of these viruses have not been detected in NZ and therefore could pose a risk if they were contaminants in imported pollen. Bailey (1969) showed that bees infected with SBV bring 10^6 virus particles back to the colony with each pollen load collected. Virus particles are added to the pollen loads by the bees in secretions from the food glands in which the viruses multiply (Bailey and Ball, 1991). Some bee viruses are known to multiply in these glands, including SBV, CPV and APV, and it is possible that other viruses also multiply here. Although bees infected with SBV do not collect much pollen, bees infected with other bee viruses may collect more pollen and, therefore, the percentage of contaminated pollen in collections from these colonies could be much higher. Bailey and Ball (1991) state that much CPV is found in the pollen collected by apparently normal individuals from colonies suffering from the paralysis disease. Similarly, APV was frequently found in the pollen loads of inapparently APV-infected bees (Bailey, 1976). Since these pollen loads are collected by apparently healthy bees it would be impossible to know that the pollen was contaminated without testing it. Tests need to be conducted to determine how much virus is present in pollen collected by bees infected with those viruses that pose a risk to NZ. For example, the risk analysis acknowledges that clinically normal bees infected with DWV could contaminate hive products since the virus does not significantly affect their longevity nor behaviour, allowing them to collect normal honey and pollen loads. Without testing these products it is impossible to be sure that infective DWV particles could not be present.

The presence of virus in the hypopharangeal glands and honey sacs of bees infected with SBV, CPV and APV is also thought to result in the addition of these viruses to the nectar they collect (Bailey, 1976). Although this nectar may be diluted when it is added to uncontaminated honey in a healthy colony, in colonies infested with *Varroa destructor* many more bees become infected with virus, and, therefore, a larger proportion of the bees collecting nectar will be infected. This would result in a much greater proportion of the honey crop being contaminated with virus. It would seem prudent to determine the

level of viruses such as DWV and SPV in honey extracted from colonies severely infected with these viruses before imports are allowed into NZ.

The above studies suggest that viruses could be found in pollen or honey collected by infected bees. There is also evidence that these viruses may persist there for long enough for NZ bees to come in contact with them in imported products. Todd and de-Miranda (2004) conducted tests on the persistence of honey bee viruses in honey samples in the USA. Particles of DWV and Kashmir bee virus (KBV) were purified from extracts of infected adult bees, and mixed into honey samples. Both viruses were detected in the honey samples when they were tested immediately following the introduction of the particles. KBV was also detected in the honey samples after 2 and 10 days of storage. KBV was also detected in honey samples that had been stored for 2 days and then heated to 65°C for 15 minutes, a heat higher than that usually used during honey extraction processes (Tew, 1992). Unfortunately, the tests for DWV did not work adequately, and it is not known whether these particles also persisted in the honey for more than one day. The samples were tested using reverse transcriptase PCR. This is a very sensitive testing method and will detect virus RNA even at very low levels. Consequently, it is not known whether these particles were at a high enough concentration to cause disease in bees that consumed the honey, but the possibility cannot be discounted without further investigation. This study has certainly shown that KBV can persist in honey at detectable levels for 10 days and after heating to 65°C, raising the possibility that this could also be the case for other bee viruses.

Viruses may also persist in pollen collected by infected bees. Bailey and Ball (1991) conclude that any sacbrood virus placed into pollen loads by infected bees would remain concentrated and would be likely to infect young nurse bees that consumed it. The studies conducted into the presence of APV and CPV in pollen (see above) do not indicate how long the pollen was infective for, but it must have been long enough for the pollen to be collected and analysed. Without testing the persistence of other viruses in pollen it is impossible to be sure that the viruses that pose a risk to NZ could not be imported in pollen collected from infected colonies.

The length of time for which viruses may remain infective outside their living hosts has not been studied for most of the viruses, and there is evidence that suggests the viruses lose infectivity in dead bees. However, Shimanuki *et al*, (1992) stated that SBV remains infective in the remains of larvae that died from the virus for up to 3 weeks at 18ºC, that dried smears of larvae freshly killed by SBV remain infective for up to 10 months at 18ºC and semi-purified virus stored in royal jelly at 5ºC remained infective for at least 3 weeks. This raises the possibility that the viruses may persist for long periods under other circumstances as well. Tests need to be conducted on the persistence of the unwanted viruses in bee products before we can be certain that bee viruses will not be introduced in imports of these products.

If the viruses that pose a risk to NZ are able to persist in bee products, as KBV is able to persist in honey, then the following studies suggest that these viruses could then be infective to bees that consumed any contaminated products. Bailey *et al* (1983) suspended viruses in a honey solution (200g/litre), which they then fed to newly-emerged adult bees. Four viruses were tested individually (filamentous virus (FV), black queen cell virus (BQCV), bee virus Y (BVY) and bee virus X (BVX)). The results showed that bees could become infected with BVX, BVY and FV when they consumed

these viruses in the honey, although infection with FV only occurred when the bees were also infected with *Nosema apis* spores. Oral infection with BVX caused a significant reduction in the bees' lifespan, and infection with either BQCV or BVY was found to add to the pathogenic effect of *N. apis*. Bailey (1969) fed SBV particles to newly-emerged adults either as crude extracts or extracts that had been diluted with 10% honey. SBV was found to multiply in the hypopharangeal glands of these bees, and the bees ate less pollen and did not live as long as uninfected bees, revealing that these bees had become infected following consumption of the particles.

There have also been a number of studies conducted in which honey bee viruses were fed to adult bees in sugar syrup solutions, resulting in the development of disease symptoms and reduced lifespan. For example, adult bees developed symptoms and died following consumption of sugar syrup containing purified CPV (Rinderer and Rothenbuhler, 1975a; Rinderer and Rothenbuhler, 1975b; Rinderer and Rothenbuhler, 1976; Bailey, 1976). Although the oral LD_{50} for CPV in adult bees was found to be more than 10^{10} particles (Bailey, 1976), ingestion of sublethal doses were found to result in elevated CPV particles in bee tissues (Bailey 1965), indicating that the bees had become infected with the virus. In studies with APV, Bailey (1976) found that adults developed paralysis after ingesting of 10^{11} particles of the virus. Verma *et al* (1990) fed colonies of *Apis cerana* with 50% sugar syrup to which purified Thai sacbrood virus (TSBV) suspensions had been added. These colonies developed typical symptoms of TSBV, whereas control colonies, fed 50% sugar syrup without the virus suspension, did not. These infections (serologically confirmed as TSBV) appeared in the colonies 4-10 days after the infected syrup had been placed in the colonies. These results show that honey bees can become infected with a virus following consumption of particles in sugar syrup, and that the particles must have persisted in the syrup long enough for the bees to consume the syrup and become infected. Although these experiments involved feeding sugar syrup to bees rather than honey, the sugar syrup solutions are likely to be a similar environment to honey (95-99% of the solids in honey are the sugars glucose and fructose that are inverted from sucrose (Herbert, 1992)) suggesting that similar virus infections could result in bees that consumed virus particles in honey as well.

In summary, there is evidence to show that bees infected with bee viruses can contaminate bee products, such as honey and pollen, with virus particles. Some of these particles are able to persist in honey for at least 10 days, and SBV, at least, remains infective in smears of dead larvae for 10 months. Bees have been infected with viruses following consumption of particles that were mixed into honey and sugar syrup solutions. This evidence suggests that NZ bees that came in contact with imported pollen or honey could become infected with viruses if they were to consume virus particles in the bee products.

Although most of the viruses tested in these studies have already been detected in New Zealand, the results raise the possibility that the viruses that have not been found here could also persist in imported bee products. The risk analysis acknowledges that clinically normal bees infected with DWV could contaminate hive products since the virus affects neither their longevity nor behaviour, allowing them to collect normal honey and pollen loads. Bee products collected from these colonies could be contaminated with DWV particles, posing a risk to NZ bee populations if any bees consumed them and became infected. I believe it would be advantageous to conduct studies to determine if this is, in fact, possible before such products are imported.

Thank you for taking the time to read my submission.

Yours sincerely,

Jacqui Todd

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11. Roger Bray, National Beekeepers Association of NZ

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Submission

on the

Import risk analysis : Honey bee products

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28th February 2005.

Risk Analysis

To enable a full risk analysis to take into consideration all relevant factors it is necessary to have an understanding of any potential effects on people, the New Zealand environment, and the NZ economy, that may result from the introduction of unwanted organisms which may be present in imported goods. The NBA is concerned that the non-negligible risks as outlined do not fully appreciate the significant over all risks to NZ as a whole.

It is necessary in developing a risk assessment to take note of the following factors:

Status of *Apis melifera* species in NZ.

With the introduction into NZ of varroa in 2000 the status of the honey bee species has significantly changed. It is no longer a sustainable organism in the NZ environment. Varroa has the ability to permanently remove bees from the NZ landscape. There are treatments available to allow the successful management of colonies in the short term. The treatment of colonies for varroa is dependent on a balancing act between the cost of treatment and the economic return from beehives. Within the varroa infested areas of the NI there has been a noticeable reduction in the feral beehives as well as a reduction in the number of beekeepers and beehives amongst those who are less able to cope with varroa. The NBA considers that honey bees should be classified as a "Threatened species'" because of their dependence on man for their survival. Any further introduced disease would severely compromise this already threatened species survival.

Present day beekeeping.

Present day beekeeping is conducted by beekeepers mainly as a commercial venture. The main objective is for beekeepers to produce bee products for profit. There is also a much larger return for the NZ economy as a result of the pollination efforts of the bees. Whilst the bee products contribute approx $20m to the NZ economy the pollination of crops (kiwifruit, pip fruit, stone fruit, berry fruit, vegetable and pastoral seeds) significantly alter the worth of bees in our environment. The impacts of varroa in the South Island alone have been estimated at $316m over 35 years by a MAF estimation. Any risk analysis needs to consider the flow on effects of the introduction into NZ beekeeping any organism which has the potential to place impediments to the sustainable management of hives in NZ.

It should be a consideration as part of the risk assessment of the need and economic benefit to provide for importation of bee products whilst there are non negligible risks to the overall sustainable management of bees for products and pollination. The NBA estimates that as NZ generally has a surplus of bee products with the domestic market fully supplied, there is little need for imported products to meet production shortfalls.

Exposure assessment.

Whilst there has been some investigation into the exposure assessment as practical beekeepers the NBA assures the writers that most bee products are attractive to bees – robbing (the recollection of honey by foraging bees) is a common occurrence whenever honey is exposed. Pollen is sometimes "fed" to bees in weatherproof containers which provide access to foraging bees – pollen is also fed to bees by the direct introduction into beehives. The behaviour of bees is such that any food item exposed to bees will be utilised by colonies as a normal behaviour pattern.

Consequence assessment

The risk assessment has not provided details of the consequences of entry of an unwanted organism. This would include the discovery methods utilised to detect an unwanted organism and the procedures undertaken to prevent the spread or establishment of the unwanted organism.

The beekeeping industry has at present minimal surveillance for exotic pests and disease with any past incursions being discovered by beekeepers in their normal beehive operations. As there has been an increasing mobility of beehives (refined shifting methods and seasonal opportunities for crops and pollination), the containment of any unwanted organism in modern day beekeeping would be very difficult as was seen with the initial delimiting survey with varroa in 2000.

The consequence of any introduction of unwanted organisms has not been assessed fully within the document and in a lot of cases it has been assumed that the risk is negligible so consequences will not result from an introduction. In this estimation it does not follow that the consequences will also be negligible and in deed it could be a case even through the risk is negligible the consequences could be significant.

Organisms included in risk analysis.

Whilst there are a number of organisms and pathogens identified, the risk analysis is unable to quantify risk for any "unknown" organism capable of affecting honey bee health. Much of the work in identifying bee pathogens has been conducted during the later part of the 1900-2000 period. It is appreciated in scientific circles that at any stage science is incomplete because of the variations and mutations of diseases. NZ has largely escaped the ravages of pests and diseases which have travelled round the world because of its isolation, and bee product prohibition as a method to prevent the introduction and establishment of pests and diseases. "New diseases" will be discovered from time to time, it would be extremely disappointing for NZ beekeepers to find that NZ beehives have been affected by a "new disease" because it was transferred in imported bee products. For example there have been many reported "bee colony deaths" in France, whilst there are many theories ranging from viruses to "bee poisoning" there has not been a definitive answer for the "cause of death". This risk analysis only deals with known pathogens and is unable to cover such "unknown" pathogens. Introduction of a serious unknown unwanted organism is an unacceptable risk.

Although there are many organisms included in the risk analysis we would like to concentrate on 2 significant diseases included in the risk analysis for the further comments:

European Foulbrood (EFB):
The NBA agrees that the risk of introduction via bee products in non-negligible. The risk analysis then goes on to attempt risk mitigation by suggesting the treatment of bee products for import into NZ. We believe that the risks themselves would be sufficient to preclude importing rather than a treatment regime which may be impractical to monitor and unable to verify that products have had a treatment prior to arrival in NZ. Commercial preparation of honey world wide is to reduce impurities within the product and not generally to treat to kill bee pathogens which have no effect on humans. To create a treatment program for imported honey would be confusing to the general public of NZ who may wish to bring in personal supplies of honey "off supermarket shelves" in any overseas country. In effect we would appear to have double standards which the average consumer would not be aware of nor understand. NZ has evaded the scourge of EFB mainly because of our borders being closed to overseas bee products for a considerable time now.

American Foulbrood (AFB):
Beekeeping in NZ is highly regarding world wide because of the collective approach by NZ beekeepers in dealing with a major disease AFB. The AFB PMS has the goal of eradicating AFB without the use of drugs. There has been very little spore testing of NZ honey to determine the spore levels in NZ domestic honey. As the goals of the AFB PMS is to reduce and eliminate AFB then it should be a consideration of the risk analysis that spore loadings in honey be at a level equivalent to the NZ domestic honey and come from hives free from AFB. Exporting countries will need to verify their internal area freedom methods and claims.

For clarification the NBA suggest that the Import Health Standard (IHS) for honey, pollen, royal jelly, and beeswax.

Each consignment must be either:

from a country or part of the territory of a country free from American foulbrood

and

from hives that were inspected for American foulbrood within the previous 12 months, by a person certified as competent to diagnose the disease (following appendix 3.4.2 of the OIE *Code*), and found not to be clinically infected or suspected to be clinically affected by American foulbrood.

and

tested and found to have a *P.l.larvae* spore count equivalent or less than NZ domestic honey.

and

(iv) come from hives which have not had antibiotic treatment.

This would create equivalence to the NZ situation as bee products are not permitted to be used/sold under the provision of the AFB PMS.
Completeness of risk analysis.

The risk analysis concentrates on the Biosecurity Issues relating to the introduction of unwanted organisms. There are other risks involved in the importation of bee products the main risk is to the integrity on NZ bee products. Statistical analysis of honey sales versus production data would indicate that world honey is traded through various countries before arriving at the consumer. This was to the Australian industry's detriment when product from "Australia" was found to contain traces of chemical which were used in Argentina, thus the Australian honey was actually a "blend" of honey.

The NBA are concerned about any possible "re-branding" of imported overseas honey as a "product of NZ" there are unscrupulous people who will see a commercial advantage in "bending the rules" to enable a product to be sold at a premium to "cash in" on the integrity of NZ honey. The risk of this type of action impacting on the integrity of NZ honey has not been considered in the risk analysis but is of significant concern to the NBA.

Conclusion

NZ has had a policy of prohibited bee product importation. This has enabled NZ beekeepers to conduct their business without the many pests and disease found overseas. It is to the credit of former beekeepers and respective Governments that this action has protected our very valuable resource – the bees. As a result of the introduction of varroa bees have become "threatened species" which deserves greater protection against pests and diseases. Greater protection is unable to be achieved by opening the borders to the importation of risk goods. The benefits of importing risk goods are minimal when compared to any possible consequences of importing an unwanted organism.

Surveillance of beehives for exotic organisms is practically non-existent to the extent that any unwanted/organism would likely be beyond the eradication stage by the time it was discovered.

Our Country's Biosecurity should take precedence over free trade agreements.

Thank you for considering our submission.

Roger Bray
For and on behalf of the **National Beekeepers' Association (Inc.)**

28th February 2005.

12. Roger Bray

Import risk analysis : Honey bee products

Submission from Roger Bray.

INTRODUCTION.

I am writing this submission as a concerned beekeeper. I have been a beekeeper since 1965. I am a full time beekeeper in partnership with my wife and run approx 900 beehives in the Mid-Canterbury area. This area could be classed as an intensive agricultural area – grain and seed, dairy, sheep and horticulture. We also have beehives in the high country which has a pastoral base. Our family income is based on honey production with a small amount of paid pollination.

IMPORTANCE OF BEES TO NZ.

Bees were introduced to NZ in the 1840 – 1870's partly for honey production but more importantly to assist the European way of life in the production of agriculture products. There were very few native pollinators to pollinate the European agricultural products and pasture. The species of native plants in pre-European times relied on birds, wind or with assistance from minor insects for pollination. Much of our pastoral farming has been greatly assisted with improved pasture of ryegrass-clover mixtures. The clover is generally self sustaining with adequate pollination by bees to ensure a seed set. The diversification into fruit production with stone fruit, pip fruit, and berry fruit has all been dependent on the honey-bee for pollination, as has the small seed industry. Some information on the importance of beekeeping on agriculture products has been produced as a result of the introduction of varroa to the Auckland region. This is produced in the report "Varroa in New Zealand:Economic Impact Assessment, MAF Policy, November 2000'. The information suggests likely costs to NZ agriculture produce is dependent on the viability of the beekeeping industry. Whilst the agricultural sector has a large dependence on beekeeping the beekeepers play only a minor part in the actual production of agricultural revenue in the form of honey and hive products.

THE NEED TO IMPORT HONEY/BEEHIVE PRODUCTS.

New Zealand has for many years had an import restriction on beehive products etc during this time the domestic market has been fully supplied by the NZ beekeepers with locally produced products. During this time there have also been exports of honey, wax, live bees and queen bees etc (particularly of special niche market products).

HISTORY OF NZ BEEKEEPING – DISEASE CONTROL.

First hives arrived 1839.
First Italian bees arrived 1880.
In 1907 the first Apiaries Act was passed. In 1917 there were further regulations added making it the most complete Apiaries Act in the world. It provided for hives to be registered and disease control methods to be adopted including the mandatory requirements to keep bees in a moveable frame hive (for disease identification). There

was also a requirement to control American Foulbrood (AFB) by either treatment or destruction by fire. It was also an offence for a beekeeper to sell, barter or give away bees or appliances from an apiary known to be infected by disease. In 1924 the importation of bees or used appliances was prohibited except under consent of the Minister of Agriculture. Amendments to the Apiaries Act took place in the 1950's and the final Act in 1969 placed many requirements and restrictions on beekeepers most of which were to control the spread of AFB an endemic disease which had in earlier times been a severe problem to beekeepers. The most significant requirements of the latest act were refinements of the prohibition of imports of bees, honey etc and the destruction of AFB infected hives along with a requirement specifically not to allow infected hives/honey etc to be "exposed" in such a manner that bees may gain access to such material (ie robbing). Another provision of the act prohibited the use of chemicals to treat diseases.

As the provisions of the Apiaries Act were incorporated in the Biosecurity Act 1993, the old apiaries act was rescinded. The beekeepers of NZ in co-operation with MAF proposed a National AFB Pest Management Strategy Order in 1998. This Order promoted the official control of AFB without using chemical treatment and the objectives of this strategy are to eradicate this disease from NZ. As an individual beekeeper I have had experience dealing with this disease and firmly believe that the complete eradication of this disease is possible – we are only limited by those of lesser ability and experience as beekeepers.

From the above resume of the respective Apiaries Acts it can seen that Governments of the day (probably in consultation with a somewhat different MAF structure than at present, and with input from beekeepers) have contributed to the good health of our bees in NZ. As a keeper of bees which hopefully will be passed on to the next generation of beekeepers, I am indebted to our previous Governments and beekeepers in that their controls have contributed to making this one of the best countries in the world to keep bees (from a disease point of view).

NZ BEEKEEPING STANDARDS

New Zealand's reputation as a beekeeping nation is on a pedestal compared to most other beekeeping countries. On a world ranking of honey producers we hardly rate a mention (less than 1% of world production). As far as bee health, beekeeping methods etc we are respected as leaders in commercial beekeeping. Our hive products command a premium on overseas markets because of the reputation and integrity of our products. Until varroa hit NZ we were not feeding any chemicals to our bees (may the South Island remain free for some time yet), and there is a growing market to consumers who require safe food, safely produced.
If honey in bulk form was imported there are serious implications to the health standards of our NZ produced honey. I can foresee a situation whereby unscrupulous dealers in honey could import inferior honey and either 'repack' or 're-brand' as "NZ honey" and then re-export to more lucrative overseas markets – I believe that these such people exist ie these are commodity traders who have no commitment to actual beekeeping.

AMERICAN FOULBROOD IN NZ.

NZ beekeepers recognise the importance in controlling this disease and are committed to the eventual eradication of this disease. The Australia Bee manual c 1904 has very little information on disease of bees in NZ but has listed foulbrood with the name *Bacillus Alvei* (diagram and description is more like AFB than European Foulbrood (EFB) as the name relates) there appears at that time to be no scientific basis as to the cause of this disease nor a knowledge of how it is spread. In the early days of beekeeping AFB appears to have been a problem to NZ beekeepers perhaps because of the lack of knowledge of the disease and the use of many 'grannies remedies' which appeared to have been tried. In the 1920's a Mr E Sage, Waikato marketed "Apiarists Joy" for AFB control unfortunately this individual died along with his amazing cure! In 1950 78% of beehives were inspected and the clinical cases of AFB were 2.02%. There have been ups and downs in the recorded cases of AFB and in 1998 the AFB incidence was put at 0.38%. *Paenibacillus larvae larvae* spores can last many years (at least 35) and with modern scientific methods can be used as an indicator of AFB status. Future methods of AFB eradication in NZ will possibly need to be directed at lowering spore count in beehive products and I for one would be fully supportive of moving toward the eradication by scientific methods (ie the eventual reduction of AFB's spores in honey to zero). There is no indication of the spore level currently in NZ domestic honey and I would expect a risk analysis such as this to ascertain the spore loading in both random samples from beekeepers and samples from commercially packed lines, ie blended honeys. Information available to me indicates that from 145 honey samples received from beekeepers to the accredited testing facility, there were 2 samples which returned a positive spore count (1.4%) there is no indication of the number of spores in the positive samples. The results of testing would indicate that NZ honey is considerably "cleaner" than overseas honeys. (Ref: Risk Analysis pge 58). The proposed level of AFB spores should take into account the spore loading in our domestic honey and not be above that figure or the lowest infection threshold, <u>whichever</u> is the lowest, bearing in mind that NZ beekeepers commitment to reducing the incidence to nil.

7. EUROPEAN FOULBROOD (EFB)

NZ has escaped the ravages of EFB, more a result of good management rather than good luck. The good management has to take into account that honey has been a prohibited import.

8. SCIENTIFIC KNOWLEDGE OF OTHER ORGANISMS.

There are probably unidentified organisms which could cause harm to bees – it is highly likely new organisms will show up in the future. Varroa although discovered in Java in 1904 did not rate a mention in scientific circles until recently, I have a 1946 edition of the ABC & XYZ of Beekeeping by AI Root. There is no mention of varroa in that publication. I also have a 1980 copy (34th edition) in which appears only limited notes. Reading this copy it states that varroa was first noticed in 1964 in Russia and in Bulgaria in 1967, it goes on to state varroa had been found recently in Paraguay (1979) it goes on to state "in areas where varroa exists apiarists consider it a very destructive disease". Little did the scientists at the time consider the significance of this beast in terms of world-wide damage to bees (this organism has been spread by mainly beekeepers through trade and hive movements). Many other organisms and also many viruses have not been mentioned in my 1980 edition ABC XYZ. The small hive beetle is another unwanted organism which has only recently been identified and could have disastrous

effects on the sustainable beekeeping industry. With respect to organisms of which we have little knowledge or which we are unaware of I believe that it should be viewed cautiously to allow any importation of any material which could place our industry at risk – this is not a scientific view it is purely based on recent events and a fear of similar events happening in the future.

ASSESSMENT OF RISK FROM PRACTICAL POINT OF VIEW.

IMPORT RISKS

In the scientific perspective the risk of importing diseases and pests has been given the overall view of being relatively minor if certain conditions are met. From a practical point of view I see the risks as being considerably greater and this view is able to be demonstrated by the passage round the world of pests and diseases in countries which are both importers and exporters of bee products and where movements of hive/bees are largely unrestricted. These countries are perhaps less dependent on bees than the agricultural based NZ economy. Processing of NZ honey is done by very few processors and most of these processors operate beehives as well. The risk of contamination from any overseas products into NZ beehives is greatly increased simply because of this close relationship with processor and hive owner. The discard of contaminated products from packing processes could cause problems. Most bee products are "surplus" of bees taken by the beekeeper, in times that the bees need feeding these 'surplus's' may be returned to the hive. In NZ beekeepers remove honey during the season and supplementary feeding is usually done with sugar syrup, it is not beyond possibility that imported honey could be pumped directly into beehives as feed. This could be a considerable disease risk but the economics would likely dictate the action for some less caring individuals if imported honey was available. In the supermarkets the NZ public would perhaps be unaware of the health requirements for importing bee products and compromise border security by bringing in honey as undeclared baggage.

EXPORT RISKS

The importation of foreign honeys would probably compromise our present health status particularly with regard to export to EU countries. The protocols for the export of NZ honey to EU countries involves testing a percentage of the whole domestic crop for residues of chemicals and heavy metals. To add an imported product to our domestic crop increases the testing procedures and also the likelihood of rejection through actions taken overseas. It is possible that the honey traders are viewing NZ as a transit point to "rebrand" honey in an underhand method to gain access to our markets which we supply with a quality product and a disease history which can stand scrutiny and possess integrity, ie use our good name. Overseas countries also appear to have problems with adulteration of honey mainly because of cheap forms of sugar – high fructose corn syrup is sometimes used to "extend" natural honey it is relatively cheap and hard and expensive to detect. NZ does not have this product available at a price which would make this a viable option our sugar price is also high compared to other beekeeping countries. The concern is that NZ may import cheap overseas honey to then blend with NZ honey for re-export – if this action was undertaken then it would place the integrity of all NZ honey in jeopardy as would honey imported with high chemical (antibiotic) level.

VIABILITY OF NZ BEEKEEPING

NZ beekeeping since the introduction of varroa has been placed in a considerable state of upheaval. Studies to assess the viability of NZ beekeeping and its ability to fund varroa control suggest that a great number of South Island beekeepers are not in a position to face varroa financially and any further problems inflicted on the beekeeping community is likely to have far reaching effects. It would probably be beyond our industry or individual beekeepers to fund further controls of other diseases or to attempt to eradicate such. Losses of beehive production to the beekeeper and perhaps a loss of pollination for farmers could cause a compounding of losses through the introduction of an unwanted organism.

CONCLUSION

New Zealand is self sufficient in hive products and does not need to import hive products at the risk of compromising the beekeeping industry nor the wider agricultural community.

There are significant risks to the beekeeping industry with the introduction of existing disease/pests and an unquantifiable risk of unknown or little known diseases which may appear in the future.

There are significant risks with regard to our present defined export protocols being compromised with the importation and subsequent re – export of foreign beehive products, being branded NZ produce.

There is a significant risk of an increase in AFB disease which we have a solid history of controlling without drugs and future commitment to control with the view to eradication may be compromised (varroa may be a benefit here in the assistance of removing feral hives).

It has not been shown that an AFB spore loading of 500,000/ltr spores has relevance to NZ conditions. Nor has the current status of AFB spore loading in NZ honey been given.

The importation of honey or beehive products in a bulk form for reprocessing is unacceptable because of contamination/disease risks and also compromised export opportunities for NZ produced honey.

As there is usually a considerable time delay between introduction, discovery, identification and classification, any organism may have well and truly escaped into our environment making eradication difficult if imports of new organisms were a product of relaxed hive product imports.

RECOMMENDATIONS

Whilst I firmly believe that it is in the best interest of NZ beekeepers, NZ farmers, NZ agriculture and the general public of NZ that the importation of beehive products be prohibited on the basis of unacceptable disease risks and potential NZ export trade compromise, in certain instances trade should not be restricted on this premise. There are some small countries (eg Pacific island nations) where beekeeping is progressing along sound lines with appropriate disease surveillance and import restrictions. These countries have perhaps an even better endemic disease history than NZ. There should in this instance be only minor impediments to trade with these countries.

Honey products from countries with a proven history of freedom from unwanted organisms be allowed to be imported in retail packs only for the consumer without further processing in NZ. These products would be equal to or "cleaner" than our domestic product.

I would strongly oppose the importation of hive products in bulk form for reprocessing in NZ.

ROGER BRAY
BRAESBY FARM
RD 1
ASHBURTON.

Ph/fax 03) 308 4964

28th February 2005.

13. Jane and Tony Lorimer

LORIMER'S HONEY
HILLCREST APIARIES

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Submission

On the

Import Risk Analysis:

Honey Bee Products

28th February 2005

Contact Person: Jane Lorimer
Mobile Phone: 027 294 6559

Introduction

Hillcrest Apiaries has been in existence since the end of the Second World War, and Tony and I are second generation beekeepers. We are a commercial enterprise that currently runs 1,000 honeybee colonies. The family have always been politically involved with the National Beekeepers' Association. Tony has spent time on the Executive (6 years) in the past, and I am currently the Association President in my second elected term.

As President, my main areas of concern has been to maintain our relative bee disease free status, and to capitalise on our 'clean green' image to maintain and increase our exports as our Industry viability relies on the ability to compete on the world market seeing as we are a net exporter of bee products. Coupled with this of course is a concern about the country's

Biosecurity Strategy (or lack of one in the past) to keep out unwanted organisms and to detect and eliminate any incursions.

Others are drafting the Industry viewpoint on the Risk Analysis, but I will include many of the points also in our personal submission due to the knowledge I have gained through talking with others involved in the Industry.

Executive Summary

The Risk Analysis makes too many assumptions. It's just too great a risk.
.
It is inappropriate for MAF to both write the Risk Analysis and review the submissions. We want a totally independent person to carry this out.

Lack of consultation.

Risk Assessment - who carries out this responsibility

- Fundamental question missing

Who is underwriting the potential loss

Appropriate labelling and quarantine lapses.

Supporting Arguments for the Executive Summary

We ask that an independent person review the submissions made, as we feel that it is inappropriate for MAF to both write the Risk Analysis and review the submissions.

The Risk Analysis makes too many assumptions – in particular with respect to the viruses. In our opinion this places too greater risk of importation of unwanted organisms, that will not only affect our industry, but the Horticulture industry and the whole New Zealand economy should another bee disease decimate our bee stocks to the point that we are unable to meet pollination requirements. It has been estimated that the value of pollination exceeds $1 billion.

We are horrified that the Risk Analysis has not been distributed widely for other Government Agencies to look at and see if there are any possible impacts from their Agencies perspective. We have asked both ERMA and the NZFSA, one with no response, and the other saying that to their knowledge they have not received a copy.

ERMA is responsible for ensuring that New Organisms bought into the country do not impact on the environment, and yet the proposal to import bee products may bring in organisms that will not only impact on the environment(directly or indirectly), but also impact on the economy of NZ. It is our argument that this organisation(ERMA) should also be involved in looking at other proposals to allow in other products that may harbour unwanted organisms.

The NZFSA is responsible for ensuring that food produced is suitable for its intended purpose. It also has a responsibility to ensure that the product is what it says it is, and also to monitor for chemical residues. So far we have been unable to determine if the Risk Analysis has been circulated to the NZFSA for comment. We are concerned that along with unwanted organisms being introduced into the country, there could also be introduced adulterated honey – honey analog that is not true floral source product. Also there is the potential for honey to be imported that has unacceptable levels of chemical residues – two of which have been in the media in recent times – chloromphenicol, and nitrofurans. We pride ourselves on the production of relatively chemical free bee products due to our low bee disease status that has led the consumer in New Zealand to expect the bee products they consume to be a natural wholesome product. It is our argument that the Risk Analysis should be distributed to NZFSA for their

comment to see if it does have an impact on the ability of the NZFSA to ensure that the public are not exposed to unsafe product.

The risk analysis process that is outlined in figure 1 should detail who carries out the risk assessment. Is it industry and horticulture who have the greatest amount to lose if the risk assessment is proven wrong, or is it MAF who are trying to facilitate trade and see our industry as not being important enough to safeguard at all costs?

> The risk assessment will be quite different depending on what is trying to be achieved and we would argue that this assessment needs to be done from an Industry and Horticulture perspective.

In 2004, and early 2005, we have seen two cases of honey coming into the country illegally. The first of the cases that we refer to is the Dabur honey from India, that was found in a store in Auckland – we understand that this case is with MAF for prosecution for the illegal import. The second case was recently disclosed to me. An unsolicited honey sample was sent to Dr Peter Molan of the University of Waikato Honey Research Unit from Australia that was discovered due to the package leaking (MAF reference number M2005/1910). MAF forwarded the leaky package on to Dr Molan, who knew the risks to our industry, so disposed of the packaging material and spilt honey in an appropriate manner. What surprised Dr Molan was that when he read the enclosed letter, the honey had originated from Greece. Dr Molan has indicated that this is not the first instance of samples of honey been sent to him that have not gone through the correct quarantine channels to ensure a safe importation of research samples.

If imports of bee products are allowed into the country it makes it impossible for people to determine what is a legal import and what is an illegal one.
It also means that people who buy honey off the shelf in New Zealand that has been imported legally due to it meeting the heat treatment requirements, will then go overseas, and see the same brand there and bring back a pot of honey that may not have undergone the same heat treatment, and so possibly bring in unwanted organisms. Legislation and labelling requirements need to be put in place before imports are considered so that the public know the country of origin, and that the product has or has not undergone treatment to ensure that unwanted organisms are not bought into the country.

Viruses

4 Apis iridescent virus
5 Arkansas Bee Virus
14 Egypt Bee Virus
18 Slow Paralysis Virus

In all of the viruses listed above, it states that: 'Although no work has been done on degradation and loss of infectivity of *'virus name above' per se*, the survival of most bee viruses outside the body of the bee is very limited…….'

It is our opinion that this assumption that seeing as Deformed Wing Virus does not survive for long outside the body of the bee, then these other viruses will behave in the same manner.

We think that work should be conducted on the survival of these four viruses before allowing in bee products into New Zealand. We also would like to see a regular review of the Risk Analysis, because of the easily changed genetic nature of viruses. In a personal communication with a person involved in virus research, it was stated that often the viruses behave in an unpredictable way.

13 Deformed Wing Virus

We consider that this virus should be on the unwanted organisms list, due to its destructive nature when found in conjunction with Varroa. This virus causes most of the colony deaths in the UK and Europe.

In the UK and Europe, the threshold for treatment has been set at 2500 mites, and yet in New Zealand we have had colonies with ten times as many mites that have still been able to recover following Varroa treatment. We believe that the ability for our beehives to tolerate higher level of mites is due to the lack of viruses in our hives and in particular the absence of Deformed Wing Virus.

In this section it 'suggests that these viruses survive away from live bees for at most a day or two'. Seeing as it "suggests" it must be unproven and so is unreliable to use as a reason why the viruses will not be a problem in imported product.

While the world's knowledge of viruses is so limited, we should be very cautious in our approach to allowing bee product imports. There should be a high level of surveillance on all honey products imported, with the government carrying out and paying for testing of batches imported, to ensure freedom from bee diseases.

Bacteria

20 American Foulbrood

American Foulbrood, the major bee disease in New Zealand until April 2000 when Varroa destructor was found, has been subject to an industry funded Pest Management Strategy with the primary objective to control and ultimately eliminate AFB.

We are strongly of the view that allowing import of honey from other countries will place the objectives of the AFB PMS at risk, due to honey from other countries carrying AFB spores or other organisms such as *Paenibacillus alvei.* at higher levels than found in New Zealand. *P. alvei,* which is frequently present with EFB, mimics the symptoms of AFB and if introduced into New Zealand with EFB would severely compromise the PMS.

AFB is controlled under the PMS by destroying any colony showing clinical symptoms. AFB is controlled in other countries through the use of antibiotics but New Zealand beekeepers have sought an alternative to the use of drugs so as to be able to market products as free of chemical residues. While the advent of Varroa means that the industry can no longer keep beehives without the use of chemicals to control Varroa populations, it is still the only use of chemicals permitted.

We maintain that the only sanitary measure that is acceptable for allowing in honey, pollen, royal jelly and beeswax is (i) from a country or territory free from American foulbrood – due to the presence of our Strategy to eliminate foulbrood from New Zealand. Heat treating of product that may not kill all spores may impede our progress towards eliminating AFB from this country.

Testing of samples to determine if levels of spores are less than 500,000 per litre needs some standardised methodology as little is known as to whether spores stratify, or clump in different types of honey or other bee products. To ensure that a representative sample is collected for testing for spore levels, the container of product needs to be centrifuged to ensure an homogenous mixture is obtained.

There has also been noted in several magazines the practice of feeding honey to birds and bees. During the robbing season (usually in the autumn), this posses a very great risk of exposing bees to spores. If this happens to be an imported honey that still has detectable AFB spores, viruses or EFB, this could potentially infect larvae when fed the honey. It has also been stated that if the imported honey is cheap enough, some beekeepers may purchase this product

to feed to their bees – this practice poses a huge risk to the Industry if the product is not treated to totally eliminate diseases.

21 European foulbrood

If EFB were to become established in New Zealand, the use of drugs to control EFB may mask the symptoms of AFB and effectively undermine the The American Foulbrood Pest Management Strategy to the point that it would have to be abandoned.

The measures suggested to ensure no EFB spores are found in products may be reasonable for honey.

However it is suggested that for Royal Jelly and Pollen that rather than heat treating or irradiation, both these products could continue to be imported in a form that is not considered attractive to bees such as consumer ready capsules or tablets.

We maintain that this is not acceptable, as we have heard of one company who imported royal jelly in capsules, who then broke them open to be utilised for other products. At this point this royal jelly could be taken and fed back to bees.

22 Paenibacillus alvei.

Paenibacillus alvei. is not found in New Zealand and is usually present when European foulbrood spores are found. The presence of *P. alvei.* mimics the symptoms of American foulbrood, so its introduction into New Zealand would severely compromise our American foulbrood Pest Management Strategy. It would likely mean a much larger number of colonies would be destroyed due to beekeepers thinking that what they were seeing was AFB.

It is stated in the risk analysis that *P alvei* is a secondary invader bacteria that has been isolated from a variety of sources including wax moths, humans, milk and soil.

We have heard that in other countries *P alvei* is being used as a biological insecticide on flies. If this is the case, then we ask what might be the implications for our Native fauna – in particular our insects should *P alvei* come into the country?

Has any testing been carried out to ensure that our native fauna will be unharmed?

We wonder if the Environmental Risk Management Agency would allow the importation of *Paenibacillus alvei* for biological control measures given its high degree of genetic heterogeneity and biochemical variability? We do not think that the importation would be allowed and therefore where bee product imports carry a risk of *P alvei* being imported, then they should not be allowed either.

<u>Arthropod Parasites</u>

28 Bee louse
30 Small Hive Beetle
31 Tracheal mite
32 *Tropilaelaps spp.*
34 Other *Varroa* species

All of the above are unwanted species, and should they find their way to New Zealand, would put an additional burden on the beekeeping industry.

It is just a matter of time before the small hive beetle finds its way across from Australia. Unlike Australia, the environmental conditions found in the North Island would be such that the small hive beetle could become as devastating as in the United States.

Possible entry vehicles: in soil from either Australia or South Africa, contained in a South African migrant's household furniture, very ripe fruit, with a feral swarm or accompanying a consignment of packed honey.

Conclusion

We believe that even though this Risk Analysis is more complete than the previous ones, there are still many unanswered questions in particular with the viruses and *Paenibacillus* alvei and that while these exist, that imports of bee products not be allowed or if allowed be put under severe import health standards to almost eliminate the risk. We should err on the side of caution with relation to proposed imports of bee products.

We think that work should be conducted on the survival of these four viruses before allowing in bee products into New Zealand. We also would like to see a regular review of the Risk Analysis, because of the easily changed genetic nature of viruses. In a personal communication with a person involved in virus research, it was stated that often the viruses behave in an unpredictable way.

While the world's knowledge of viruses is so limited, we should be very cautious in our approach to allowing bee product imports. There should be a high level of surveillance on all honey products imported, with the government carrying out and paying for testing of batches imported, to ensure freedom from bee diseases.

We maintain that the only sanitary measure that is acceptable for allowing in honey, pollen, royal jelly and beeswax is (i) from a country or territory free from American foulbrood – due to the presence of our Strategy to eliminate foulbrood from New Zealand. Heat treating of product that may not kill all spores may impede our progress towards eliminating AFB from this country.

We maintain that this is not acceptable, as we have heard of one company who imported royal jelly in capsules, who then broke them open to be utilised for other products. At this point this royal jelly could be taken and fed back to bees.

We have heard that in other countries *P alvei* is being used as a biological insecticide on flies. If this is the case, then we ask what might be the implications for our Native fauna – in particular our insects should *P alvei* come into the country?

> **Has any testing been carried out to ensure that our native fauna will be unharmed?**
>
> **We wonder if the Environmental Risk Management Agency would allow the importation of *Paenibacillus alvei* for biological control measures given its high degree of genetic heterogeneity and biochemical variability? We do not think that the importation would be allowed and therefore where bee product imports carry a risk of *P alvei* being imported, then they should not be allowed either.**

We thank you for the opportunity to make submission on the Import risk analysis: Honey bee products.

Jane and Tony Lorimer

14. Aaron Owen

From: <owena@senet.com.au>
To: <vanginkelm@maf.govt.nz>
Date: 28/02/2005 17:38:07
Subject: Website Enquiry 874 - RE: http://www.biosecurity.govt.nz/pests-diseases/animals/risk/index.htm

Name:
Phone:
Fax:

Hi Martin

My name is Aaron. I am writing this email in response to the media release 'Honey Imports Under Review' (15 Dec 2004) – which called for submissions or comments by the end of February.

I am an Australian citizen, living in South Australia, and after reviewing the risk analysis wish to pass on positive feedback.

I am part of a new Australian enterprise concerned in part with importing/exporting and may be interested in becoming involved, in particular with importing Australian honey to New Zealand (potentially Kangaroo Island honey as it is unique in flavour and production in Australia, as it is sourced from native honey bees, rather than imported European ones found on mainland Australia).

I am keen to follow the direction of the review and would appreciate being kept up to date of any outcomes.

Thanks for your time.

Yours sincerely

Aaron

15. Frank Lindsay

SUBMISSION ON IMPORT RISK ANALYSIS: HONEY BEE PRODUCTS, 15

DECEMBER 2004

I am a beekeeper situated in Wellington; I've kept bees for over thirty year and have a keen interest in exotic diseases. There are four main organisms/pest I have concentrated upon in my submission but would like to remind MAF that viruses and bacteria do change and can become more virulent. If reintroduced, these could affect our industry. We must do everything possible to prevent unwanted organisms getting into this country.

I would like to make the following comments on the Import Risk Analysis.

Summary

1. Fundamental question in risk analysis missing.

2. Conclusion drawn from "suggestion" regarding Deformed Wing Virus

3. RNA viruses are very unstable and can change quickly (reference Kashmir bee virus).

4. Imports could interfere with the AFB PMS goals

5. Going from a "No Imports" regime from risk countries to a "Risk Analysis" where small amounts of an organism are permitted for AFB, EFB and Viruses.

6. Sampling techniques should be scientifically investigated.

7. Additional risk from Small Hive Beetle.

8. Adequate labeling

STATEMENT OF CASE

RISK ANALYSIS

Page 10 of the risk analysis methodology doesn't ask the question, "Are these organisms a problem overseas. Viruses and bacteria change constantly and can become more virulent. Although we may already have some endemic in New Zealand we do not want to introduce a more virulent strain with imported honeys.

DEFORMED WING VIRUS. (PAGE 35)

It is acknowledged that this virus is not on the unwanted organisms list but I consider it should be. On its own it's not very important but when it's associated with Varroa, this virus causes most of the colony deaths in the UK and Europe.

We are lucky in NZ that virus levels are very low and that we do not have this "killer" deformed wing virus. Consequently our bees have been able to tolerate far higher levels of Varroa infestation than overseas countries. I.e. the UK and European threshold for treatment of varroa is set at 1000 mites yet we have had colonies with 22,000 mites on the verge of collapse that were treated and became productive units again within that season.

The measures taken to prevent this virus being imported with semen were very stringent and we must do everything possible to prevent it from coming here.

Page 37 Para 7 It has been "suggested" that these viruses survive away from live bees for at most a day or two. This is unproved and therefore cannot be used as a conclusion as it is unreliable. I realize research into viruses is fairly new and has been lead by Brenda Ball following the invasion of varroa into the UK. There may be difficulties at present in handling viruses in the lab, however I well remember research into Chalkbrood when it first arrived here in NZ. It took nine month for this fungus to be replicated under lab conditions yet it spread right throughout New Zealand in four years. Techniques change and improvements happen each year. You cannot use old research and a suggestion as a basis of a conclusion.

What I am suggesting here is that as techniques improve in the detection and isolation of viruses, we may find that this virus can survive longer than has been suggested and it could be in imported honey. Without full knowledge this particular virus, we should be very cautious in our approach and maintain a high level of surveillance on all honey products from countries where this virus persists.

Beekeepers are known to extract honey from colonies that have died out as a result of varroa and this honey could become part of a consignment that is sold around the world. An example of honey movement - Danish honey was on sale recently in Australia during last year's shortage.

KASHMIR BEE VIRUS (PAGE 45)

This virus is present in New Zealand and is hardly noticeable. However British Colombia has recently reported in a survey of hives that died through varroa, that Kashmir bee virus was present and that this was the organism that killed the bees. This was sensationalised recently in the newspapers and beekeeping magazines.

Viruses are not stable. They replicate quickly and can become more virulent. Again if this harmless virus has replicated in the presence of varroa, it could be a potential threat to our bees, so should not be taken lightly. Also the data quoted in Para 8 might now have bee superseded as it's quite dated and may not now be accurate.

AMERICAN FOUL BROOD (PAGE 57)

AFB PMS

We are very lucky in New Zealand that the control of this disease is regulated under the Biosecurity Act and that infection levels have been steadily dropping - now 0.3%. The New Zealand beekeeping industry initially took its eye off this disease and concentrated on Varroa when it first arrived, however there is now a renewed commitment to eliminate this disease and to this end a Manager has been appointed to oversea this operation. Varroa could well have a beneficial effect in the controlling of AFB. It is

killing out "leave them along" beekeeper's hives and feral hives, a source of on-going AFB infections in some areas. When hives are under stress with varroa, diseases and viruses multiple until the bees loose control and then infections such as AFB show up. Hence there has been an increase in the instances lately of AFB but I believe this is a blip and the level of AFB infection should fall again as beekeepers come to terms with these new conditions.

In Australia the infection rate is said to be 1% and it has not fallen despite one major honey packer instituting testing all honey for AFB spores. It has also been suggested that there is quite a lot of under reporting of this disease as this could impinge on the beekeepers ability to sell his/her honey on the overseas market. (Ref Australasian Beekeeper: Jan 2005 - History of Disease in Australia).

Australia hives are moved regularly throughout the season following the flows. Although hives are registered, their actual locations are not recorded on a database as this has proven to be not practicable, often being moved again before the initial site was recorded. Their legislation requires an inspector to verify the disease before compensation is paid. Due to competition for apiary sites, beekeepers do not readily talk amongst themselves to identify hot spots so it has been suggested that this disease goes on unreported and is just something the beekeepers have to live with.

It has also be suggested that OTC has been used to mask this disease in hives but if this was happening, it would have been found in their honey.

In American and South American AFB is now resistant to OTC. I do not think this mutation in AFB would affect New Zealand beekeeping because we burn infected hives.

RISK TO AFB PMS

Honey coming into New Zealand with AFB spores could be a potential threat to our AFB PMS. We have assumed up until this time that discarded honey containers at dumps could be a potential source of infection (although consider low) and surveillance is centered on some of these areas to detect diseases. However in recent times we have had cases reported to the industry where honey was being fed to birds and even bees! People doing this tend to use the cheapest available which generally comes from supermarkets.

As a country with the objective of eliminating AFB, honey coming into New Zealand should be free of all disease organisms. Heat treatment has been suggested to kill spores but this doesn't kill 100% of the spores, without affecting the honey. It has been suggested in the document that we allow honey in with a level of 500,000 spores per litre as this is far below the 5 million spores per litre needed to infect a colony.
With individuals actually feeding honey to bees there is a heightened risk and therefore we should be adopting a policy where there are no detectable AFB spores in imported honey.

I agree with the statement (page 63, Para 4) that an equivalent level of protection to that achieved under the NZ NPMS should be demanded of all importing countries.

SAMPLING.

In this country beekeepers provide honey and bee samples for testing and surveillance but there are a number of methods used to collect the honey samples. Some have elaborate means where there is a continuous sample taken off when honey is pumped into a drum. Others take representative samples through the pumping process and the lazy one perhaps take a sample at the end or the beginning of the drumming process or just take a pot off the shelf and send it in.

Honey testing is now an exact science but sampling is not. Australia has implemented honey sampling for AFB yet this procedure has failed to reduce the incidence of AFB. We do not know whether spores stratify in honey drums as different honeys do or whether they are equally distributes through the mass of the honey. We need to be very sure of the procedures set down to produce a sample that truly reflects what's in the drum. To my knowledge, nothing has been done in this area and there is a need for this to be researched so we have a standard method that produces a representative sample we can depend upon.

In the mean time, until heating procedures used to deactivate Clostriduin botulinum spores (developed in the USA) are developed to treat honey, and until we has a standard sampling method, I would recommend all bee products entering New Zealand that are attractive to bees, be irradiated using cobalt 60.

I realize that this goes against the rules of the WTO as this only applies to importing countries that are officially free of American foulbrood but with our AFB PMS in place and the level being so low, we should implement this policy to protect our industry. The Biosecurity Act should be our first line of protection, not a world agreement on free trade.

Australia has two plants that are capable of doing this. This would successfully eliminate any chance of viruses, AFB and EFB entering New Zealand.

EUROPEAN FOULBROOD. (PAGE 68)
This is considered a minor disease of bees and mainly appears when hives are under stress. Australia has an increasing incidence of EFB outbreaks in hives especially when they work winter honey flows. This is put down to poor pollen sources stressing the bees.

New Zealand's landscape is changing. More and more of the scrub areas on farms are being brought into production thus eliminating valuable pollen sources for our bees and effecting the bee's spring build-up.

Consequently with reduced quantities of good early pollen and with large numbers of hives moved into pollination, EFB would be a real problem if it got established into New Zealand.

Until all the science is known and treatment methods perfected to ensure that all spores are killed, bee products from countries with this disease should be made safe before entering New Zealand. I would recommend that we take stringent measures to protect our beekeeping industry by insisting on the highest possible measures to treat imported honey. E.g. Gamma Irradiation.

SMALL HIVE BEETLE (PAGE 107.

Our near neighbour Australia now has this pest but luckily their dry climate and ants are keeping it under control, however it is spreading. Here in New Zealand, the small hive beetle would find an ideal environment to breed and could potentially become a real pest to our industry, similar to that in America.

It is conceded that it is very unlikely to come as eggs in extracted honey or on honey drums, but it is only a matter of time before it migrates here as it has now established in Australia.

Possible entry vehicles:
In soil from either Australia, USA or South Africa,
Contained in a South Africans migrants household furniture,
Very ripe fruit,
With a feral swarm or
Accompanying a consignment of packed honey.

The last one is a real concern.

Small Hive Beetles are attracted to honey processing plants and are commonly found around packing facilities in the USA. I believe it would be very easy for beetles to hitch a ride with a consignment of packed honey and therefore I would recommend that consignments from countries with the Small Hive Beetle be fumigated on arrival in New Zealand.

APPENDIX 1. MODELLING THE DESTRUCTION OF BACTERIAL CELLS.

Page 160, 4th paragraph Unpublished study done by Ball *el al* 2001, should not be used as it draws an unreliable conclusion, because this has not been peer reviewed, may not be justified because of sample size, analysis conditions, etc, etc.

END TESTING

Procedures and methods can be instituted in oversea countries to give us a very high degree of confidence that the imported honey is safe and not a threat to the beekeeping industry. However, I believe it is in this countries interest to also do a small number of batch testing on arrival to verify that procedures and safe guards are being followed.

PEOPLE RE-ENTERING NEW ZEALAND.

I can see another problem arising with oversea honey being brought into New Zealand.

Once honey is permitted entry into New Zealand it will be very difficult to distinguish whether it has been treated or not unless the label specifically specifies this. Customers may see the same brand in New Zealand as they did in Australia and therefore purchase a pot over there, without the knowledge of the potential risk this entails.

Hence there could be a greater risk of people purchasing and bringing in honey into New Zealand. Treated honey should be clearly labeled.

COUNTRY OF ORIGIN LABELING

Although its outside the scope of this document legislation on this should be enacted before any honey is imported into New Zealand.

Australian beekeepers have learnt a very valuable lesson with regard to importing honey. No testing was undertaken when the product reached Australia. Imported honey was mixed with local honeys and when impurities were detected, the general public could not differentiate between the locally produced product and the overseas honey blend. Consequently the general public lost confidence in honey being "clean and green" and stopped buying honey period, which has cost the whole industry over 20 million dollars. The Australian industry now has to re-establish local markets for their own indigenous honeys.

We require labeling that distinguishes imported honey from local honey and from blends of imported honey.

New Zealand producers slightly more honey than it consumes and has very high per capita consumption. Should anything happen like that in New Zealand, producers of mixed blends, (particularly those beekeepers in the North Island) would find it difficult to find export markets for this honey. This could then affect the financial viability of some North Island beekeepers, which could ultimately affect the horticultural industry through loss of pollination hives.

CONCLUSION

I believe the importing of honey into New Zealand could speed up the introduction of unwanted pests and organisms into New Zealand. There are still a few unknowns and while these remain, we must err on the side of caution and protect our current relatively disease free status.

The risk in not detecting varroa early is now being borne by all North Island beekeepers at a considerable cost. We must not risk the beekeeping industry and other allied agricultural industries in the name of "Free Trade".

If bee products are permitted into this country then all products must be treated so they are absolutely free of any organisms and there's only one available that can give this certainty - irradiation.

Thank you for giving me an opportunity to make this submission.

Frank Lindsay
26 Cunliffe Street
Johnsonville.
Wellington.

16. Ross and Bruce McCusker

Heathstock Apiaries
Hawarden R.D.
North Canterbury

8 March 2005

Mr Martin Vanginkel
Bio Security
WELLINGTON

Dear Sir,

Re: Import Risk Analysis

We of Heathstock Apiaries have concerns with the Import Risk Analysis of Honeybee Products, particularly with the potential heat treatment of packed honey off shore.
Government officials and employees have nothing to lose if the process is incomplete to specification. It is only a matter of time before we will be exposed to infection.
New Zealand has the problem that our officials are too honest. In countries like South America and Asia, officials lack integrity and can be bought. We consider we are playing on a very uneven playing field.
Australia has the wisdom to have a barrier between east and west for bee products.
As organic producers of honey, 90% is exported. E.F.B. is a huge threat to us, as antibiotics have to be used.
New Zealand has a strong niche in the world market for bee products due to our high health standards. When we lose that niche we will have to sell our product at a commodity price. Most N.Z. beekeepers have low production per hive and will have to exit the industry which will in turn affect our pastoral industry leading on to a greater loss affecting the whole country.

Yours faithfully

R. McCusker

Ross McCusker

B.R. McCusker

Bruce McCusker

(Partners in Heathstock Apiaries)

17. Bruce and Jenny McCuster

10/03/2005 14:39 [illegible] B MCCUSKER PAGE 01
03314460

FAX TRANSMISSION FORM

To: Mr Martin Vanginkel	From: Bruce & Jenny McCuster
Company:	Company: Heathstock Apiaries
Address: Biosecurity N.Z.	Address: Hawarden.
Fax Number:	Fax Number:
Date: Sheet of	Phone: 03-3144270 1/4

Dear Sir,

We are writing to STRONGLY OBJECT to the importation of any foreign honeys to New Zealand other than those pacific Islands already supplying which have sourced bees from New Zealand.

We feel the risk is too great of getting new diseases which would destroy part of the present bee industry. In the South Island we still have some of the healthiest bees in the world and the international markets recognise this and presently pay extra for our organic honey certified by AgriQualith N.Z.

We wish to relate the following experience to you as we consider it to be important in relating to the current proposal to allow honey imports.

Ten years ago we were part of the pioneers in the start of the ostrich industry in N.Z. We built a medium security quarantine facility costing $250,000.

We brought in ostrich eggs from Australia and Canada. Upon hatching in this country the chicks were the healthiest in the world with all internal and external parasites left in their country of origin.

Birds thrived here achieving growth rates surpassing those overseas producing birds of 100kgm ready for processing at 8-10 months.

Ostrich birds in Australia were healthy and farming them there was successful until Australian authorities allowed the importation of eggs direct from Zimbabwe via Cocos Islands.

FAX TRANSMISSION FORM

To: Martin Vanginkel Company: Address: BioSecurity NZ	From: Bruce McCuster Company: Address: fax 03 3144633
Fax Number: Date: Sheet of	Fax Number: Phone: 2/4

When the birds from Cocos were released onto Australian farms, they were in very poor conditions, and soon after Australian raised chicks exposed to the imported birds began scouring and wasting away resulting in hundreds of deaths. Similar symptoms to Jonnes disease in sheep and deer.

At this time the NZ BioSecurity authories stopped the import of live birds from Australia and it remained that way for some months.
Ostrich Breeders NZ ~~50~~ of which we are directors of, spoke with Kerry Mulqueen and Tony Zorab, and said the risk of importing live birds was too high as the risk of contracting viruses and diseases was too great.
We were told that the only reason we wanted the live birds import stopped was because we were making large returns from selling capital stock.

For 3 years we had almost perfect chick survival running 80 breeding hens producing over 2000 eggs for the season.
In 1998 we allowed a pair of imported birds ex Australia, quarantined in Feilding to be share farmed here. It was only a matter of weeks before all the chicks hatched here were scouring and dieing as they had in Australia.

FAX TRANSMISSION FORM

To: Martin Vanginkel	From: Bruce McCusker
Company:	Company:
Address: BioSecurity NZ.	Address: Heathstock Apiaries
Fax Number:	Fax Number: 3/14
Date: Sheet of	Phone:

We spent $1000's on laboratory autopsies and no bacteria could be isolated so were told must be a viral cause of deaths.

I personally killed over 500 chicks ranging in age up to 3 months because if only some birds survive it is not a profitable industry to be in.

Biosecurity authorities at the time did not listen to some of us in the industry who warned against the import of live birds as the risks were too great.
Consequently in 1998 live birds were again allowed in from Australia and now we have wireworm, viruses and sucking feather mites which have destroyed our 3 million dollar investment we and other farmers have spent. The result being many farmers leaving the industry in despair.

The Australian exporter made his money but at great cost and loss to NZ. Every day on our property I look at vacant buildings - resulting from all loss through lack of common sense and biosecurity in protecting New Zealand.

If the import of overseas honey was allowed and an exotic disease, eg European Foulbrood, was found in our hives, it would spread very rapidly. Antibiotics would have to be fed to hives and the price of our honey currently achieved internationally would be half what we now achieve and our business no longer viable.

033144633

FAX TRANSMISSION FORM

To: Martin Vanginkel	From: Bruce McCusker
Company:	Company:
Address: BioSecurity N2.	Address: Heathstock Apiaries
Fax Number:	Fax Number:
Date: Sheet of	Phone: 4/4

If exotic bee diseases come here the importer/exporter would get their hand smacked - maybe! - What loss is he going to have? What punishment? What punishment did those importing/exporting infected ostrich birds get.

Our current healthy bees are so important to N2 for our horticulture, specialty seeds crops and pastoral farming valued at over $1+ Billion per year in exports. The honey value is small in comparison, but big to each bee farmer.
If more clover was used in pastures as it used to be, the New Zealand environment would be better for it. Nitrogen fertilizer is poisoning lakes and rivers for short term gains.

Biosecurity regulations have done very well to protect N2 to date so do not let us down now. Once you have a bug it is almost impossible to eradicate.

Thankyou for your attention

Yours Sincerely

Bruce & Jenny McCusker.

18. Tim Leslie, Federated Farmers

SUBMISSION TO

Biosecurity New Zealand

On the

IMPORT RISK ANALYSIS: HONEYBEE PRODUCTS

By

NZ BEE INDUSTRY GROUP
An Industry Group of Federated Farmers of NZ (Inc)

March 2005

Contact: Tim Leslie
Industry Executive Officer
Federated Farmers of New Zealand (Inc)
PO Box 715
WELLINGTON

Phone: 04 494 9184
Fax: 04 473 1081
E-mail: tleslie@fedfarm.org.nz

1. INTRODUCTION

1.1 The NZ Bee Industry Group (NZ BIG) of Federated Farmers of New Zealand (Inc) welcomes the opportunity to comment on the Biosecurity New Zealand on the Import Risk Analysis: Honeybee Products.

1.2 The submission comments on issues raised by bee industry members of the NZ Bee Industry Group (BIG) of Federated Farmers of NZ (Inc) and reflects the position of the BIG, not necessarily that of FFNZ.

1.3Federated Farmers is a primary sector organisation that represents approximately 18,500 farmers and various other rural businesses including commercial beekeeping enterprises. Federated Farmers has a long and proud history of representing the needs and interests of New Zealand's farming communities, primary producers and agricultural exporters.

The Federation aims to add value to its members' business. Our key strategic outcomes include the need for New Zealand to provide an economic and social environment within which:
Our members may operate their business in a fair and flexible commercial environment;
Our members' families and their staff have access to services essential to the needs of the rural community; and
Our members adopt responsible management and environmental practices.

The agricultural sector is very important to the economy. Its contribution to the New Zealand economy has risen from 14.2 percent of GDP in 1986/87 to around 17 percent in 2003/04 (including downstream processing). Moreover, over the same period both productivity and economic growth in the agricultural sector has outpaced that in the New Zealand economy as a whole.

1.6 The honeybee industry in New Zealand plays an important part in the annual cycle of New Zealand's pastoral, arable and horticultural industries through both paid and "free" pollination.

1.7 New Zealand has not imported honeybee products for a number of years. The honeybee industry in New Zealand is a net exporter of product and the industry is free of most of the pests and diseases that inflict the honeybee industry overseas.

2 EXECUTIVE SUMMARY

2.1 To ensure a submission that reflects members' point of view, all known beekeeping members of Federated Farmers of NZ (Inc) were surveyed. The response rate was approximately 8% of members which is a respectable number considering that this is a very busy time in the beekeeping calendar.

2.2 NZ BIG is aware of the need for New Zealand Inc to trade internationally with clear rules minimising the risk of exotic incursions.

2.3 Not withstanding the above, the overwhelming response from members is that honeybee product imports **should not** be permitted as the risk of exotic incursion is too great.

2.4 Examples of comments from members are:
My biggest concern is consumers will see imported honey in NZ supermarkets & will think it's alright to bring honey into NZ themselves.

I'm also concerned it will be so much harder to find honey that's been imported illegally. At the moment honey in shops from overseas countries can be spotted easily.

Want to see any treatment done overseas and overseen by MAF officials at the importers cost as they did when fumigating cherries and apples.

The risk to the bee product industry is bad enough but the risk to agriculture in general & horticulture in particular is too great to run such unnecessary risks. There are not enough hives available to pollinate avocado areas already planted in Northland.

We come from a family of beekeepers supplying North Otago's pollination needs (over 100 years). Varroa on its own makes beekeeping not viable. We believe any more pests or diseases imported would shut us down completely. Therefore we are strongly against any importing of honey or any bee products.

The proposed free trade agreement with China poses the greatest biosecurity risks.

3 DISCUSSION:

3.1 NZ BIG is concerned that the opening up of New Zealand's borders to honey bee products, even with safe guards in place, risks exposing the New Zealand honey bee product industry to exotic pests and diseases that will impose an unnecessary burden on the NZ industry.

3.2 NZ BIG questions where the demand for imported product is. The New Zealand honey industry is already a net exporter of product.

3.3 Honeybee numbers in the North Island have declined significantly since the arrival of Varroa in 2000 placing pressure on the ability to fully meet all North Island pollination requirements. The decline in North Island honeybee numbers is having an indirect impact on South Island honey bee numbers as hives are sold to the North Island. South Island small seed companies are facing difficultly securing enough beehives for seed pollination requirements in the South Island.

3.4 The NZ honey bee industry is quite a low kilo per hive producer. Margins are small and another pests or disease arriving will add to beekeeper overheads and reduce profitability. The NZ industry is already having to carry the increased costs of living with, or protecting itself in the case of the South Island, of Varroa. Dealing with another exotic pest or disease would be another overhead that the New Zealand industry would struggle to fight.

3.5 NZ BIG is also concerned that allowing honey bee product imports will increase the risk of tourists and New Zealanders returning from overseas with contaminated honey bee products.

3.6 Biosecurity NZ discusses various treatments and tests that would be required to minimise risk from imported honey bee products. NZ BIG contends that these tests must be undertaken in secure facilities at the New Zealand border, and at the importers cost.

3.7 The Biosecurity New Zealand Risk Analysis discusses the use of heat treatment for honey to destroy European Foulbrood spores. NZ BIG contends that although this treatment has the desired effect, it ruins the honey and therefore renders the honey of little use.

3.8 A large proportion of the pests and diseases discussed in the Risk Analysis conclude: "Since the risk is considered to be negligible, risk management measures are not required." NZBIG contends that not enough is known about many of the pests discussed e.g. Deformed Wing Virus. Therefore the risk must be considered significant until proven otherwise.

3.9 NZ BIG sees a potential conflict of interest for MAF and Biosecurity New Zealand. MAF through Biosecurity NZ is charged with both protecting NZ's borders from exotic pests and diseases and is also required to consider/facilitate import protocols when requested.

3.10 NZ BIG contends that the pests and diseases discussed in the Risk Analysis would be considered new organisms and therefore fall in to the regulatory regime of ERMA. It would be very difficult to justify an application to ERMA to release these organisms.

3.11 To ensure that the process of submission review is perceived to be transparent, NZ BIG requests that an independent review of submissions be undertaken.

3.12 NZ BIG's position is that the risk to New Zealand outweighs any benefit from the importation of honey bee products and therefore cannot support the Risk Analysis as it stands.

4 CONCLUSION

4.1 The New Zealand Bee Industry Group contends that the risks analysed in the Draft Import Risk Analysis for Honeybee Products are **not** minimised enough to justify honey bee product imports.

4.2 NZ BIG **recommends** that to protect New Zealand's honeybee product industry and New Zealand's agricultural and horticultural industries from a pollination shortfall bought on by pressure from unwanted exotic pests and diseases imports of honeybee products that any application for importation be assessed on a case by case basis.

4.3 If honeybee product imports are to be permitted, treatment to destroy known honeybee pests and diseases should be carried out pre-border at the importers expense under Biosecurity NZ supervision.

4.4 To ensure that the process of submission review is perceived to be transparent, NZ Bee Industry Group requests that an independent review of submissions be undertaken

ENDS