MPI Consultation document on

Proposed General Export Requirements for Bee Products

Responses to questions 24 and 25

s 9(2)(a)

This submission reflects our knowledge of honey authentication procedures gained through research and provision of pollen and chemical analyses to the New Zealand apiculture industry over the last decade or so. The submission is authorised by s 9(2)(a)

Our comments relate to the criteria for identification of New Zealand honey as "monofloral mānuka" or "mānuka blend". As such they are directed mainly at the summary of the mānuka honey science programme issued as MPI Technical Paper No 2017/28 [here identified as TP], and the associated data release in the spreadsheet "MPIMānukaHoneyScienceProgramme_datasets_final.xlsx [here identified as DF].

In our comments, we adopt the same botanical taxonomic circumscription of mānuka and kānuka as the TP.

1. POLLEN AS A CANDIDATE ATTRIBUTE

Pollen is identified as a candidate criterion in the TP (6.1.1):

> "The presence of pollen is an attribute used to identify numerous honey types around the world. The method traditionally used (microscopy) to identify pollen, however, has challenges when it comes to distinguishing between pollen grains of mānuka and kānuka plants. Microscopy also has limitations in a commercial sense because it does not allow for high throughput and requires specialist expertise. …To combat the limitations of microscopy, a DNA approach that allows for high throughput and high specificity was selected to detect plant DNA from pollen present in honey."

We agree that pollen is a suitable attribute as it is in wide use elsewhere in the world for other honeys and has long been used in New Zealand for identifying particular floral honeys. It has the advantage over chemical attributes in that it cannot be readily adulterated. To "convert" a non-mānuka honey to a "monofloral mānuka honey" by addition of pollen would require a volume of mānuka pollen prohibitively expensive to obtain (at least, at the characteristic levels recognised by microscopical pollen analysis). In contrast, chemicals which some have advocated as a measure of mānuka nectar contribution in honey, such as dihydoxyacetone (DHA), methylglyoxal (MGO) and chemicals listed in

the MPI mānuka definition, are readily available commercially. The pollen cell wall (which carries the morphological characters used in microscopy) is stable in honey indefinitely, and will withstand any treatment that does not destroy the honey itself. s 9(2)(b)(ii) research within MPI Sustainable Farming Fund projects in the 2015-6 and 2016-7 summers confirmed earlier results that mānuka and kānuka pollen is not normally present in bee pollen loads and therefore is present in honey principally through its incorporation *at source* in nectar collected by the bees (Harris & Filmer 1948; Raine et al. 2016).

The MPI approach, as explained in the TP, has been to use DNA tests to detect the presence of mānuka and kānuka pollen in honey. While providing a high degree of specificity of identification, this method has the noted limitation that present technique detects only the presence or absence of mānuka pollen, and does not give a true quantitative measure of the pollen content. Nor does it provide the relative proportions of mānuka and kānuka pollen to other plant pollen present in the honey. Therefore, it alone cannot give a measure of the relative contributions of nectar of the various plants in honeys, as required by the Codex Alimentarius definition of floral honey. The Codex Alimentarius honey standard (Codex Stan 12-1981) provides for a honey to be labelled as monofloral (e.g. “mānuka honey”) where it comes "wholly or mainly" from that particular source and has the organoleptic, physicochemical and microscopic properties corresponding with that origin.

We contend that the difficulty of distinguishing between mānuka and kānuka pollen grains by microscopy has been overstated. s 9(2) carried out scoping research for MPI in 2014 which identified statistically significant size differences and readily observable morphological (texture and shape) differences between kānuka and mānuka pollen from a small number of plant collections from the East Cape region (Raine & Li 2014a). These were considered to be sufficient for development of a microscopical method for distinction of mānuka and kānuka pollen in honey, and a recommendation was made to undertake more extensive studies. The morphological discovery was not a new one, as the differences had been noted by McIntyre (1963) in a detailed study of NZ Myrtaceae pollen, and to some degree also by Harris et al (1992). Similar conclusions were reached by Holt (2014) in a parallel study for MPI. Subsequently we studied pollen from a large set of mānuka and kānuka plant collections from around NZ and found the differences were consistent across all of the mānuka and kānuka populations sampled (Li et al. 2016). We have applied this finding to discrimination of mānuka and kānuka pollen in honey in our commercial analysis service since late 2014, mainly using differences in pollen shape and surface texture rather than size. Not all individual pollen grains can be distinguished, but n aggregate a reliable result can be obtained (McIntyre 1963, Li et al 2016).

Pollen analysis is a technically simple technique which is within the scope of honey pack-houses as well as ndependent analysts. Several pollen analysts currently operate in such roles in New Zealand. Repeatability and reproducibility of analytical results can be obtained by accreditation of standard procedures and inter-laboratory comparisons (“ring tests”). Such procedures can produce similar reliability to chemical analyses, and are the norm in Europe (Deutches Institut für Normung 2002; von der Ohe et al. 2004). They were previously carried out in New Zealand under the auspices of the Bee Products Standards Council. An advantage of pollen analysis for authentication of floral honeys is that it can be applied across the whole range of such honeys and is already globally accepted.

2. CHEMICAL ATTRIBUTES OF PLANT NECTAR

The DF data on plant nectar analyses demonstrates that concentrations of the ultimately chosen chemical tracer compounds 2'-methoxyacetophenone, 2-methoxybenzoic acid, 4-hydroxyphenyllactic acid and 3-phenyllactic acid, normalised to total sugar content of the nectar, have wide variation in mānuka and kānuka nectars. The concentrations of these compounds also show poor correlation with each other. Further, they are present at much high concentrations (relative to total sugars) in the nectars than in mānuka and kānuka honeys. This suggests that unknown factors are influencing the concentration of these compounds in nectar and honey.

The DF data also shows that the compound chosen in the proposed MPI method to discriminate between "monofloral mānuka honey" and "multifloral mānuka honey", 3-phenyllactic acid or 3-PLA, is present in similar concentrations in mānuka and kānuka nectar. Providing that minimum criteria for a "multifloral" mānuka honey are met, high levels of 3-PLA could just as well be due to a high kānuka contribution as to one from mānuka. Such a honey could actually be monofloral kānuka rather than mānuka.

3. ANALYSES OF MPI TEST HONEYS

Analyses of honeys in the DF contain pollen analyses only for the "MP Honey1415Chemical" data set. It is unfortunate that these pollen analyses did not attempt a mānuka/kānuka pollen discrimination, as the relationship of chemical measures to pollen could then have been better tested.

Because DNA analyses in the DF are available only for the later "MPIHoney_CART" data set, comparison of DNA and microscopy pollen results is not possible. Such a comparison could assist in establishing confidence in the reliability of the mānuka DNA threshold level for mānuka-type honeys, and also test the microscope-determined discrimination of mānuka and kānuka pollen. It could also go some way towards establishing the relationship between the MPI mānuka honey criteria for monofloral honey and monofloral criteria for other honeys - a honey cannot be monofloral (in the Codex Alimentarius sense) in more than one floral type.

The TP (9.1) notes:

> "The criteria were tested on all honey samples in the reference collection and compared with the original identifications given by the supplier (see Table 5). It can be seen that 74 percent of honey classified as monofloral mānuka by the supplier was identified as monofloral mānuka after applying the criteria. Importantly, 56 percent of honey classified as multifloral mānuka by the supplier was identified as monofloral mānuka using the criteria."

Two observations can be made on this result. Firstly, the criteria used by suppliers for their identifications are not adequately discussed. They may include apiary location, organoleptic properties of the honey (taste and aroma), honey colour, basic pollen analysis (treating mānuka and kānuka together as one pollen type), DHA/MGO levels, or a combination of these and other factors. The identifications could be biased towards "mānuka" because the organoleptic properties of the mānuka nectar component dominate over than of blander nectar such as clover. s 9(2)(b)(ii) pollen analyses from commercial honey samples suggest that many honeys retailed as "mānuka" contain an appreciable or even dominant pollen contribution from kānuka (Raine & Li 2014b, and unpublished data). This is to be expected because kānuka and mānuka plants commonly grow in proximity to each

other and flower at similar times. As discussed above, many of the DF test honeys determined as "monofloral mānuka" on the MPI criteria could instead be "kānuka monofloral" types. Indeed, kānuka DNA was determined to be present in most of these honeys.

Secondly, an alternative interpretation of the "56 percent of honey classified as multifloral mānuka by the supplier … identified as monofloral mānuka using the [MPI] criteria", is that the threshold criterion (3-PLA value 400 mg/l) for monofloral versus multifloral mānuka honey is either set too low, or does not bear a true proportional relationship to the manuka nectar content of the honeys.

4. ANALYTICAL ERRORS

Concerns about the definition are also raised from an analytical perspective, specifically around the lack of information and effects of standard analytical error on the limits. In the TP, PCR and chemical tests are determined for DNA of mānuka and 4 chemical components.

4.1 PCR

A first point is that 1.4 g of honey sample is hard to manage to be representative of a whole drum of honey.

To ensure mānuka honey meets mono- or multifloral status, the definition requires that mānuka DNA Cq<36. At a Cq<36, there are a maximum of 36 cycles permitted for a samples to cross a threshold and positively express and confirm the presence of mānuka. With lower concentration of mānuka pollen, the required number of cycles to detect mānuka DNA increases. There is no information in the DF test results to quantify or understand how the number of cycles may relate to the actual pollen concentration. However, it is pertinent to question how many cycles are actually required for a monofloral or multifloral mānuka. It may be suggested that if the sample needs to undergo 36 cycles, then there is only a very small amount of manuka pollen in the sample.

There is a need to address the relationship of PCR Cq or pg/µL to mānuka pollen concentration.

4.2 Chemical Markers

Four chemical markers are proposed by MPI, although three of these markers (2-methoxyacetophenone, 2-methoxybenzoic acid, 4-hydroxyphenyllactic acid) have thresholds of 1 mg/kg. The proposed minimum level of these markers is of concern. The threshold is near the limit of detection (LOD) on most analytical instruments, where there is much higher instrumental error. At this level it is reasonable to expect an error of +/- 20%, so a genuine mānuka honey with an actual value of 1 mg/kg could have a determined value of 0.8 mg/kg and fail, or 1.2 mg/kg and pass. Given that to be monofloral or multifloral, a honey must pass all 5 criteria, it is very risky to place criteria near the limits of detection of a machine as the relative errors are significantly larger, even though the machine is still capable of detecting the compounds below this level. This may be demonstrated by the large numbers of mānuka identification failures (around 25%) documented by MPI at their seminars, where apparently genuine mānuka honey was not only failing the PCR test, but also the three other chemical markers because they fell below the 1 mg/kg threshold.

5. CONCLUDING REMARKS

The threshold values of 3-phenyllactic acid are concerning, where a multifloral mānuka honey can have values between 20-400mg/kg. This will encourage beekeepers to 'blend down' mānuka honey containing higher 3-phenyllactic acid levels with non-mānuka honey and still meet the multifloral mānuka criteria. By taking a drum of 400 mg/kg monofloral mānuka honey, which is possibly not exportable because of high 'apparent C4 sugars', and blending it with another 19 drums of clover honey, not only are the C4 sugar levels now acceptable, but you still have 20 mg/kg 3-phenyllactic acid, so it is still classed as multifloral mānuka, even though there is now only 5% mānuka honey in the mix.

When combined with testing for DHA, MGO, C4 sugars, HMF and other export testing requirements, there are now many tests and we suggest the criteria are very confusing for many New Zealand beekeepers to understand, let alone overseas testing agencies and consumers. At the moment, the key issue is to protect mānuka honey from fraud, and this is based around label claims and whether the honey meets those criteria. Codex Alimentarius has well-established criteria around colour, taste, conductivity and pollen which are internationally recognised as suitable honey identification standards. These, especially the organoleptic criteria, should be part of the GREX mānuka honey definition, even if tests for them are not required for export certification. Country of origin could also be part of labelling requirements for retail packs of honey.

The price difference between mānuka and other floral honeys is due mainly to inferred therapeutic claims. The use of MGO (and DHA) content has been the subject of much controversy, as the concentrations of these compounds in honey vary over time due to conversion of DHA to MGO, and final decay of MGO. Also it is well known that the MGO content of monofloral manuka honeys (recognised either by traditional criteria such as pollen analysis - Moar 1985/BPSC c.2008, or the new MPI criteria) varies considerably, just as do other markers. Nevertheless, within one botanical source area, there may be a relatively proportional relationship between MGO content and manuka pollen concentration, as shown in the attached Figures 1 and 2, which lend support to use of pollen analysis and MGO content as suitable criteria for manuka honey recognition, as was proposed in MPI's Guidance Document of 31 July 2014 "Interim Labelling Guide for Mānuka Honey".

In summary, we submit that the relationship between the MPI monofloral mānuka honey criteria and the Codex Alimentarius monofloral honey definition ("wholly or mainly from mānuka") is not established by the reported research. Further, the relationship between the MPI mānuka multifloral lower threshold marker values and the actual mānuka nectar contribution has not been established. There is potential for blending down high grade mānuka honey yet still being able to apply the appellation "mānuka honey", leading to consumer deception.

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s 9(2)(b)(ii)

Proposed General Export Requirements for Bee Products

For all exporters of bee products from New Zealand

SUBMISSION FORM

Consultation document 2017

The Ministry for Primary Industries (MPI) proposes to consolidate, clarify, and introduce export requirements for all bee products intended for export.

You are invited to have your say on the proposed changes, which are explained in the discussion document and specified in the draft Animal Products Notice: General Export Requirement for Bee Products notice.

Consultation closes on **23 May 2017.**

How to have your say

Have your say by answering the questions in the discussion document, or commenting on any part of the proposals outlined in the draft Animal Products Notice: General Export Requirements for Bee Products. This submission form provides a template for you to enter your answers to the questions in the discussion document and email your submission back to MPI.

Please include the following information in your submission:

☐ the title of the discussion document 'Proposed General Export Requirements for Bee Products';

☐ your name and title;

☐ your organisation's name (if you are submitting on behalf of an organisation), and whether your submission represents the whole organisation or a section of it; and

☐ your contact details (such as phone number, address, and email).

MPI encourages you to make your submission electronically if possible. Please email your submission to: manuka.honey@mpi.govt.nz

If you wish to make your submission in writing, these should be posted to the following address:

General Export Requirements for Bee Products Submission
MPI Food Assurance Team
PO Box 2526
Wellington 6140

The following points may be of assistance in preparing comments:

☐ where possible, comments should be specific to a particular section in the document. All major sections are numbered and these numbers should be used to link comments to the document;

☐ where possible, reasons and/or data to support comments should be provided;

☐ the use of examples to illustrate particular points is encouraged; and

☐ as a number of copies may be made of your comments, please use a legible font and quality print, or make sure hand-written comments are clear in black or blue ink.

Submissions are public information

Everyone has the right to request information held by government organisations, known as "official information". Under the Official Information Act 1982, information is to be made available to requesters unless there are good or conclusive grounds under the Official Information Act for withholding it.

If you are submitting on this discussion document, you may wish to indicate any grounds for withholding information contained in your submission. Reasons for withholding information could include that information is commercially sensitive, or that the submitters wish personal information such as names or contact details to be withheld. MPI will consider such grounds when deciding whether or not to release information.

Any decision to withhold information requested under the Official Information Act 1982 may be reviewed by the Ombudsman.

For more information please visit http://www.ombudsman.parliament.nz/resources-and-publications/guides/official-information-legislation-guides

Your details

Your name and title:	s 9(2)(b)(ii) [redacted]
Your organisation's name (if you are submitting on behalf of an organisation), and whether your submission represents the whole organisation or a section of it:	s 9(2)(b)(ii) [redacted] Responses are made only to questions 24 and 25, and are provided in a separate document.
Your contact details (such as phone number, address, and email):	s 9(2)(a) [redacted]

General questions: getting to know you

1. What part of the supply chain do you operate in:

   ☐ beekeeper

   ☐ extractor

   ☐ processor

   ☐ packer

   ☐ exporter

   ☐ retailer of bee products

   ☒ other – please specify: honey science and analytical laboratory

2. How long have you been involved in the apiculture industry:

   ☐ 0-5 years

   ☐ 5-10 years

   ☒ 10 + years

   ☐ not applicable

3. Do you operate under:

   ☐ an RMP under the Animal Products Act 1999

   ☐ the Food Act 2014 (Food Control Plan or National Programme)

   ☐ the Food Hygiene Regulations

   ☐ none of these

   ☒ not applicable

4. If you are a beekeeper, how many hives do you currently have:

   ☐ 0 – 5

   ☐ 6 – 50

   ☐ 51 – 500

   ☐ 501 – 1000

   ☐ 1001 to 3000

   ☐ More than 3000

5. What region of New Zealand do you operate in?

N/A

6. If you export bee products please tell us a little about your business. How many people do you currently employ?

   ☐ 0

   ☐ 1 – 5

   ☐ 6 – 19

   ☐ 20 or more

   What are the roles of your employees and how many are:

   ☐ beekeepers

   ☐ processors

   ☐ packers

   ☐ other – please specify

Impact of compliance costs for beekeepers, processors and exporters

7. Table 4.1.1 of the Discussion Document provides a summary of he estimated costs of the proposals. What do you think the overall impact of the new proposals will be on your business?

8. In order to estimate the total cost to industry of the proposals contained in the draft GREX, it would be useful for MPI to understand how many beekeepers, operators and exports of bee products will be affected by the proposals. Please specify which of the proposals listed in the table at 4.1.1 will affect you and how.

9. Do you foresee any other costs that will arise from the proposals contained in the draft GREX which are not contained in the table at 4.1.1? If so, how significant do you think these will be (e.g. administration costs such as time to fill in forms, and time to learn about the new requirements)?

No additional substances to be present in New Zealand honey

10. To ensure additional substances are not present in New Zealand honey, MPI proposes to prohibit the feeding of bees when honey supers are present on hives for the purpose of collecting honey, with an exception if it is necessary for the survival of the bees. Do you agree or disagree with this proposal?

    ☐ I agree because:

    ☐ I disagree because:

    Please suggest any alternatives to this approach that would ensure additional sugars and synthetic chemicals are not present in the honey:

11. To prevent the contamination of honey with varroacide residues, MPI proposes honey is only harvested from honey supers that do not contain honeycomb previously part of a brood nest. Do you agree or disagree with this proposal?

    ☐ I agree because:

☐ I disagree because:

Please suggest any alternatives to this approach that would ensure varroacide residues are not present in the honey.

Processors of bee products to operate under a risk based measure

12. MPI proposes that processors of bee products for export under the Food Hygiene Regulations must move to a risk-based measure (either an RMP under the Animal Products Act 1999, or Food Control Plan or National Programme under the Food Act 2014). Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Please suggest any alternatives to this approach that would provide MPI with oversight of these processors:

Bee products to be sourced from listed beekeepers

13. MPI proposes to extend listing requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that would address this gap in the traceability chain?

Pre-processing traceability requirements

14. MPI proposes beekeepers keep additional records. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that would address gaps in the traceability chain?

15. The costs for businesses associated with implementing the proposed traceability requirements are likely to vary depending on their existing systems and processes. What impact do you think these proposals are likely to have on your business?

Traceability from beekeepers to operators – harvest declarations

16. MPI proposes to introduce harvest statement requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

17. MPI considers, for most businesses, the costs associated with these proposals are unlikely to be onerous. Do you agree or disagree and why?

☐ I agree because:

☐ I disagree because:

Traceability between operators – transfer documentation in AP E-Cert and reconciliation

18. MPI proposes to introduce transfer documentation requirements to all bee products intended for export. Do you agree or disagree?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

Labelling of monofloral and multifloral mānuka honey

19. MPI proposes to implement the mānuka honey definition for export using the GREX. Do you agree or disagree?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that ensures mānuka honey is true to label?

20. MPI considers there are likely to be options available to businesses to support compliance with the proposed definition (e.g. relabelling, changes to blending practices etc.). Do you agree with this assessment or do you have concerns about ability of some businesses to comply?

☐ I agree because:

☐ I disagree because:

☐ I have concerns because:

21. MPI's proposal may have an impact on existing rights associated with using the word "mānuka" on labels, including registered trademarks. Do you agree with MPI's assessment of the impact on existing rights?

☐ I agree because:

☐ I disagree because:

22. MPI does not propose to make changes to the current use of grading systems. Do you agree or disagree with this position?

☐ I agree because:

☐ I disagree because:

23. What do you think the impact of the mānuka honey definition will be on the current use of grading systems?

24. Do you have any comments on the summary science report?

Yes, please see attached document.

25. Do you have any further comments regarding the definition of mānuka honey?

Please see attached document.

Laboratory Tests

26. Do you support the proposed requirements for sampling and testing mānuka honey set out in Part 6 of the draft GREX?

☐ I agree because:

☐ I disagree because:

27. The costs associated with these proposals are likely to vary depending on the size and volume of samples being tested. What impact do you consider these proposals will have on your business?

Do you have any suggestions for minimising any impacts?

Transitional provisions

28. MPI proposes a lead in time of **six weeks** between when the GREX is notified and when it comes into effect. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree and propose an alternative timeframe:

29. MPI proposes stock in trade provisions for honey exported between the date of commencement until six months after the date of commencement. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Any other feedback

30. Are there any other parts of this discussion document or the draft GREX that you would like to provide feedback on? (Please indicate which part of the discussion document or draft GREX you are providing feedback on).

Submission to:

MPI manuka.honey@mpi.govt.nz

Title of discussion document:

"Proposed General Export Requirements for Bee Products"

Submission from: s 9(2)(a)

Contact details: Office s 9(2)(b)(ii)

Introduction:

s 9(2)(b)(ii) has been operating as beekeepers, pollinators and extractors for 40+ years.

s 9(2)(b)(ii) has held an RMP since it became a requirement for honey exports to countries requiring official assurances – Registered 22 June 2006.

The bee industry is more than just bee products.

***** The impact of bees to the New Zealand economy is well documented however constantly underestimated.

* MPI have a role to play in both import and export to protect this industry and therefore should engage on a practical level with the wider industry to ensure practical regulation using quality science wherever possible.

* **Inappropriate regulation will lead to a tarnishing of the "New Zealand" reputation for quality, safe and unique products.**

Currently Official Assurances apply to 31.1% of our honey exports which presumably means that the other 68.9% is able to be exported using only the importing countries requirements (which can be updated as required by the importing country).

* **We live in a world where markets dictate requirements, not the exporting country.**

MPI should be proactive with other countries officials however not at the expense of ruining their own reputation and enforcing regulation where it is not adding value.

The end aim is safe, authentic, high quality honey. All parts of the value chain must have sensible systems which add value to their product while meeting market requirements.

* Submission in Two Parts:

.1. Manuka Honey Definition

.2. General Export requirements for Bee Products.

Manuka Honey Definition:

DNA testing of pollen is an excellent idea however having a Cq36 is a problem. This test is at the limit of measurement and creates too great a margin of error, creating a situation of uncertainty and debate plus the potential for importing countries to lose confidence in product and the MPI standard.

The CART modeling chosen by MPI scientists has its flaws, and by MPI's own admission – "Summary of MPI response to international peer review of the classification modeling methodology (CART) used to produce identification criteria for manuka honey" May 2017- 4.3.3 page 6 - **one non-manuka honey was classified as monofloral manuka** – can create totally incorrect classification.

This is at the very heart of what must be avoided.

This science should be considered a start with further work required. There has been no account taken of the interaction aging, seasonal and regional variation will have on pollen or its interaction with Manuka activity.

Before bringing in a standard both industry and MPI must have confidence in one another which is not there yet. More work is required and it would be great to see a more **collaborative approach taken.**

General Export Requirements for Bee Products

Part 3

3.1 Honey fit for Purpose:

We agree that honey should be fit for purpose.

3.1 1a Sugar Feeding.

Should a beekeeper feed sugar during the honey flow C4 as sugars will be detected in the end product.

3.1 1b Brood Comb.

Having regulation at the level of what frames can or can not be used is ridiculous. It would be impossible to ascertain and/or audit this **and for what gain?** The market is now becoming discerning regarding microbial levels and residues of not just varrocides but an array of agrichemicals.

There is already a clause on the "Apiarist and Beekeeper Statement for the Harvest of Honey and other Bee Product for Human Consumption" which covers veterinary medicines and agricultural compounds. Clause "b".

3.1 1c Free from Clinical signs of AFB

Every beekeeper aims to have hives free from AFB.

There is already a clause on the "Apiarist and Beekeeper Statement for the Harvest of Honey and other Bee Product for Human Consumption" which states "All apiaries are operated in compliance with the American Foul Brood Pest Management Strategy". Clause d.

The Pest Management Strategy states that when AFB is found everything is destroyed with the exception of the boxes which may be specifically treated to eliminate AFB and hive tools which must be cleansed using specified cleansing agents.

Good practice is to check hives for AFB at each visit. **Further regulation is unnecessary.**

3.2 Bee Products to be processed in premises operation under a risk-based measure

3.2 1 Not all countries require official assurances in fact more than two thirds of honey exported does not go to countries requiring this. The importing countries set their own requirements independent of foreign government regulations. **There is no need for this clause**

3.2 2 **This is already the case and the reason that RMP's were introduced.**

Part 4 Requirements Relating to Trace-ability

4.1 Pre-processing Trace-ability Requirements.

4.11 Currently the harvest declaration requires the number of honey supers, the beekeepers identifying code, the apiary registration number and the date of harvest to be stated. This enables trace-ability of the processed honey to an apiary site. The apiary registration has the global positioning location.

The requirement for individual honey supers to carry a unique identifying number registration and recording to a site may be useful to an individual operator however offers no value in traceability to MPI. Bees move honey around between boxes to suit themselves and it is the honey which is tracked not the box. A box is merely the vessel for carrying the honey. Tracking the individual box serves no purpose in trace-ability of the extracted, homogenized honey.

Part 5 Labeling of Mono-Floral and Multi-Floral Manuka Honey.

***** All NZ honey should be subject to the same labeling regulations and the definition of manuka has yet to be satisfactorily resolved.

Summary

As Honey Producers we fully support the intention of MPI to achieve a Manuka Standard, However at this point **we can not support the standards implementation due to the questions around defining manuka honey.**

The GREX requirements regarding sugar feeding, brood comb and AFB management is **poorly thought out and unnecessary.** Markets will dictate the requirements of honey hygiene and C4 sugars.

The requirement for all exports to come from RMP premises seems to relate more to ease of management for MPI than actual importing countries requirements and therefore should be deleted from this document.

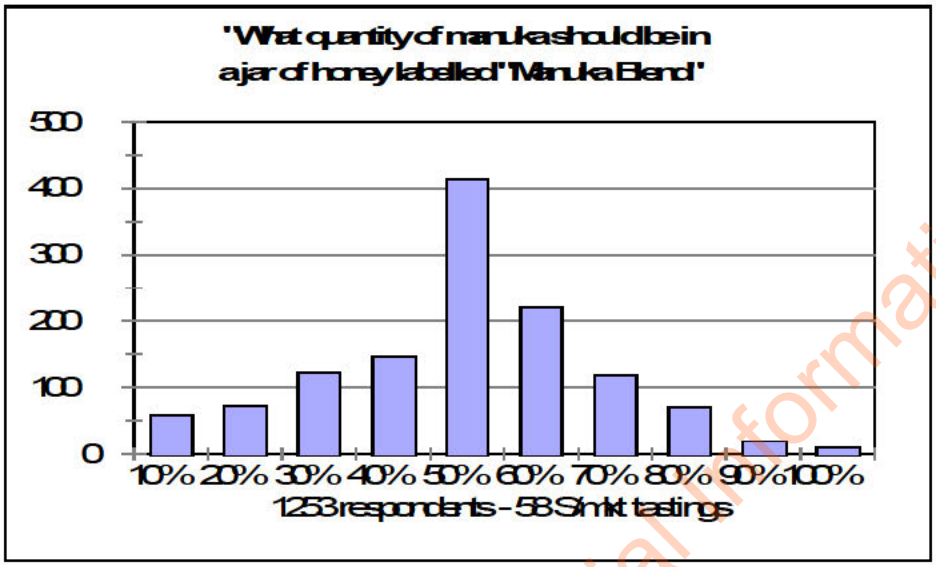
The question of trace-ability of honey supers shows a misunderstanding of the current regulations and **the fact is the unit of measure in homogenized honey is the apiary site not a box containing movable frames. This requirement should be removed from the document.**

Regards

s 9(2)(b)(ii)

Consumer Satisfaction.

Consumers believe that when they are buying a jar of mānuka honey that a reasonable percentage of the contents must be derived from "mānuka" plants. Airborne conducted a survey in supermarkets throughout New Zealand (58 tasting sessions in 43 Supermarkets, 1,253 respondents) asking the question: **"What quantity of mānuka should be in a jar of honey labeled as a Mānuka blend?"**



- 68% of the respondents thought it should be **50% or greater**
- 80% of the respondents thought it should be **40% or greater**
- 90% of the respondents thought it should be **30% or greater**.

A significant majority of consumers think even a multifloral mānuka should contain at least 50% mānuka honey. The content of a monofloral mānuka should therefore be much higher.

Our largest export market for Retail Packed honey (export stats - calendar year 2016) is the UK. The Honey (England) Regulations 2003 are derived directly from the EU Honey Directive (2001/110/EC) which in turn is derived directly from the Codex honey standard. **All three of these standards/regulations use the words "wholly or mainly"** when referring to the source of a named honey variety. The EU's notes for interpretation of this phrase are: "***As a rule, the adjectives 'wholly' or 'mainly' concern single-flower honeys only. The term 'mainly' must be interpreted as being more restrictive than 'predominantly' and must be understood to mean 'almost entirely'.***" The EU imports approximately 50% of all World trade in honey. It is therefore the single most important market for trade.

The implication is that **both our consumers and our major trading partners** expect **significantly more** than 50% of the contents of a jar of mānuka honey to come from mānuka plants. The new mānuka standard does not ensure this outcome.

China is our second largest export market for retail packed honeys (2016 calendar year), and possibly via the "grey channel" our largest single destination. The Chinese honey industry is characterized as the largest producer and exporter but has the worst reputation for quality and honesty. Over the years Chinese honey has been banned on more than one occasion from the EU and US, the two largest honey importers in the World accounting for around 75% of World honey imports and also Japan, China's single largest export destination for honey. This has been for contamination with antibiotic and pesticide residues (chloramphenical, nitrofurans and

chlordimeform) and for dumping and subsequent smuggling/circumvention of dumping duties. The largest scandal in the World for smuggling honey was Chinese honey being falsely labeled and falsely transshipped to the USA, an ongoing problem to this very day. Additionally Chinese honey is repeatedly adulterated with other sweeteners including rice and high fructose syrups, ultra filtered to remove pollen to prevent origin identification, heated and vacuum dried due to reduce high moisture issues and occupies the pricing slot at the very bottom of the World market. The fact that so much of our product makes its way there by back channels (grey market) is further evidence of the "way things are done" in China.

Citing China as a major customer that does not support the Codex honey standard and therefore aligning our proposed mānuka standard and GREX to their way of doing business should be a total anathema to all that New Zealand stands for as a trading nation.

The wording "Wholly or Mainly" should be used in the standard meaning at least 50% of the content of the product should be derived from plants that have a common name of mānuka.

Thus, if future technology is found that is able to give a better result than now, there will be an ongoing expectation of meeting the wholly or mainly target. At some future point when an analysis shows that the standard (as it stands today) has been deliver ng down to 25% mānuka content (or worse), some sellers would then try and set that as the benchmark against which to implement the new technology.

The Source of "Mānuka" Honey – A Common Name

"Mānuka" is a Polynesian word. It was brought to New Zealand by the first Polynesians to arrive (Early Māori) and has subsequently been adopted into New Zealand language and culture as a **common name**. Numerous places in the Pacific have been named "mānuka" e.g. Tonga, Hawaii (the "mānuka reserve" on the big island of Hawaii). Australia has numerous place names and roads, streets etc named "mānuka" (in excess of 20), and in New Zealand we have numerous place names using mānuka. Four of these I am familiar with are names of places where Kunzea species are the predominant "mānuka". These are Mānuka Point up the Rakaia river, two Mānuka Bays (one South of Gore Bay Nth Canterbury and one on the North side of Banks Peninsula) and Mānuka Downs, a large farm on the coast on the South side of the Hurunui river mouth.

Earliest references to define mānuka with a botanical name can be found in the first Māori dictionary to be published in New Zealand in 1844 by W. Williams. The 1921 (and all subsequent revisions and reprints contain this entry:

Mānuka (i), n. 1. Letpspermum scoparium and L. ericoides; shrubs or trees, so called *tea-tree*.

This dictionary is known as "The Williams" and is THE definitive Māori dictionary. It has had 7 revised ed tions and 21 reprints, the last reprint being in 2016. Many Māori dictionaries repeat this definition but this is unsurprising given the dominance of "The Williams" dictionary.

Further botanical texts do not vary from this stand point.

Laing and Blackwell, Plants of NZ, 1910.
L. scoparium: Mānuka, Kahikatoa;
L ericoides: Heath Like Mānuka, Mānuka-rauriki.
(Erica is the genus for heathers, ericoides = heath like)

Allan H.H., Flora of New Zealand, 1961.
L. scoparium: Mānuka, Kahikatoa, Tea-Tree;
L. ericoides: Mānuka or Kanuka, Tea-Tree.

Māori Healing and Herbal.
L. scoparium: Mānuka, Kahikatoa, Pata;
K. ericoides: Kanuka, White Mānuka.

J.T. Salmon, Trees and Shrubs of New Zealand.
L. scoparium: Mānuka, Kahikatoa;
K. ericoides: Kanuka, Mānuka, Tea-tree.

A Field Guide to the Native Edible Plants of New Zealand. L. scoparium: Tea-tree, Red Mānuka
K. ericoides: Tea-Tree, White Mānuka.

Medicines of the Māori. L. scoparium: Mānuka, Kahikatoa, Tea Tree, Red Mānuka; K.ericoides; Mānuka, Kanuka, Tree Mānuka, White Mānuka.

New Zealand Medicinal Plants. L. scoparium: Tea Tree, Red Mānuka, Mānuka, Kahikatoa; K. ericoides: Tree Mānuka, White Mānuka, Kanuka.

R. S. Walsh, Nectar and Pollen Sources of New Zealand.
Mānuka L. scoparium: Mānuka, Red Tea Tree; K. ericoides,
Tree Mānuka, Kanuka, White Wooded variety of Mānuka, White Tea Tree.

This last reference is very significant as it gives a beekeeping perspective on historical common usage of the word "mānuka". R.S. Walsh was the government honey grader for 13 years for the New Zealand Honey Marketing Authority (NZHMA), and the book was last revised and published in 1978 by the National Beekeepers' Association and edited by Graham Walton, the Chief Apicultural Advisory Officer for MAF.

The author's first comment under "Mānuka" is, "There are some 35 species of mānuka mostly belonging to Australia..."; that is, he lumped all the Leptospermums into the mānuka pool (and at the time K. ericoides was still classified as a Leptospermum) This is borne out by the proliferation of “mānuka” place names in Australia.

In 1983 Leptospermum ericoides was placed in the Kunzea genus and in 2014 this one species was reviewed by Peter de Lange and divided into 10 different species. The original type sample for L. ericoides was held in an overseas herbarium and so subsequent reviews of this sample were not carried out, until the work of Peter de Lange. K. ericoides was found to be atypical of most Kunzeas in New Zealand and the species has since been relegated to the North West of the South Island. Kunzea robusta is now the most predominant Kunzea found in New Zealand.

In 2013 Peter de Lange writing in Trilepidea the newsletter of the NZ plant conversation network had this to say:

> “…..during my PhD research, I was staggered to discover that ‘mānuka’ was a name that once seemed to mostly apply to what we now call ‘kānuka’ (Kunzea ericoides agg.), and that before 1930, Leptospermum scoparium was widely (though even then not universally) known as kahikatoa. At some time, especially it seems after 1930, the most widely used name for members of the Kunzea ericoides agg., ‘mānuka’ was permanently switched to Leptospermum scoparium, and the name kānuka—whose origin still seems unclear (see Gardner, 2010)—was pushed as the name for Kunzea. Currently, ‘kahikatoa’ is still used for Leptospermum scoparium in Northland but even there it is fast dying out as a result of the obvious cash benefits to iwi of leasing out ‘Leptospermum wasteland’ to apiarists keen to obtain ‘mānuka honey’, a situation that has been exacerbated by the death of those few kuia and kaumatua who knew ‘kahikatoa’ and its **correct application**. In several generations time (or less), I suspect that very few people will remember ‘kahikatoa’ and, in any case, even if they did, can you imagine the uproar if those of a politically correct bent tried to get the ‘mānuka honey’ industry to rebrand their

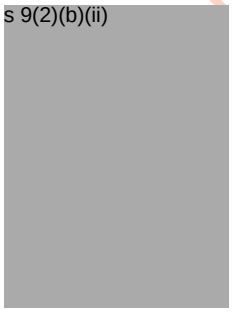
product as ‘kahikatoa honey’? It would never work. Still there we have it, we risk losing ‘kahikatoa’—with its rich Polynesian etymological history but, as far as our Kunzea are concerned, we have already virtually lost a wonderful endemic iwi record of names—how many people have ever heard of our Kunzea species being called (besides ‘mānuka’) ‘kopuka’, ‘maru’, ‘manuoea’, ‘mānuka-rauriki’ ‘makahikatoa’, ‘rawiri’, ‘rawiritoa’, and ‘rawirinui’?”

The next interesting step in this story is that the original type sample of L. scoparium was collected in the Australian state of Tasmania. One wonders what will eventuate when the much overdue revision of the L. scoparium complex is completed. Will L. scoparium be relegated to only the island of Tasmania? Perhaps then MPI might be forced to reconsider their recent slavish adherence to only L. scoparium equals mānuka

MPI have made a fundamental error in interpreting the Codex honey standard and ignoring the common name provision it contains. This error has occurred after 2013. Prior to that, both plants were accepted by MPI as “mānuka”. The belief that chemical markers and new technology would be able to define mānuka honey but had to be based on only one species was part of that. It is likely that the lack of experience of the science team in the international honey trade has lead them to believe that it would be simple to develop a standard based on these new, untried and unused techniques.

For most of the history of New Zealand, both pre and post European, mānuka has been a common name that refers to both species (now 11 and counting) s 9(2)(b)(ii) . has been packing “mānuka” honey sporadically since the early part of last century and launched a mānuka specific label in 1985 – the first of our “floral range”

s 9(2)(b)(ii) s 9(2)(b)(ii) original mānuka labeling from 1985



Numerous other New Zealand companies have been doing the same, notably Arataki, Kintail and Waitemata Honey. The now defunct Honey Producers Cooperative also produced several mānuka products some that dated back to the days of the NZHMA in the 1960s and 1970s.

s 9(2)(b)(ii) **believes it has existing rights usage to its products labeled as “mānuka honey” using a Codex based definition as documented on our mānuka page at:**
s 9(2)(b)(ii)

The honey from both plants looks the same, has the same aroma, and the same taste, is thixotropic, and has been marketed as “mānuka honey” since there have been beehives in New Zealand. Until very recently (the last two years or so) there has been no attempt to market kanuka” honey.

This use of more than one species being sold under the one common name is quite normal for honey around the World and is the very reason for the existence if the “common name or botanical name” provision in the Codex Alimentarius Honey Standard. We reported extensively on this in our last submission on Mānuka Honey standards back in 2013. A copy of that submission has been sent with this submission as supporting evidence.

The definition of mānuka honey should include honey and honeydew from all 10 Kunzea species and Leptospermum scoparium and future divisions of this current species in New Zealand.

The Codex Alimentarius Honey Standard vs the MPI Mānuka Standard

The Codex honey standard is politically not welcomed within the therapeutic mānuka sellers in New Zealand.

Historically this is due to some honey with high NPA activity having low mānuka pollen percentages. Because the therapeutic mānuka sellers have traditionally only looked at one parameter, the NPA (originally measured with the Agar Well Diffusion Assay (AWDA) to define mānuka, they often found that it did not correlate with mānuka pollen percentage. Their opposition to this factor extended to all things Codex based. i.e. The codex standard for them was code for "pollen analysis".

When it was discovered that MG was the active ingredient responsible for the antibacterial activity in mānuka honey, and this was derived from DHA in the nectar, which in tu n had a very large range of values in individual plants, it was immediately clear that a high activity honey with a low mānuka nectar content could be produced from a honey with some mānuka nectar with a high DHA content. The outcome would be a "high" activity honey with a low mānuka pollen count. This subsequent knowledge has done little to change the original be ief system and thus opposition to the Codex honey standard.

However the Codex honey standard has been well thought through and applied by many countries with discerning honey consumers. The flow of certification starts with the definition of honey and proceeds with quality parameters to ensure that this is met, then on to definitions for honeys from named sources. The following three sections are the heart of the matter:

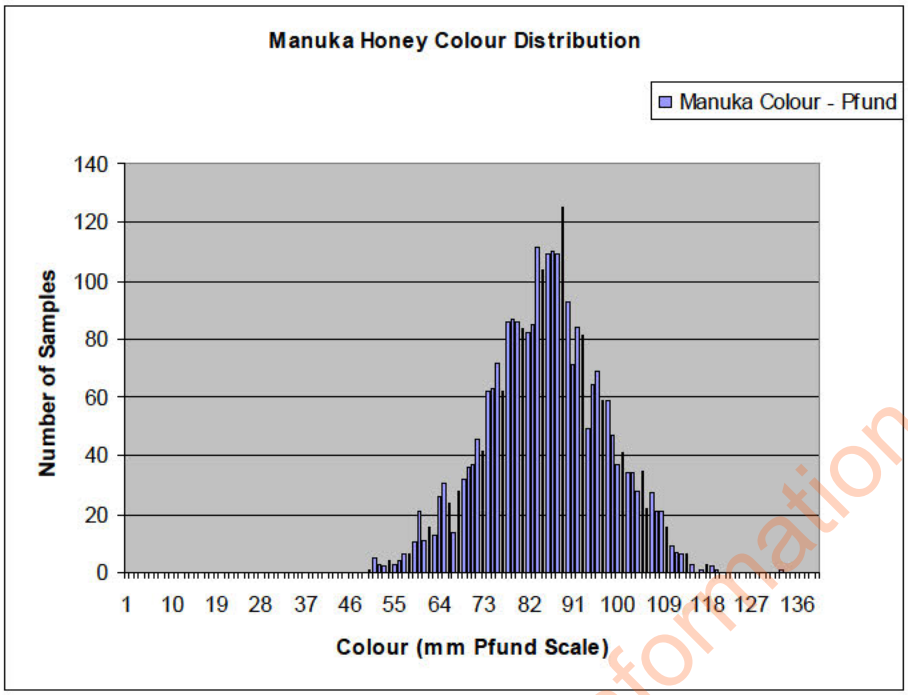
6.1.6 Honey may be designated according to floral or plant source if it comes **wholly or mainly** from that particular source and has the **organoleptic, physicochemical and microscopic** properties corresponding with that origin
6.1.7 Where honey has been designated according to floral or plant source (6.1.6) then the **common name or the botanical name** of the floral source shall be in close proximity to the word "honey".
6.1.8 Where honey has been designated according to floral, plant source, or by the name of a geographical or topological region, then **the name of the country where the honey has been produced shall be declared.**

This section should be implemented so that any future acceptance of this will require Australia to label their L. scoparium honey as "Australian Mānuka Honey"

From a consumer's perspective, the honey should mostly come from the named plant and it should ook, taste and have the aroma **typical for that honey type**.

And this is the most important area that the proposed mānuka standard fails. It makes no mention at all of anything to do with "wholly or mainly", with colour, aroma, taste or physical appearance.

Colour measurements of honey are simple to do, and our own large dataset shows that there is a limited range of colour of mānuka honey. The summary data below for colour has negligible difference with the data for the first 500 measurements made at a time when mānuka's value was less than other honeys. Beekeepers only called it mānuka when they couldn't pass it off as any other honey.



Average	85.6
Mean	86
Std Dev	11.9
Max	133
Min	50
Number	2,888

There should be a colour measurement incorporated into the standard.

There should also be a provision for the aroma and taste. At the very least a description of the flavour.

While this is difficult to implement with MPI's view that any test must be able to be replicated and measured, the reality is that **this one element of the standard is the core of the consumer's experience**. Meeting levels for four chemical markers will do nothing to prevent the problem of other strong flavoured honeys providing a significant if not overriding flavour profile to a honey deemed a "monofloral mānuka"

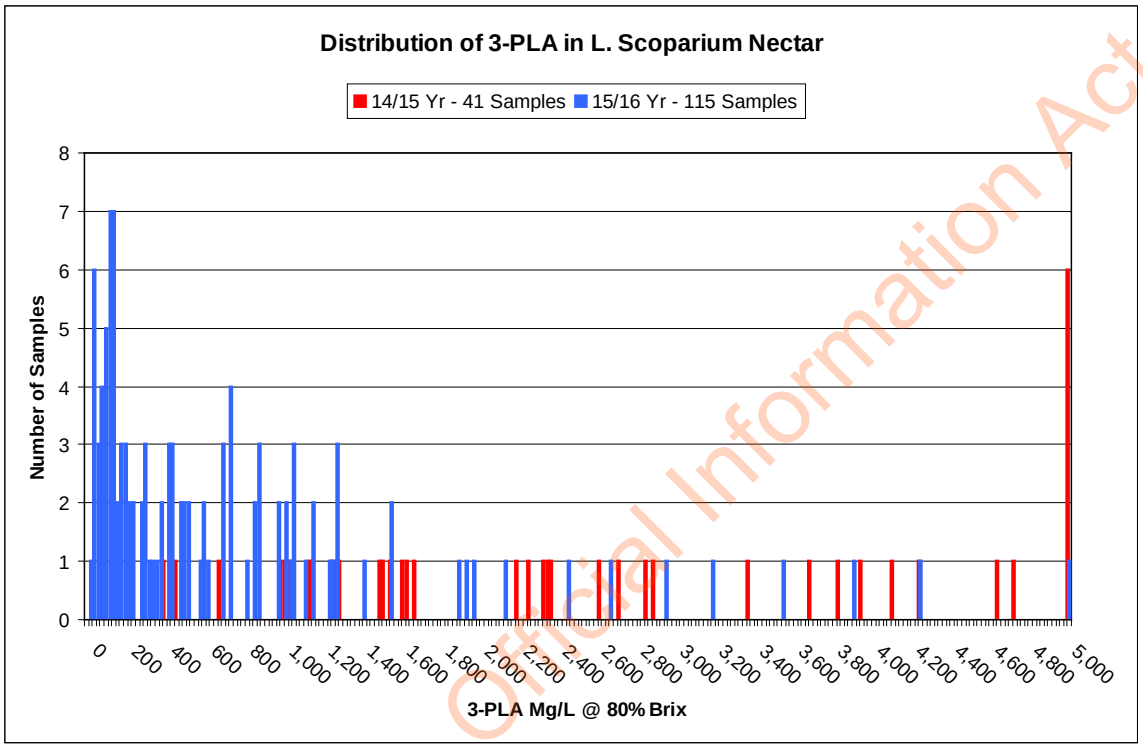
We have repeatedly counseled against the use of chemical markers for use in a honey standard except for this statement in our 2013 submission:

Should a key marker compound or compounds be found that has little variation over multiple subspecies, samples, latitudes, altitudes, soils, climates, microclimates or years is stable and not found in other non mānuka plants, it would be a useful addition.

We believe that this ideal marker for any honey **has not been found anywhere in the World** to date. While there are many proposals for a chemical marker for various honeys around the World, they are relegated to "additional information" status. No-where do they have a level that is acted on as a pass/fail with the exception of methyl anthranilate in orange blossom honey – where it

has been a major source of much valid dispute from the time it was introduced – more an example of what **not** to do.

At the mānuka consultation meeting we attended in Christchurch, it was stated that the most significant indicator for determining a mānuka honey was 3-PLA followed by the DNA test. The nectar data that was sent to us recently shows a very disturbing pattern for 3-PLA across the two seasons that nectar data was collected.



If there is such a huge difference between the two years, then using this marker as the key determinator of being a monofloral mānuka makes absolutely no sense.

3-PLA in nectar – From the released data.

	14/15 Yr	15/16 Yr	14/15 Yr	15/16 Yr
	L. scoparium	L. scoparium	Kunzea	Kunzea
Max	8,556	8,480	10,983	6,910
Min	399	9	13	2
Std Dev	2,004	1,104	2,884	1,568
Median	2,353	X6 420	2,805	520
Average	2,922	X4 768	3,235	1,134
Number	41	115	37	47

In the 14/15 year, 27% of the samples were over 4,000 mg/L.
In the 15/16 year 1.7% of the samples were over 4,000 mg/L

In the 14/15 year, 9.8% of the samples were under 1,000 mg/L.
In the 15/16 year 75% of the samples were under 1,000 mg/L

And between the two years the median and average differed by 6 fold and 4 fold respectively.

If the nectar source the honey is derived from has such a large variability between years (not to mention the huge range of values between regions and plants in each year), how does one expect this marker to be the key to determine a monofloral mānuka?

Perhaps the reliance on "statistical methods" to try and drag a correlation out of the honey analyses is the cause of this faith that 3-PLA can do this. And its presence in Kunzea species at levels similar or higher than L. scoparium seems to be accepting the Kunzeas and L. scoparium are all part of the mānuka suite, but not officially.

The Blending Problem

There are many blending examples that have been offered to MPI from the Standard Focus Group. The subset of data here (44% of the 660 NZ honey samples tested) shows significant blending opportunities.

83-263 mg

Attribute	Median	25th percentile	75th percentile	Mean (st. dev)
2-methoxyacetophenone (mg/kg)	8.85	3.90	21.00	13.37 (13.01)
2-methoxybenzoic acid (mg/kg)	6.85	3.65	11.00	8.74 (8.92)
4-hydroxyphenyllatic acid (mg/kg)	7.45	3.50	9.55	7.14 (4.69)
3-phenyllactic acid (mg/kg)	590	375	970	674.22 (470.55)
Mānuka DNA (Cq value)	29.53	26.90	32.29	30.25 (4.55)

> 263 mg

Attribute	Median	25th percentile	75th percentile	Mean (st. dev)
2-methoxyacetophenone (mg/kg)	9.10	5.65	21.00	14.36 (13.47)
2-methoxybenzoic acid (mg/kg)	10.00	6.40	21.00	17.49 (20.80)
4-hydroxyphenyllatic acid (mg/kg)	8.30	5.85	10.00	8.13 (4.07)
3-phenyllactic acid (mg/kg)	800	535	1120	866.07 (870.51)
Mānuka DNA (Cq value)	30.46	28.20	32.02	30.71 (3.53)

Over 25% of all these honeys (potentially significantly more) could be blended to where the original honey (which was never 100% mānuka in the first instance) comprises less than 40% of the total.

Already we have anecdotes of beekeepers in Northland with high 3-PLA honey talking to beekeepers in the Nelson region with high levels of the other 3 markers and wanting to "work together".

The Multifloral mānuka levels are also a concern. Having the key parameter watered down to 5% of the monofloral value and the mean value of the next lowest limiting factor (4-hydroxyphenyllatic acid) allowing dilutions of 7-8 fold mean levels of 20% or less of nectar content places MPI's standard in disagreement with over 90% of consumers.

The standard for a multifloral mānuka should be dropped – at least until the full implications of the monofloral standard become clear.

CART - Pulling oneself up by ones bootstraps

From MPI's explanation of the CART model.

"The outputs of a CART model are highly dependent on the training data used to build the model."

There is no reference anywhere to any method to ensure that the honey supplied to train the CART model is in fact "mānuka". There can therefore be no assurance that the CART model has done anything other than train itself to be an average of what the producers who supplied mānuka to the programme think is mānuka. Tweak it a little to get a small level of "failures" and the model has simply produced an average of what MPI would like it to.

Unless an independent method is used to determine the authenticity of the training samples, the MPI mānuka standard outcome has very little value. The literature has many references to methods for determining the quality of honey and pollen analysis or caged trials are the gold standards that are repeatedly referred back to. The improvements by s 9(2) (b)(ii) on the pollen differentiation between L. scoparium and the Kunzeas has made the objection to pollen analysis a non issue and thus this should be used to validate and perhaps rank the CART training samples.

New Methods

The whole science programme has been been an exercise in applying new methods where none have gone before. The m stake is to think that this was new and therefore do-able. In fact there has been extensive work done in this field over the last 30 years.

I am always reminded of a quote from Gudrun Beckh, chairman of the International Honey Commission (in esponse to my question to her on the suitability/potential of chemical markers for mānuka)

"Prof Speer is working since years on different compounds in honey like phenolic compounds, organic acids etc.
The problem is always: after a lot of work and money spent ***the outcome is quite poor for the trade****."*

The data from the chemical markers and their shortcomings would suggest that we have the same situation here in New Zealand.

The chemical markers should only be an additional quality parameter, i.e. a presence only.

A similar thing has happened with the qPCR DNA test. At the outset it was promoted as being able to tell the amount of pollen in the honey ("quantitative") and this was not dispelled during the standards development process - until the standard was announced. And then it became clear that the DNA test did little other than say it had one or two (or more) L. scoparium pollen grains in the sample, and honeys labeled as pure non mānuka species passed the test. But obvious in MPI's own data (above) was a significant problem. The Cq values for the 75th percentile were lower than the 25th percentile. Lower levels of mānuka had higher DNA levels, and this same anomaly turned up in multiple samples from industry. And MPI stoically refused to admit that. Until the meeting where Dnature announced that they now had a possible "fix". However the "fix" was a meager improvement on only two samples at the outer levels of detection. And the "fixed" levels of DNA were still 3 orders of magnitude below moderate mānuka levels suggesting the "fix" was a long way from being anything but a bandaid.

A lot more work needs to be published on this technique before it can be given any weight in a standard for mānuka honey. That MPI have pushed this test when the evidence of its shortcomings have been in plain sight has gone a long way to erode any confidence in MPI's handling of the standards issue.

If MPI do not accept the common name provision in the Codex honey standard, the s 9(2)(b)(ii) **technique for pollen determination for L. scoparium should be implemented in the standard instead of the DNA test. At the very least, a failure of the DNA test should be able to be overturned by a pollen test.**

At the outset I said that I have been involved in this process for a long time (1987) and have a knowledge base to see some things more clearly than many current players in the industry.

I have been very frustrated by the lack of understanding by many of the government participants along the way. At times my tone and delivery may reflect that frustration. I apologize for this if some of that frustration has spilled over into this submission.

However s 9(2)(b)(ii) has been committed to, and championed the development of honey standards. Many of our competitors have been threatened by that and much of the opposition to our methods stems from that fear. But our methods have always been best practice in the World honey market. They are not our own invention. The most significant failure of MPI in this process is the failure to champion and fit the mānuka standard into the World Codex honey standard.

Proposed General Export Requirements for Bee Products

For all exporters of bee products from New Zealand

SUBMISSION FORM

General questions: getting to know you

1. What part of the supply chain do you operate in:

   ☐ beekeeper

   ☐ extractor

   Ⓧ processor

   Ⓧpacker

   Ⓧ exporter

   ☐ retailer of bee products

   ☐ other – please specify

2. How long have you been involved in the apiculture industry:

   ☐ 0-5 years

   ☐ 5-10 years

   Ⓧ 10 + years

   ☐ not applicable

3. Do you operate under:

   Ⓧ an RMP under the Animal Products Act 1999

   ☐ the Food Act 2014 (Food Control Plan or National Programme)

   ☐ the Food Hygiene Regulations

   ☐ none of these

   ☐ not applicable

4. If you are a beekeeper, how many hives do you currently have:

   ☐ 0 – 5

   ☐ 6 – 50

   ☐ 51 – 500

☐ 501 – 1000

☐ 1001 to 3000

☐ More than 3000 We operated 6,000 hives at our peak. We don't have hives now.

5. What region of New Zealand do you operate in?

Canterbury

6. If you export bee products please tell us a little about your business. How many people do you currently employ?

☐ 0

☐ 1 – 5

Ⓧ 6 – 19

☐ 20 or more

What are the roles of your employees and how many are:

☐ beekeepers

☐ processors 2

☐ packers 4

☐ other – please specify 10 Clerical, lab, logistics and marketing staff

Impact of compliance costs for beekeepers, processors and exporters

7. Table 4.1.1 of the Discussion Document provides a summary of the estimated costs of the proposals. What do you think the overall impact of the new proposals will be on your business?

We will implement any testing (except DNA) in our own laboratory, some start up costs but minimal ongoing costs to those we already incur. Export costs for analysis from IANZ accredited facility will be additional.

8. In order to estimate the total cost to industry of the proposals contained in the draft GREX, it would be useful for MPI to understand how many beekeepers, operators and

exports of bee products will be affected by the proposals. Please specify which of the proposals listed in the table at 4.1.1 will affect you and how.

Because we are the final exporter, and all audits lead to us, we play a role of gatekeeper for those upstream of us that cannot understand the mind numbing bureaucracy. This takes a significant amount of our time. We would estimate half a FTE to cover fixing and overseeing the problems inflicted on the industry by back to the super traceability nonsense.

9. Do you foresee any other costs that will arise from the proposals contained in the draft GREX which are not contained in the table at 4.1.1? If so, how significant do you think these will be (e.g. administration costs such as time to fill in forms, and time to learn about the new requirements)?

There is a tendency to underestimate the time taken to fix unforeseen problems that inevitably go wrong with data capture in the field with technically challenged people, particularly in harsh environments.

No additional substances to be present in New Zealand honey

10. To ensure additional substances are not present in New Zealand honey, MPI proposes to prohibit the feeding of bees when honey supers are present on hives for the purpose of collecting honey, with an exception if it is necessary for the survival of the bees. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

This has come out of the belief system developed by s 9(2)(a) in her early crusade on sugar feeding as THE cause of C4 sugar determinations. However her own data set showed that no failures occurred in non manuka honeys (over 700 measurements) and in manuka honeys over 30% failed. Further research showed that MG was altering the protein fraction of the honey (enzymes introduced by the bees) extracted as an internal standard and thus altering the

outcome of the test. Numerous references in the literature refer to bees consuming around 95% of all carbohydrates collected with only 5% being stored as honey. Strong hives at the start of a honey flow are at their peak consumption and can use 2-5 kilos of honey per day in dearth conditions caused by cold weather. Strong hives can quickly starve under those conditions. Pasture honey producers are no different to manuka producers in that they have their hives at peak strength immediately prior to the honey crop. Having sufficient stores on board at this time is vital to their economic survival and can come down to a day or so of fine or inclement weather. Trying to effectively manage this proposal will have beekeepers putting their tongues firmly in their cheeks as they say what they need to say to comply with the "rules" while at the same time doing what is necessary to ensure the survival of their hives.

Please suggest any alternatives to this approach that would ensure additional sugars and synthetic chemicals are not present in the honey:

Have an industry best practise guideline which will include things like not sugar feeding during the honey flow.
And monitor for expected outcomes of dodgy practises. We measure sucrose for all honey samples supplied to us (around 1,500 annually). We rarely see over 5% sucrose and usually that is in honeys that we know have known issues with natural higher sucrose levels e.g. vipers bugloss. Sugar contamination is NOT the problem made out by some.

11. To prevent the contamination of honey with varroacide residues, MPI proposes honey is only harvested from honey supers that do not contain honeycomb previously part of a brood nest. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

There is very limited information that this is actually a problem except for finding metabolites of one varroacide. The real problem is producers that use these materials off label. Fix that problem first before you add another one to the mix that will have severe implications to best management practises of beehives. We are in the halcyon days of beekeeping at present – but based on the falsehoods of "manuka". World prices are $4.00 per kilo and this is the level that beekeepers need to be able to survive at if our marketing bubble bursts. We will need all available management options to ensure this is possible. Having an ivory tower decree that half their broodnest management is not allowed because they have an issue caused by a completely different problem is very woolly thinking.

Please suggest any alternatives to this approach that would ensure varroacide residues are not present in the honey.

Ensure that varroacides are used in accordance with the label. When we stop hearing anecdotes about hives being inspected and the previous two seasons strips are still in the hives, or beekeepers taking out their strips when they put the new ones in etc. then we will know we are getting better.

Processors of bee products to operate under a risk based measure

12. MPI proposes that processors of bee products for export under the Food Hygiene Regulations must move to a risk-based measure (either an RMP under the Animal Products Act 1999, or Food Control Plan or National Programme under the Food Act 2014). Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Please suggest any alternatives to this approach that would provide MPI with oversight of these processors:

Bee products to be sourced from listed beekeepers

13. MPI proposes to extend listing requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☐ I agree because:

Only if it is the only way of maintaining market access.

☐ I disagree because:

Just another cost. And one that seems to be extraordinarily high for simply adding a name and address to a computer list. If negotiation with the trading partner can eliminate this cost, then this is a better outcome.

Can you think of any alternatives to this approach that would address this gap in the traceability chain?

We already have complete traceability back to the producer. We are routinely audited . We collect harvest declarations from these producers, regardless of the extractor. Where's the problem??

Pre-processing traceability requirements

14. MPI proposes beekeepers keep additional records. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that would address gaps in the traceability chain?

15. The costs for businesses associated with implementing the proposed traceability requirements are likely to vary depending on their existing systems and processes. What impact do you think these proposals are likely to have on your business?

We don't see any changes to what we are doing now.

Traceability from beekeepers to operators – harvest declarations

16. MPI proposes to introduce harvest statement requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☐ I agree because:

We are doing this now – no change

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

When we see the requirements on the new HDecs, we will comment on them.

17. MPI considers, for most businesses, the costs associated with these proposals are unlikely to be onerous. Do you agree or disagree and why?

☐ I agree because:

☐ I disagree because:

Traceability between operators – transfer documentation in AP E-Cert and reconciliation

18. MPI proposes to introduce transfer documentation requirements to all bee products intended for export. Do you agree or disagree?

☐ I agree because:

Doing it now

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

Labelling of monofloral and multifloral mānuka honey

19. MPI proposes to implement the mānuka honey definition for export using the GREX. Do you agree or disagree?

☐ I agree because:

We need a standard

☐ I disagree because:

We don't think the standard MPI have proposed is suitable in its current form. See the rest of our submission.

Can you think of any alternatives to this approach that ensures mānuka honey is true to label?

Apply a more Codex Alimentarius Honey Standard based approach.

20. MPI considers there are likely to be options available to businesses to support compliance with the proposed definition (e.g. relabelling, changes to blending practices etc.). Do you agree with this assessment or do you have concerns about ability of some businesses to comply?

☐ I agree because:

☐ I disagree because:

☐ I have concerns because:

See the rest of our submission and previous submission from 2013

21. MPI's proposal may have an impact on existing rights associated with using the word "mānuka" on labels, including registered trademarks. Do you agree with MPI's assessment of the impact on existing rights?

☐ I agree because:

We have been selling manuka honey based on Codex principles since 1985. We have constantly campaigned on that basis. An approach of doing the right thing with the best practises, while the consumer has been deceived by false claims made for manuka. We have been open and transparent at all times in this approach and up to 2013 MAF/NZFSA/MPI agreed with this professional, World player, Codex based approach.

☐ I disagree because:

22. MPI does not propose to make changes to the current use of grading systems. Do you agree or disagree with this position?

☐ I agree because:

MPI has attempted to create a monofloral honey standard. If they stuck to the Codex honey standard, this would be clear. Additional claims (MG, UMF etc) are outside the framework of: does the honey, or does it now come from the stated plant(s). Because these additional claims are based on a highly variable chemical suite in the nectar, they cannot be directly linked to the purity of the floral source of honey. Going down this track is a recipe for disaster (one that MPI have embraced with their "other" chemical markers).

☐ I disagree because:

23. What do you think the impact of the mānuka honey definition will be on the current use of grading systems?

I doubt that it will change it much

24. Do you have any comments on the summary science report?

See the rest of our submission.

25. Do you have any further comments regarding the definition of mānuka honey?

See the rest of our submission.

Laboratory Tests

26. Do you support the proposed requirements for sampling and testing mānuka honey set out in Part 6 of the draft GREX?

☐ I agree because:

See the rest of our submission.

☐ I disagree because:

See the rest of our submission.

27. The costs associated with these proposals are likely to vary depending on the size and volume of samples being tested. What impact do you consider these proposals will have on your business?

This depends on the final outcome of the standard.

Do you have any suggestions for minimising any impacts?

Transitional provisions

28. MPI proposes a lead in time of **six weeks** between when the GREX is notified and when it comes into effect. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree and propose an alternative timeframe:

I think that this is too tight for most companies. While we currently have very low manuka stocks and will not be affected by this, we are aware that many companies have very large manuka stocks. And since most of the market has been UMF5 or less (over 80% of the domestic market of UMF branded product), a large amount of this product will fail. This will be a massive blow to some of our largest companies.

We think a 12 month lead in time would be better. The market will also determine much of this and any lead in time from MPI will be over ridden by orders from customers or importing countries' requirements.

29. MPI proposes stock in trade provisions for honey exported between the date of commencement until six months after the date of commencement. Do you agree or disagree with this proposal?

☐ I agree because:

For us, this is no problem. As above we don't have large manuka stocks. We may lose some label stocks. However a 12 month provision would be better.

☐ I disagree because:

Any other feedback

30. Are there any other parts of this discussion document or the draft GREX that you would like to provide feedback on? (Please indicate which part of the discussion document or draft GREX you are providing feedback on).

See the rest of our submission.

[Not relevant to request]

From: s 9(2)(a) xtra.co.nz>
Sent: Tuesday, 13 June 2017 4:31 p.m.
To: Manuka Honey
Subject: Proposed General Export Requirements for Bee Products

s 9(2)(a)

I basically Agree with the proposed requirements apart from a few points, one being brood frame extraction, the other being traceability of honey supers and the DNA test

Brood Frame Extraction
As brood Frames is not in your definitions this could mean any frames that have ever had brood in them which could be about 90% of our honey frames, approximately s 9(2)(b)(ii) I think the requirements should instead read any frame that has any amount of live or dead brood at the point of harvest which we consider good beekeeping practice and already works well.

Traceability
There is no way each honey super should be tagged with any MPI or other form of identification. When honey supers arrive at the extraction plant they under harvest declarations, which states the site MAF ID number of the site and the amount of supers harvested. All Boxes under a single MAF ID are then stored, warmed, extracted together and then mixed to ensure consistency and drummed to create a homogenous batch under one MAF ID . This makes it impossible to therefore trace back to a super level after the extraction stage and removes any need to tag or otherwise mark honey supers. Traceability down to a drum level is all that is physically possible to achieve and is already achievable and practiced through the current system harvest declarations and the of labelling drums under MAF ID site numbers.

Another area that has been over looked is the process that the supers go through in the extraction room. All frames are removed from the supers to be pricked and loaded into the extractor which holds upwards of 24 frames (2.5 boxes) these are then spun for few minutes at high speed making it to impossible to know what frames came from where and therefore impossible to put them back into the same super which then makes it pointless to have tagged the boxes in the first places as it is possible for them to a completely different set of frames in them.

As for your proposal for the beekeeper to keep records of where the supers are placed year to year this is unclear and it is already a requirement to record sites where honey super are used. This is recorded during the harvest on the harvest declaration which shows the amount of supers in a site and from which site for that year. As for putting the same supers back on the same hives or sites year after year, this is impossible as the hives are never supered in the same order every year making it impossible to find the supers for the site year after year. Therefore we fully keeping the harvest declaration system that we already use and everybody is familiar with and works well providing traceability to site and batch level. No more required. Keep it simple.

With the DNA test I believe that these need to be definitive and if the DNA is not working maybe including MGO as another reliable marker. More work needs to be done before this gets implemented.

[Not relevant to request]

From: s 9(2)(a) .com>
Sent: Tuesday, 13 June 2017 4:31 p.m.
To: Manuka Honey
Subject: Proposed General Export Requirements for Bee Products

s 9(2)(b)(ii)

I basically Agree with the proposed requirements apart from a few points, one being brood frame extraction, the other being traceability of honey supers and the DNA test

Brood Frame Extraction

As brood Frames is not in your definitions this could mean any frames that have ever had brood in them which could be about 90% of our honey frames, approximately s 9(2)(b)(ii) I think the requirements should instead read any frame that has any amount of live or dead brood at the point of harvest which we consider good beekeeping practice and already works well.

Traceability

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As for putting the same supers back on the same hives or sites year after year, this is impossible as the hives are never supered in the same order every year making it impossible to find the supers for the site year after year.

Therefore we fully keeping the harvest declaration system that we already use and everybody is familiar with and works well providing traceability to site and batch level. No more required. Keep it simple.

With the DNA test I believe that these need to be definitive and if the DNA is not working maybe including MGO as another reliable marker. More work needs to be done before this gets implemented.

s 9(2)(b)(ii)

Proposed General Export Requirements for Bee Products

SUBMISSION

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Submittor Information:

This document is submitted on behalf of s 9(2)(b)(ii) which is the trading arm of a Maori owned business based in Tai Tokerau. The operation purchases bulk honey from its team of Northland based beekeepers (themselves all owner operators with hive numbers ranging between 250 and 4,500. Four of these beekeepers also own and operate extraction facilities). Our products are processed in the north and we also pu chase product in retail packs from a central processing company based in the Far North. Our company sells in the domestic market and export markets including China, Japan, Holland, Australia, India and Singapore. Approximately 97% of our product sold is Mānuka Honey

Document Authors:

s 9(2)(b)(ii)

Please include the following information in your submission:

☐ the title of the discussion document 'Proposed General Export Requirements for Bee Products';

☐ your name and title;

☐ your organisation's name (if you are submitting on behalf of an organisation), and whether your submission represents the whole organisation or a section of it; and

☐ your contact details (such as phone number, address, and email).

MPI encourages you to make your submission electronically if possible. Please email your submission to: mānuka.honey@mpi.govt.nz

The following points may be of assistance in preparing comments:

☐ where possible, comments should be specific to a particular section in the document. All major sections are numbered and these numbers should be used to link comments to the document;

☐ where possible, reasons and/or data to support comments should be provided;

☐ the use of examples to illustrate particular points is encouraged; and

☐ as a number of copies may be made of your comments, please use a legible font and quality print, or make sure hand-written comments are clear in black or blue ink.

Submissions are public information

Everyone has the right to request information held by government organisations, known as "official information". Under the Official Information Act 1982, information is to be made available to requesters unless there are good or conclusive grounds under the Official Information Act for withholding it.

If you are submitting on this discussion document, you may wish to indicate any grounds for withholding information contained in your submission. Reasons for withholding information could include that information is commercially sensitive, or that the submitters wish personal information such as names or contact details to be withheld. MPI will consider such grounds when deciding whether or not to release information.

Any decision to withhold information requested under the Official Information Act 1982 may be reviewed by the Ombudsman.

Please note the use of the following terms in this document:

High active or high activity honey refers to honey with an MG of greater than XXX and NPA or UMF greater than 15

Your details

Your name and title:	s 9(2)(a)
Your organisation's name (if you are submitting on behalf of an organisation), and whether your submission represents the whole organisation or a section of it:	s 9(2)(b)(ii)
Your contact details (such as phone number, address, and email):	s 9(2)(a)

General questions: getting to know you

1. What part of the supply chain do you operate in:

   ☐ beekeeper

   ☐ extractor

   ☐ processor

   ☐ packer

   ☒ exporter

   ☐ retailer of bee products

   ☐ other – please specify

2. How long have you been involved in the apiculture industry:

   ☐ 0-5 years

   ☐ 5-10 years

   ☒ 10 + years

   ☐ not applicable

3. Do you operate under:

   ☒ an RMP under the Animal Products Act 1999

   ☐ the Food Act 2014 (Food Control Plan or National Programme)

   ☐ the Food Hygiene Regulations

   ☐ none of these

   ☐ not applicable

4. If you are a beekeeper, how many hives do you currently have:

   ☐ 0 – 5

   ☐ 6 – 50

   ☐ 51 – 500

   ☐ 501 – 1000

   ☐ 1001 to 3000

   ☐ More than 3000

5. What region of New Zealand do you operate in?

Northland

6. If you export bee products please tell us a little about your business. How many people do you currently employ?

☐ 0

☐ 1 – 5

☒ 6 – 19

☐ 20 or more

What are the roles of your employees and how many are:

☐ beekeepers

☐ processors

☒ packers

☒ other – marketing and administration

Impact of compliance costs for beekeepers, processors and exporters

7. Table 4.1.1 of the Discussion Document provides a summary of the estimated costs of the proposals. What do you think the overall impact of the new proposals will be on your business?

4.1.1 is a fair representation of likely additional costs. It should be noted however, that Part 6 laboratory rests for Mānuka honey will not just impact on packers and exporters. Beekeepers will need to also test their honey before being able to negotiate a price on their bulk honey. This testing cost will be dependent upon how their honey is extracted. If it is extracted as batches the cost will not be so great. If extracted by the drum there is every likelihood that each drum will incur a testing cost. We have one beekeeper in particular who will need to test each individual drum. They are looking at testing costs of around $40K for their current honeys for sale. Ultimately this will have to be recovered in the price we pay for each drum.

8. In order to estimate the total cost to industry of the proposals contained in the draft GREX, it would be useful for MPI to understand how many beekeepers, operators and exports of bee products will be affected by the proposals. Please specify which of the proposals listed in the table at 4.1.1 will affect you and how.

Clause 3.2	No Change
Clause 3.3	No Change
Part 4 - Traceability requirements and Part 7 - Record keeping requirements.	We consider the new requirements relating to traceability to be onerous. We and our customers and the end consumer want to have good traceability back to the beekeepers and apiaries, but we do not need to know the movements of each individual honey super and we cannot see why the availability of this information is necessary to anyone in the supply chain or why that level of detail is totally necessary for MPI even in their capacity as Official Assurers. Many mid-size beekeepers in our supply team do not have computer based systems they can easily use in the field. Some have limited computer skills. Without investment in barcoding systems and new software it is likely many will have to rely on manual records. The additional documentation required and need to supply accurate information within 24 hours will be difficult

	for some and will require additional systems and additional personnel time.
Clauses 5.1 to 5.3 – honey represented as Mānuka will need to meet the definition of monofloral or multifloral mānuka honey	We agree that the provision of a transition period for Stock in trade i.e. product already packed in retail packages will be helpful in minimising losses due re-labelling requirements. However the transition period does not take into account product that is maturing in drums, and in particular, high active honey (with a potential NPA of 15 and above). High active honey is stored at or below 20°C for periods up to two years to allow the honey to mature and reach its potential. When we purchase this honey the price we pay is based on its future value (FV). We have large stocks of bulk honey in this maturing process. We cannot utilise these honeys now during the transition period without a significant loss of capital, as it has not yet reached maturity or FV. The issue of false negative results for high activity honey is discussed in more detail later in this document. To mitigate the risk of a false negative on these honeys we would need to process now and this could not be done without incurring substantial losses. A typical example of this is. the drum has potential to reach NPA20+ [and our investment is based on NPA20+ FV] but the honey is currently testing at NPA13).
Clause 5.4 – in order to obtain export certification, operators of premises of final control must include relevant test results when raising final eligibility documents in AP E-Cert	No change

9. Do you foresee any other costs that will arise from the proposals contained in the draft GREX which are not contained in the table at 4.1.1? If so, how significant do you think these will be (e.g. administration costs such as time to fill in forms, and time to learn about the new requirements)?

Refer comments under Q7 and Q15

No additional substances to be present in New Zealand honey

10. To ensure additional substances are not present in New Zealand honey, MPI proposes to prohibit the feeding of bees when honey supers are present on hives for the purpose of collecting honey, with an exception if it is necessary for the survival of the bees. Do you agree or disagree with this proposal?

☒ I agree because:

It is good sound practice.

☐ I disagree because:

Please suggest any alternatives to this approach that would ensure additional sugars and synthetic chemicals are not present in the honey:

11. To prevent the contamination of honey with varroacide residues, MPI proposes honey is only harvested from honey supers that do not contain honeycomb previously part of a brood nest. Do you agree or disagree with this proposal?

☒ I agree because:

It is good sound practice.

☐ I disagree because:

Please suggest any alternatives to this approach that would ensure varroacide residues are not present in the honey.

Processors of bee products to operate under a risk based measure

12. MPI proposes that processors of bee products for export under the Food Hygiene Regulations must move to a risk-based measure (either an RMP under the Animal Products Act 1999, or Food Control Plan or National Programme under the Food Act 2014). Do you agree or disagree with this proposal?

☒ I agree because:

It is good practice.

☐ I disagree because:

Please suggest any alternatives to this approach that would provide MPI with oversight of these processors:

Bee products to be sourced from listed beekeepers

13. MPI proposes to extend listing requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☒ I agree because:

It is good practice and assists traceability.

☐ I disagree because:

Can you think of any alternatives to this approach that would address this gap in the traceability chain?

Pre-processing traceability requirements

14. MPI proposes beekeepers keep additional records. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Refer comments Q8 part 4

Can you think of any alternatives to this approach that would address gaps in the traceability chain?

15. The costs for businesses associated with implementing the proposed traceability requirements are likely to vary depending on their existing systems and processes. What impact do you think these proposals are likely to have on your business?

It is conceivable that the additional compliance costs (comprising expenses such as the new tests, additional administration costs, extra staff cost etc.) could add between 50c to $1 per kilo of Mānuka honey. Every addition $1 cost added at producer and processor level substantially increases the retail price to the consumer, e.g.

Supply Chain	Margin	Cost
Producer / Beekeeper		$1
Processor	30%	$1.30
Wholesaler	30%	$1.70
Distributor	30%	$2.20
Retailer	100%	$4.40

So for every $1 additional cost added at beekeeper level, we can expect the retail price to increase by $4.40. There is already consumer resistance to the price of Mānuka honey.

Traceability from beekeepers to operators – harvest declarations

16. MPI proposes to introduce harvest statement requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☒ I agree because:

It is good sound practice.

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

17. MPI considers, for most businesses, the costs associated with these proposals are unlikely to be onerous. Do you agree or disagree and why?

☒ I agree because:

For most operators these systems are already in place.

☐ I disagree because:

Traceability between operators – transfer documentation in AP E-Cert and reconciliation

18. MPI proposes to introduce transfer documentation requirements to all bee products intended for export. Do you agree or disagree?

☒ I agree because:

It is good practice and assists traceability.

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

Labelling of monofloral and multifloral mānuka honey

19. MPI proposes to implement the mānuka honey definition for export using the GREX. Do you agree or disagree?

☐ I agree because:

☒ I disagree because:

Unfortunately, the Mānuka honey science definition in its current form appears flawed. Our three main concerns are:

1) On one hand the definition appears to be too inclusive. It leaves the field wide open for Opportunistic Blending. The current practice of opportunistic blending is not good for our industry. An example of Opportunistic Blending is taking honey that has some Mānuka present but is more predominantly kanuka, bush or rewarewa, and blending this in with good quality Mānuka to achieve a honey around NPA5+. The resulting honey is significantly more profitable/valuable than the sum of its original constituents. There are several businesses in Kerikeri specialising in this type of honey, unfortunately the practice is no doubt prevalent in other regions also. The Mānuka Honey Science definition enables far greater scope for opportunistic blending (refer the example provided to the media by Neil Stuckey of Waitemata Honey), and worse, it then sanctions that blended product via the GREX.
2) The instances of False Negative on high activity honeys is unacceptably high. Whilst we appreciate that MPI have made improvements to the failure rate of the DNA testing on high activity honeys, the false negative result remains too high and undermines industry's confidence in the accuracy of the tests
3) The Mānuka Honey Science Definition is being rushed through without sufficient time to allow robust testing by industry and independent laboratories and scientists. This unacceptably short consultation period does not allow industry sufficient time to test, interrogate or challenge the science and methodology behind the new definition.

Can you think of any alternatives to this approach that ensures mānuka honey is true to label?

Leptosperin combined with 3-in-1 Mānuka testing (DHA/MG/HMF/NPA)

20. MPI considers there are likely to be options available to businesses to support compliance with the proposed definition (e.g. relabelling, changes to blending practices etc.). Do you agree with this assessment or do you have concerns about ability of some businesses to comply?

☐ I agree because:

☐ I disagree because:

☒ I have concerns because:

I agree that there will be options to support compliance, but our concerns are around the new definition presenting greater potential for opportunistic blending (refer comments under Q19, point 1 above) exacerbating the problem of more so called 'Mānuka' honey being sold than is actually being produced.

21. MPI's proposal may have an impact on existing rights associated with using the word "mānuka" on labels, including registered trademarks. Do you agree with MPI's assessment of the impact on existing rights?

☒ I agree

☐ I disagree because:

22. MPI does not propose to make changes to the current use of grading systems. Do you agree or disagree with this position?

☒ I agree because:

It is a subject that needs to be reviewed as a completely separate exercise

☐ I disagree because:

23. What do you think the impact of the mānuka honey definition will be on the current use of grading systems?

It appears to have little general impact given there is already legislation / regulations regarding acceptable grading systems. It would be preferable it there was one unified system of grading that could be understood by all consumers rather than the current two numbering systems which cause a lot of confusion particularly amongst overseas buyers. The main problem with the Mānuka Honey Definition on our current grading system is the issue of False Negative results on high active honeys.

24. Do you have any comments on the summary science report?

25. Do you have any further comments regarding the definition of mānuka honey?

The move by MPI to define and authenticate Mānuka honey is to be commended. We welcome the initiative. However we are worried that the GREX and Definition are being rushed through pre-emptively. Our trading partners are likely to expect us to get these matters right first time, and at this stage there are too many unanswered questions around the validity of the science and the robustness of the definition.

Laboratory Tests

26. Do you support the proposed requirements for sampling and testing mānuka honey set out in Part 6 of the draft GREX?

☐ I agree because:

☒ I disagree because:

The new definition offers significant potential for fraudulent /adulterated honey (several of the new chemical markers can be purchased on line). This proposed legislation is intended to eliminate or mitigate the opportunity for adulterating manuka honey. We note that MPI have undertaken to monitor our borders for importation of these chemicals, but the opportunity for criminal activity in this area is not insignificant.

27. The costs associated with these proposals are likely to vary depending on the size and volume of samples being tested. What impact do you consider these proposals will have on your business?

The proposed new testing can only add to the cost of the final product. As a minimum, the honey needs testing at least once by the apiarist (which may be per 300kg drum, or per batch). It needs testing again once processed which is usually per batch of 3 to 4 drums, but can be less. It the issues of false negative results on high activity honey remains unresolved we potentially could need to retest during the maturing phase. We are likely to retest each drum before processing. As stated previously this adds to the overall cost of the honey. The more expensive the honey, the more likely we are to meet consumer resistance. Consumers will be able to purchase similar honey (jelly bush) from Australia that does not have to meet the same criteria that the New Zealand industry will be bearing.

Do you have any suggestions for minimising any impacts?

Transitional provisions

28. MPI proposes a lead in time of **six weeks** between when the GREX is notified and when it comes into effect. Do you agree or disagree with this proposal?

☒ I agree because:

☒ I disagree and propose an alternative timeframe:

Six months. To allow time to get the testing regime and methodology correct.

29. MPI proposes stock in trade provisions for honey exported between the date of commencement until six months after the date of commencement. Do you agree or disagree with this proposal?

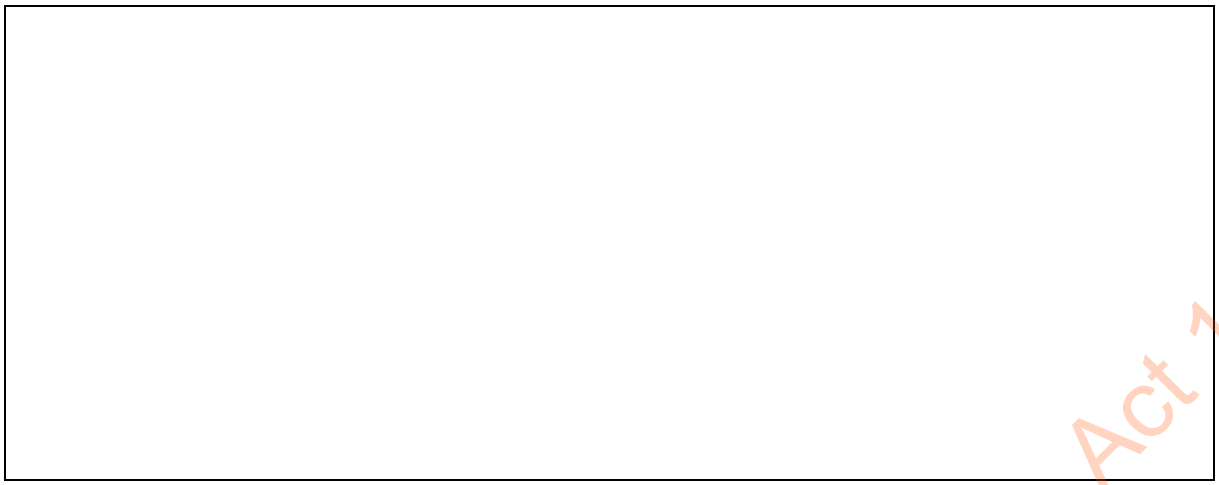
☐ I agree:

But only on the basis that the Science Definition and testing is sorted first.

☐ I disagree because:

Any other feedback

30. Are there any other parts of this discussion document or the draft GREX that you would like to provide feedback on? (Please indicate which part of the discussion document or draft GREX you are providing feedback on).



[Not relevant to request]

From: s 9(2)(a) .co.nz>
Sent: Tuesday, 13 June 2017 4:36 p.m.
To: Manuka Honey
Subject: Submission

'Proposed General Export Requirements for Bee Products';
s 9(2)(b)(ii)
Beekeeper, I have 2500 hives and 5 employees. Business is 40 years old.

s 9(2)(b)(ii)

My submission:

I have no confidence in the proposed manuka standard.
The science appears to be shaky and the handling of the process has been abysmal.

A manuka standard must necessarily exclude Kanuka honey, and it appears that the proposed definition will allow and even incentivise the blending of a small amount of monofloral manuka with a large amount of Kanuka honey to produce a large quantity of bogus monofloral manuka.

I support the ApiNz submission. There is a body of research that already exists that is superior to the research that mpi has produced. Leptosperin is a far better indicator of provenance than anything mpi has proposed.

The cost of testing with the proposed standard is also burdensome.

In short, the proposed standard is inaccurate, impractical, expensive, and won't even keep non-manuka honey from being passed off as manuka. Our trading partners are likely to reject it when they realise how broad our standard is and how easy it is to manipulate.

I'd also like to add that the process has been an utter shambles and that the ministry is incompetent and incapable of handling this standard.
Research and expertise already exists within the industry to construct a robust effective standard but mpi appears too pig-headed to use it.

Happy to come present my submission in person if necessary.

Sincerely

s 9(2)(b)(ii)

MPI Consultation document on

Proposed General Export Requirements for Bee Products

Responses to questions 24, 25 and 28

s 9(2)(a)

12 June 2017

Question 24. Do you have any comments on the summary science report?

Question 25. Do you have any further comments regarding the definition of mānuka honey?

Question 28. MPI proposes a lead in time of six weeks between when the GREX is notified and when it comes into effect. Do you agree or disagree with this proposal? I disagree.

Opinions expressed in the in this document are those of s 9(2)(a), lead scientist for the s 9(2)(b)(ii) s 9(2)(b)(ii) since 2010 and ongoing to 2019. This response reflects my botanical and entomological knowledge of floral biology and bee foraging behaviour as well as pollen a d nectar resources for bee nutrition. My research is based on field work, literature and lab work. s 9(2)(b)(ii) research involves pollen profiles so I work with palynologists at s 9(2)(a). On behalf of s 9(2)(b)(ii), I have engaged in extensive networking to disseminate research results throughout the New Zealand beekeeping industry and have regularly attended monthly beekeeper meetings as well as annual conferences since 2007.

My comments relate to the use of pollen data and Codex procedures in identifying and verifying New Zealand mānuka monofloral and multifloral honeys. The discussion is in response to the summary of the mānuka honey science programme issued as MPI Technical Paper No 2017/28 [here identified as the *MPI new Standard*].

The literature used to develop this response is both the peer reviewed science literature plus most of the documents on the MPI website in the mānuka honey section. To gain an understanding of the industry issues, I analysed the information in MPI document file *"discussion-paper-submissions-for-website-july-2014-2.pdf*. These submissions were from the Sept 2013 responses about the MPI mānuka honey interim guidelines. I numbered each of the submissions from #1 to #64 and added page numbers to the hard copy of the document so that I can refer to the contents in my response. This document represents information and feedback from the industry [here identified as the *Sept2013 submission.doc* and listed with #number]. I can provide a hard copy with this numbering system if needed.

1. Introduction

The proposed new MPI new Standard has achieved three main outcomes to assist in the formation of a definition of mānuka honey so that it will ultimately conform to the same "honey type" concept used worldwide and based on the Codex Alimentarius (2014) and the New Zealand BPSC (2014).

Firstly, the MPI new Standard has achieved a clear mānuka honey type concept based on botanical purity by separating out the important characteristics of MGO and DHA chemicals as secondary characters rather than as part of the primary definition. These two chemicals define one segment of the mānuka honey market according to the bioactivity attribute, to fit a specific purpose for the consumer. Many people in the mānuka industry have an interest in putting this bioactivity criterion in the top priority position to define the mānuka honey type because of its market success and reputation overseas. This priority generated a new "bioactive mānuka concept" which specifies a particular threshold level of MGO content to define mānuka honey.

Unfortunately, the selected name of mānuka for this bioactive market segment was a name already in use as the common name for the entire plant species *Leptospermum scoparium* which includes non-active varieties and subspecies. Therefore, when proponents of the bioactive concept exclude any mānuka honey without high MGO ratings from the mānuka honey type concept, then this is unacceptable to those holding to the botanical purity concept which dictates the inclusion of all mānuka plants regardless of bioactivity. The MPI new Standard complies with the Codex in accepting the botanical purity concept, by excluding the bioactive attributes from the primary position for defining mānuka honey. The MPI new Standard should end the long term debates about these two conflicting honey type concepts and the marketing of new non-controversial names can proceed with consumer education for each segment of the market.

The conflict between these two concepts is critically important in understanding the debates because each one leads to opposite conclusions about the nature of genuine mānuka. Each of the concepts leads to what appears to be nonsense to anyone holding the alternative concept. For example, the bioactive concept leads to statements like labelling mānuka honey with low bioactivity is fraud, while the botanical purity concept leads to the opposite -- that labelling mānuka honey with low pollen count is fraud. This follows on for other aspects such as the reliability and veracity of pollen count data (see Sept2013 submission.doc) as discussed below. The botanical purity concept is aligned with the Codex but the bioactivity concept is not.

Secondly, the MPI new Standard has pioneered a new scientifically sound verification based on DNA qPCR tests to determine if mānuka and/or kānuka pollen is present in honey. This is the first time that these two pollen types have been differentiated by DNA for this purpose in this way in New Zealand. Although there are some problems of false negatives and positives to fix, this technique may be capable of labour saving high throughput with precision to detect presence/absence of pollen types and perhaps to deliver certain aspects of the levels of quantification. However, the role of this DNA qPCR test in differentiating a monofloral versus multifloral mānuka honey type with accuracy and precision is unknown at this time because it has no explicit relationship to known quantities and proportions of pollen types in the honey. The internationally accepted method to determine a monofloral honey is the use of proportional pollen profiles of the main pollen

constituents in the context of the spectrum of organoleptic and physicochemical attributes. The new DNA qPCR test is an indirect test for quantitative proportions of pollen while a pollen profile count is a direct test. The new DNA qPCR test may not have sufficient sensitivity (false negatives) or specificity (false postitive). At this stage of the technology, the microscopic pollen analysis can outperform any other test because it is not only more direct and accurate but also can cope with any number of different floral species in the honey sample. When the computerised imaging technology systems and databases are ready, this type of test can achieve fast throughput but until then, like detecting cancer cells, examination by an expert or trained technician is the most accurate and cost effective. When the DNA qPCR methodology is more advanced and the DNA of the relevant New Zealand native and exotic plants are in hand then it may also be able to achieve high throughput with precision and accuracy for proportionality of pollen types in honey.

Thirdly, the MPI new Standard has introduced chemical profiling with four different chemicals in combination to form one criterion in conjunction with the DNA qPCR test. If they accurately capture the variability of stable chemicals across geographic and taxonomic types then this will add useful new attributes to the Codex procedures. In submission #31 it is stated that if chemical markers are found that have little variation over multiple subspecies, , latitudes, altitudes, soils, climates, microclimates or years and are stable and not found in other non-manuka plants this would be a useful addition to the Codex attributes. Significant research in the industry is ongoing on this aspect and further discussion is outside the scope of this response

The focus of the remainder of this response is on the relevance of pollen profile data to the MPI new Standard. The general approach to constructing a classification of honey types for mānuka that will lead to a robust definition is of utmost importance because what goes into the model will prescribe what comes out. The selection of candidate criteria is instrumental to the outcome of the classification as is the capture and representation of the variability for each criterion which is based on the sampling design.

We can assume that the supplier classification of honeys used in the mānuka honey science programme was implicitly built primarily on organoleptic characters along with obvious physicochemical characteri tics such as thixotropy because this is what beekeepers and honey packers use in first so ting their honey frames for extraction. They also take into account what flowers are yielding nectar at the time of harvest. Experienced beekeepers can make good estimates but they can also be wrong sometimes (Bryant 2014, Somerville 2005). Bees have a foraging range on average of 2 to 5 km which covers an area beyond observation by beekeepers and researchers For this reason the pollen in frame honey and in bee pellets captured by hive pollen traps are important clues to what the bees are foraging on to make their honey and feed their brood (N wstrom-Lloyd 2017b).

The lack of pollen data in the classification procedure of the MPI new Standards is a significant problem because it makes it difficult to relate the results generated by the classification to the proportionality of the pollen composition in the honey and hence problematic to relate the results to the Codex definition of honey types.

Pollen was identified as a candidate criterion in the MPI new Standards:

> *"The presence of pollen is an attribute used to identify numerous honey types around the world. The method traditionally used (microscopy) to identify pollen, however, has*

challenges when it comes to distinguishing between pollen grains of mānuka and kānuka plants. Microscopy also has limitations in a commercial sense because it does not allow for high throughput and requires specialist expertise. …To combat the limitations of microscopy, a DNA approach that allows for high throughput and high specificity was selected to detect plant DNA from pollen present in honey."

The remainder of this response focuses on the use and reliability of pollen profiles for the mānuka honey type definition and a conceptual framework for considering the data. Based on our s 9(2)(b)(ii) experience with this type of data and the new research conducted on mānuka and kānuka pollen by s 9(2)(b)(ii) I believe that the role of pollen profiles is a crucial clue to the botanical source of the nectar brought in by bees. The interpretation of this type of data is generally based on a scientific understanding of the floral structure and flower life cycle in conjunction with the size and behaviour of all of the floral visitors in terms of them dislodging pollen into the nectar or picking it up on their bodies to carry it back to the hive. There are other considerations in using pollen profiles which are covered by s 9(2)(b)(ii) submitted to MPI and other reports.

2. The Veracity and Usefulness of Pollen

The exercise to analyse the 64 submissions submitted in the Sept2013 submission.doc was designed to understand why pollen is so widely distrusted as evidence for determining the mānuka honey type, especially for monofloral. The Sept 2013 submission.doc shows that 50% of the submitters agree that pollen should be included in the definition but 36% reject the use of pollen for the definition and propose that bioactivity replaces it as the priority marker. Then about 7% state that pollen should be included in the definition only under certain conditions distinguishing mānuka from kānuka pollen and/or lowering the threshold level for the amount of pollen from 70% to 50% as well as using it only with other Codex attributes. Note that at that time the 70% threshold was based on a mixture of mānuka and kānuka pollen (Moar 1985, Raine 2014b).

The submission #61 from the UK states that

The floral honeys are defined by the presence of the pollen in the honey. Pollen is the characterising aspect that enforcers use to verify the origin of other honeys and this should be the same for mānuka. If there are difficulties then the research should be concentrated on differentiating between the mānuka and kānuka.

In the UK and EU there is a need to ensure compliance with the Codex derived legislations.

The following is the list of reasons presented in Sept2013 submission.doc that are used to reject pollen as relevant to the definition. My comments explain or refute them.

1. **Mānuka and kānuka pollen cannot be distinguished** so all pollen profiles could be either of both species, which does not serve the need for distinguishing mānuka from kānuka monofloral honey that the market now requires. (e.g. #20, #29). The new research on the differentiation of pollen has answered this objection. In 2014 Jim Sim of MPI asked s 9(2)(b)(ii) to look at the problem of differentiating the mānuka and kānuka pollen and the first two populations were sampled from the East Coast in Gisborne and delivered to s 9(2)(b)(ii) determined the differences were observable at the microscopic level and the s 9(2)(b)(ii) proceeded to conduct further research with s 9(2)(b)(ii) to analyse the

geographic and taxonomic variation of all the different mānuka and kānuka species, subspecies and types of both taxa. These positive results for the differentiation of mānuka and kānuka were reported at the APINZ conference in 2016 (Li et al. 2016). The differences had in fact already been reported by McIntyre (1963). This means that the obstacle of mixed mānuka and kānuka pollen for a mānuka honey definition is no longer valid and all past data needs to be reviewed because those counts are mixed. We can now obtain pollen analyses with the mānuka and kānuka pollen counted separately. It was not impossible to distinguish them; the differences had been overlooked, partly because the important melissopalynology study by Moar (1985) preceded the rise to importance of mānuka honey so it had never been studied in detail before.

2. **Manuka/kānuka pollen counts do not predict activity** therefore the mixture of the two invalidates the use of pollen data for the mānuka honey type. (e.g. #20 and many others). This is the primary objection for the wide held belief that pollen counts cannot be trusted which was published in the New Zealand Beekeeper Magazine (Stevens and Molan 2008). This objection requires the bioactivity concept for mānuka honey and the inclusion of kānuka in the count. In any case, the objection may no longer be true because s 9(2)(b)(ii) has been building a data set with preliminary results showing that there is predictive linear relationship between the pure mānuka pollen count and the level of MGO (see s 9(2)(b)(ii) . It will be important to verify that the pennyroyal pollen content is low in the pollen profiles because this species also adds MGO to the honey (#33).

3. **Pollen is not directly proportional to the nectar source** and there is little to no relationship between the two. If this were true, then pollen profiles would not have become the gold standard method for determining monoflorality in honey for the last nearly 100 years worldwide. It is the premier line of evidence as it is the most direct method and much used by beekeepers in New Zealand. Many different misconceptions about bee foraging behaviour in mānuka flowers have been presented (e.g. #20, #29, #58). For instance, since bees do not collect mānuka pollen there will be little pollen in the nectar and hence the honey. These misconceptions are cleared up in the investigation by s 9(2)(a) This field study of the mānuka flower and bee foraging behaviour shows that although honey bees do not collect pollen directly in pellets to take to the hive they do dislodge pollen into the nectar at the flower, as do native bees and wind mechanically shaking the flower. s 9(2)(b)(ii) in collaboration with s 9(2)(b)(ii) summers confirmed results that mānuka and kānuka pollen is not normally present in bee pollen loads and therefore is present in honey principally through its incorporation at source in nectar collected by the bees (Harris & Filmer 1948; Raine et al. 2016). If any pollen stored in the hive got into the honey during extraction it would be unlikely that it was mānuka or kānuka pollen. Like carbon dating data, palynology data needs to be interpreted according to the biological and ecological dynamics of the pollen getting into the nectar (Raine et al. 2014a, 2014b). Some pollen types are over- or under-represented in honeys due to the structure of the flower, the size of the pollen grains and the time of pollen presentation and nectar production, but these considerations are consistent for each plant species. Further details of how melissopalynologists handle the characteristics of each species can be found in the literature (Moar 1985, Sawyer 1988, Bryant 2001, Bryant and Jones 2001, Bryant 2014, Raine and Li 2014b) For example it is important to use both the percentage content and the absolute

pollen count (APC) which reflect proportionality and the total concentration of the pollen respectively.

4. **Methods for pollen analysis are unreliable because they are not standardised.** This implies that the pollen counts methods cannot achieve the repeatability and reproducibility required for good lab practices. However, the s 9(2)(b)(ii) is in the process of becoming accredited and belongs to the International Honey Commission which conducts ring testing of pollen counts among 50 labs worldwide. The s 9(2)(b)(ii) is participating in these procedures. The repeatability and reproducibility can therefore be calculated. The reports of wide variances in procedures (#29) may reflect the differences among the trained technicians embedded in the industry to conduct routine pollen counts at low cost. These technicians could receive training in the new mānuka/kānuka pollen differentiation and ring testing within New Zealand can be re-initiated. The high cost of high level pollen analyses for special purposes would be managed by trained technicians learning the basic techniques for the finite number of plant species that are relevant to pollen counts for mānuka monofloral honey. Certification programs are also possible as in any other good laboratory practice and harmonisation has already been put in place (Von der Ohe et al. 2004).

5. **Honey can be adulterated by addition of mānuka pollen or filtering out of larger pollen grains.** The pollen grains of mānuka are very tiny and not abundant in each flower. Furthermore each branch of mānuka has few flowers per branch that are presenting pollen and the remainder are old flowers hanging on that do not have pollen remaining in them. The practicality of selecting these flowers, extracting sufficient pollen, and adulterating by adding pure mānuka pollen to honey would be too expensive and time consuming as anyone who has worked with these flowers will have experienced. Kiwi fruit and other flowers with abundant pollen could be cost effective. Filtering honey to retain the smaller manuka pollen would be detected by the reduction of the total pollen concentration (APC) and using other codex parameters (#31). Filtering down to 200 microns is customary but this would not filter out pollen grains. Any smaller filters are illegal and would be detected during the RMP inspections (#33). It is important to compare the ease of adulterating with pollen versus chemical which are simple to obtain and use and also cost less.

6. **Focus on pollen will downgrade the bioactivity story and disallow honey of low pollen count to be labelled mānuka**. These commercial considerations are important but if they do not comply with the Codex system of defining a honey type then alternative solutions need to be found. Those in the bioactivity market require that their low pollen count genuine mānuka is included while those in not in the bioactive market need to continue to use the pollen count as they have been doing for their mark of quality. Further comments on this aspect are outside the scope of my expertise.

3. CONCLUSIONS

The MPI new Standard has achieved significant gains towards a robust science based definition of mānuka. Now the validation of the choices for the candidate attributes for the classification and the approach and methods can be validated. The two key attributes proposed in the Sept 2012

document were pollen and MGO. Neither of these has been included in the construction of the new classification but for different reasons.

The implementation of the tests has been tried in the industry with a measure of success but there are a few remaining problems:

1. Resolution of the false negatives and false positives.
2. Elucidation of the relationship of the MPI new Standard results to the Codex particularly addressing the impact of those attributes left out
3. Reconciliation of the polarised debates about bioactivity and botanical purity definitions that will serve both segments of the market.

The resolution of the false negatives and false positives would be a simple fix if the pollen profiles along with the remaining Codex attributes especially thixotropic characters were used to discern the truth of each sample. For the false negatives (i.e. a genuine mānuka pollen fails the DNA qPCR test) many samples have already had the mānuka pollen counted at the s 9(2)(b)(ii) and showed the presence of mānuka pollen. Using additional data from a previous technology is common during the development of new tests, for instance during the development of DNA tests for HIV virus the prior technology of using Western Blot methods was used to discriminate the false negatives and positives (Rob Smisson pers. comm.). For the false positives the situation is much more complex but once again the pollen profiles and other Codex characters can be utilised for rapid resolution.

The complexity of the false positives problem lies in the underlying issues in the manuka definition debates (bioactivity versus botanical purity). This can most readily be understood by using Quadrat thinking based on the two attributes in question.

	Bioactivity	
Botanical Purity	*High Purity* Low Activity	*High Purity* High Activity
	Low Purity Low Activity	*Low Purity* High Activity

The submission #20 actually uses this same type of quadrat analysis to analyse the impact of setting the levels of MGO and the levels for the pollen counts at different thresholds based on actual data (#20 Pages 70 to 71). A quadrat gives clarity of the problematical situation in the New Zealand mānuka honey market.

Firstly, in the high purity cases, there is no debate for the high purity/**high** activity mānuka honey types as there is no question that this type is valued by all consumers in all segments of the market.

Secondly, the high purity/**low** activity honey types are still actively debated. Those honey types with a predominance of mānuka content ("wholly or mainly" mānuka) but low or no activity have been known for decades and may be geographically and taxonomically identifiable (Peter de Lange pers. comm.). Proponents for the bioactivity concept would consider low activity mānuka honey as not genuinely mānuka as mentioned above. The MPI new standard has opted for the botanical purity definition of manuka honey but the question is where should the threshold be set? At present it is a measure on the DNA qPCR test but we do not know what this translates to for pollen count or other Codex attributes.

Thirdly, in the low purity cases, there is no debate about the low purity/**low** activity honey types as these are not mānuka monoflorals and since they do not meet the threshold for activity they would not be claimed to be mānuka even if there was a small portion of mānuka in them. Again the threshold values are important as above.

Fourthly, the low purity/**high** activity mānuka honey types is the most controversial as this quadrat contains genuine manuka (based on the bioactivity) with low pollen counts. Here the other markers such sensory markers and thixotropy are used to detect genuine manuka. The MPI new Standard needs to succeed at this task at the same time as it is able to detect genuine other honeys that have been excessively blended with small amounts of very high manuka honey. This is the essential problem to consider in terms of commercial impacts and authenticity of labelling. Low purity/high activity honey can be obtained in two ways: (1) by dilution in the field when bees collect nectar from a variety of plant species including very highly active mānuka or other species carrying significant amounts of MGO like pennyroyal and (2) by blending the honey in the extracting plant when honey producers mix selected drums of honey together to meet desired characteristics for flavour, consistency or activity.

This fourth quadrat is the focus of nearly all the problems and debates. Whatever thresholds are used for the pollen counts will have significant commercial and international impact. They will also need to detect fake mānuka honey derived from excessive blending. From reading the Sept 2013 submissions, it is very clear that very high bioactivity with very low pollen counts is a real problem because the honey is genuinely mānuka based on organoleptic and thixotropic measures. These typically occur in Northland.

This unusual genuine North Island mānuka honey that has such low mānuka pollen count and yet is so high in activity is as important for the definition of mānuka monofloral standards as is the unusual genuine South Island mānuka honey that has such high pollen count (based on mānuka and kanuka combined) and such low activity. This is the main task for the definition of the standards. It highlights the need to use all of the Codex attributes to investigate the biological and ecological reality of these honey types. Setting thresholds too low to include the Northland types would allow too many fake manuka honeys to pass and this would compromise New Zealand's international reputation. Setting it too high will cause losses in the genuine high active manuka honey operations. The threshold values can be tested using additional attributes from the Codex. Understanding why the genuine North Island low pollen count maunka honey is under-represented would allow a science based decision to resolve this issue. There are several biological reasons why this honey may have under-

represented pollen because the flowers are larger than other manuka types and the predominance of native bees in some of these habitats may mean all the pollen has been taken away before significant nectar is produced (see Newstrom-Lloyd May issue of the New Zealand Beekeeper Magazine. A systematic process to handle all these options based on pollen counts AND all other Codex attributes will enable MPI to unravel the complexities of quadrat four without allowing excessive blending to be passed off as genuine manuka honey.

An overly reductionistic approach at too early a stage of the research will compromise the ability of MPI to achieve this. By elucidating the relationship between the new classification and the results that would be obtained using established Codex criteria, MPI will be able to resolve the false positive and negatives quickly and serve the needs of all the segments of the manuka market in New Zealand while at the same time displaying transparency and integrity to the international community. We think that a step forward to look at all the attributes in their relationship to the new chemical profile and DNA qPCR tests would benefit MPI to rapidly resolve the remaining issues and put New Zealand in a strong position that could be well defended in any court of law or court of public opinion.

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Proposed General Export Requirements for Bee Products

For all exporters of bee products from New Zealand

SUBMISSION FORM

Consultation document 2017

The Ministry for Primary Industries (MPI) proposes to consolidate, clarify, and introduce export requirements for all bee products intended for export.

You are invited to have your say on the proposed changes, which are explained in the discussion document and specified in the draft Animal Products Notice: General Export Requirement for Bee Products notice.

Consultation closes on **23 May 2017.**

How to have your say

Have your say by answering the questions in the discussion document, or commenting on any part of the proposals outlined in the draft Animal Products Notice: General Export Requirements for Bee Products. This submission form provides a template for you to enter your answers to the questions in the discussion document and email your submission back to MPI.

Please include the following information in your submission:

☐ the title of the discussion document 'Proposed General Export Requirements for Bee Products';

☐ your name and title;

☐ your organisation's name (if you are submitting on behalf of an organisation), and whether your submission represents the whole organisation or a section of it; and

☐ your contact details (such as phone number, address, and email).

MPI encourages you to make your submission electronically if possible. Please email your submission to: manuka.honey@mpi.govt.nz

If you wish to make your submission in writing, these should be posted to the following address:

General Export Requirements for Bee Products Submission
MPI Food Assurance Team
PO Box 2526
Wellington 6140

The following points may be of assistance in preparing comments:

☐ where possible, comments should be specific to a particular section in the document. All major sections are numbered and these numbers should be used to link comments to the document;

☐ where possible, reasons and/or data to support comments should be provided;

☐ the use of examples to illustrate particular points is encouraged; and

☐ as a number of copies may be made of your comments, please use a legible font and quality print, or make sure hand-written comments are clear in black or blue ink.

Submissions are public information

Everyone has the right to request information held by government organisations, known as "official information". Under the Official Information Act 1982, information is to be made available to requesters unless there are good or conclusive grounds under the Official Information Act for withholding it.

If you are submitting on this discussion document, you may wish to indicate any grounds for withholding information contained in your submission. Reasons for withholding information could include that information is commercially sensitive, or that the submitters wish personal information such as names or contact details to be withheld. MPI will consider such grounds when deciding whether or not to release information.

Any decision to withhold information requested under the Official Information Act 1982 may be reviewed by the Ombudsman.

For more information please visit http://www.ombudsman.parliament.nz/resources-and-publications/guides/official-information-legislation-guides

Your details

Your name and title:	s 9(2)(a)
Your organisation's name (if you are submitting on behalf of an organisation), and whether your submission represents the whole organisation or a section of it:	s 9(2)(b)(ii)
Your contact details (such as phone number, address, and email):	s 9(2)(a)

General questions: getting to know you

1. What part of the supply chain do you operate in:

   ☐ beekeeper

   ☐ extractor

   ☐ processor

   ☐ packer

   ☐ exporter

   ☐ retailer of bee products

   ☒ other – please specify Scientist – Floral biology and bee behaviour, bee nutrition

2. How long have you been involved in the apiculture industry:

   ☐ 0-5 years

   ☐ 5-10 years

   ☒ 10 + years

   ☐ not applicable

3. Do you operate under:

   ☐ an RMP under the Animal Products Act 1999

   ☐ the Food Act 2014 (Food Control Plan or National Programme)

   ☐ the Food Hygiene Regulations

   ☐ none of these

   ☒ not applicable

4. If you are a beekeeper, how many hives do you currently have:

   ☐ 0 – 5

   ☐ 6 – 50

   ☐ 51 – 500

   ☐ 501 – 1000

   ☐ 1001 to 3000

   ☐ More than 3000

5. What region of New Zealand do you operate in?

Throughout New Zealand but most demonstration farms and extension work is in the central and lower North Island and in Canterbury and Otago in the South Island

6. If you export bee products please tell us a little about your business. How many people do you currently employ?

   ☐ 0

   ☐ 1 – 5

   ☐ 6 – 19

   ☐ 20 or more

   What are the roles of your employees and how many are:

   ☐ beekeepers

   ☐ processors

   ☐ packers

   ☐ other – please specify

Impact of compliance costs for beekeepers, processors and exporters

7. Table 4.1.1 of the Discussion Document provides a summary of the estimated costs of the proposals. What do you think the overall impact of the new proposals will be on your business?

8. In order to estimate the total cost to industry of the proposals contained in the draft GREX, it would be useful for MPI to understand how many beekeepers, operators and exports of bee products will be affected by the proposals. Please specify which of the proposals listed in the table at 4.1.1 will affect you and how.

9. Do you foresee any other costs that will arise from the proposals contained in the draft GREX which are not contained in the table at 4.1.1? If so, how significant do you think these will be (e.g. administration costs such as time to fill in forms, and time to learn about the new requirements)?

No additional substances to be present in New Zealand honey

10. To ensure additional substances are not present in New Zealand honey, MPI proposes to prohibit the feeding of bees when honey supers are present on hives for the purpose of collecting honey, with an exception if it is necessary for the survival of the bees. Do you agree or disagree with this proposal?

    ☐ I agree because:

    ☐ I disagree because:

    Please suggest any alternatives to this approach that would ensure additional sugars and synthetic chemicals are not present in the honey:

11. To prevent the contamination of honey with varroacide residues, MPI proposes honey is only harvested from honey supers that do not contain honeycomb previously part of a brood nest. Do you agree or disagree with this proposal?

    ☐ I agree because:

☐ I disagree because:

Please suggest any alternatives to this approach that would ensure varroacide residues are not present in the honey.

Processors of bee products to operate under a risk based measure

12. MPI proposes that processors of bee products for export under the Food Hygiene Regulations must move to a risk-based measure (either an RMP under the Animal Products Act 1999, or Food Control Plan or National Programme under the Food Act 2014). Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Please suggest any alternatives to this approach that would provide MPI with oversight of these processors:

Bee products to be sourced from listed beekeepers

13. MPI proposes to extend listing requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that would address this gap in the traceability chain?

Pre-processing traceability requirements

14. MPI proposes beekeepers keep additional records. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that would address gaps in the traceability chain?

15. The costs for businesses associated with implementing the proposed traceability requirements are likely to vary depending on their existing systems and processes. What impact do you think these proposals are likely to have on your business?

Traceability from beekeepers to operators – harvest declarations

16. MPI proposes to introduce harvest statement requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

17. MPI considers, for most businesses, the costs associated with these proposals are unlikely to be onerous. Do you agree or disagree and why?

☐ I agree because:

☐ I disagree because:

Traceability between operators – transfer documentation in AP E-Cert and reconciliation

18. MPI proposes to introduce transfer documentation requirements to all bee products intended for export. Do you agree or disagree?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

Labelling of monofloral and multifloral mānuka honey

19. MPI proposes to implement the mānuka honey definition for export using the GREX. Do you agree or disagree?

☐ I agree because:

☒ I disagree because:

Can you think of any alternatives to this approach that ensures mānuka honey is true to label?

20. MPI considers there are likely to be options available to businesses to support compliance with the proposed definition (e.g. relabelling, changes to blending practices etc.). Do you agree with this assessment or do you have concerns about ability of some businesses to comply?

☐ I agree because:

☐ I disagree because:

☐ I have concerns because:

21. MPI's proposal may have an impact on existing rights associated with using the word "mānuka" on labels, including registered trademarks. Do you agree with MPI's assessment of the impact on existing rights?

☐ I agree because:

☒ I disagree because:

22. MPI does not propose to make changes to the current use of grading systems. Do you agree or disagree with this position?

☒ I agree because:

The grading system has already been successfully reviewed and represents a separate and secondary part of the issue of mānuka honey verification.

☐ I disagree because:

23. What do you think the impact of the mānuka honey definition will be on the current use of grading systems?

24. Do you have any comments on the summary science report?

MPI Consultation document on

Proposed General Export Requirements for Bee Products

Responses to questions 24, 25 and 28

s 9(2)(a)

12 June 2017

Question 24. Do you have any comments on the summary science report?

Question 25. Do you have any further comments regarding the definition of mānuka honey?

Question 28. MPI proposes a lead in time of six weeks between when the GREX is notified and when it comes into effect. Do you agree or disagree with this proposal? I disagree.

s 9(2)(b)(ii)

This response reflects my botanical and entomological knowledge of floral biology and bee foraging behaviour as well as pollen and nectar resources for bee nutrition. My research is based on field work, literature and lab work. s 9(2)(b)(ii) research involves pollen profiles so I work with palynologists at s 9(2)(b)(ii) On behalf of s 9(2)(b)(ii) I have engaged in extensive networking to disseminate research results throughout the New Zealand beekeeping industry and have regularly attended monthly beekeeper meetings as well as annual conferences since 2007.

My comments relate to the use of pollen data and Codex procedures in identifying and verifying New Zealand mānuka monofloral and multifloral honeys. The discussion is in response to the summary of the mānuka honey science programme issued as MPI Technical Paper No 2017/28 [here identified as the *MPI new Standard*].

The literature used to develop this response is both the peer reviewed science literature plus most of the documents on the MPI website in the mānuka honey section. To gain an understanding of the industry issues, I analysed the information in MPI document file *"discussion-paper-submissions-for-website-july-2014-2.pdf*. These submissions were from the Sept 2013 responses about the MPI mānuka honey interim guidelines. I numbered each of the submissions from #1 to #64 and added page numbers to the hard copy of the document so that I can refer to the contents in my response. This document represents information and feedback from the industry [here identified as the *Sept2013 submission doc* and listed with #number]. I can provide a hard copy with this numbering system if needed.

Introduction

The proposed new MPI new Standard has achieved three main outcomes to assist in the formation of a definition of mānuka honey so that it will ultimately conform to the same "honey type" concept used worldwide and based on the Codex Alimentarius (2014) and the New Zealand BPSC (2014).

Firstly, the MPI new Standard has achieved a clear mānuka honey type concept based on botanical purity by separating out the important characteristics of MGO and DHA chemicals as secondary characters rather than as part of the primary definition. These two

chemicals define one segment of the mānuka honey market according to the bioactivity attribute, to fit a specific purpose for the consumer. Many people in the mānuka industry have an interest in putting this bioactivity criterion in the top priority position to define the mānuka honey type because of its market success and reputation overseas. This priority generated a new "bioactive mānuka concept" which specifies a particular threshold level of MGO content to define mānuka honey.

Unfortunately, the selected name of mānuka for this bioactive market segment was a name already in use as the common name for the entire plant species *Leptospermum scoparium* which includes non-active varieties and subspecies. Therefore, when proponents of the bioactive concept exclude any mānuka honey without high MGO ratings from the mānuka honey type concept, then this is unacceptable to those holding to the botanical purity concept which dictates the inclusion of all mānuka plants regardless of bioactivity. The MPI new Standard complies with the Codex in accepting the botanical purity concept, by excluding the bioactive attributes from the primary position for defining mānuka honey. The MPI new Standard should end the long term debates about these two conflicting honey type concepts and the marketing of new non-controversial names can proceed with consumer education for each segment of the market.

The conflict between these two concepts is critically important in understanding the debates because each one leads to opposite conclusions about the nature of genuine mānuka. Each of the concepts leads to what appears to be nonsense to anyone holding the alternative concept. For example, the bioactive concept leads to statements like labelling mānuka honey with low bioactivity is fraud, while the botanical purity concept leads to the opposite -- that labelling mānuka honey with low pollen count is fraud. This follows on for other aspects such as the reliability and veracity of pollen count data (see Sept2013 submission.doc) as discussed below. The botanical purity concept is aligned with the Codex but the bioactivity concept is not.

Secondly, the MPI new Standard has pioneered a new scientifically sound verification based on DNA qPCR tests to determine if mānuka and/or kānuka pollen is present in honey. This is the first time that these two pollen types have been differentiated by DNA for this purpose in this way in New Zealand. Although there are some problems of false negatives and positives to fix, this technique may be capable of labour saving high throughput with precision to detect presence/absence of pollen types and perhaps to deliver certain aspects of the levels of quantification. However, the role of this DNA qPCR test in differentiating a monofloral versus multifloral mānuka honey type with accuracy and precision is unknown at this time because it has no explicit relationship to known quantities and proportions of pollen types in the honey. The internationally accepted method to determine a monofloral honey is the use of proportional pollen profiles of the main pollen constituents in the context of the spectrum of organoleptic and physicochemical attributes. The new DNA qPCR test is an indirect test for quantitative proportions of pollen while a pollen profile count is a direct test. The new DNA qPCR test may not have sufficient sensitivity (false negatives) or specificity (false postitive). At this stage of the technology, the microscopic pollen analysis can outperform any other test because it is not only more direct and accurate but also can cope with any number of different floral species in the honey sample. When the computerised imaging technology systems and databases are ready, this type of test can achieve fast throughput but until then, like detecting cancer cells, examination by an expert or trained technician is the most accurate and cost effective. When the DNA qPCR methodology is more advanced and the DNA of the relevant New Zealand native and exotic plants are in hand then it may also be able to achieve high throughput with precision and accuracy for proportionality of pollen types in honey.

Thirdly, the MPI new Standard has introduced chemical profiling with four different chemicals in combination to form one criterion in conjunction with the DNA qPCR test. If they accurately capture the variability of stable chemicals across geographic and taxonomic types then this will add useful new attributes to the Codex procedures. In submission #31 it is stated that if chemical markers are found that have little variation over

multiple subspecies, , latitudes, altitudes, soils, climates, microclimates or years and are stable and not found in other non-manuka plants this would be a useful addition to the Codex attributes. Significant research in the industry is ongoing on this aspect and further discussion is outside the scope of this response.

The focus of the remainder of this response is on the relevance of pollen profile data to the MPI new Standard. The general approach to constructing a classification of honey types for mānuka that will lead to a robust definition is of utmost importance because what goes into the model will prescribe what comes out. The selection of candidate criteria is instrumental to the outcome of the classification as is the capture and representation of the variability for each criterion which is based on the sampling design.

We can assume that the supplier classification of honeys used in the mānuka honey science programme was implicitly built primarily on organoleptic characters along with obvious physicochemical characteristics such as thixotropy because this is what beekeepers and honey packers use in first sorting their honey frames for extraction. They also take into account what flowers are yielding nectar at the time of harvest. Experienced beekeepers can make good estimates but they can also be wrong sometimes (Bryant 2014, Somerville 2005). Bees have a foraging range on average of 2 to 5 km which covers an area beyond observation by beekeepers and researchers. For this reason the pollen in frame honey and in bee pellets captured by hive pollen traps a e important clues to what the bees are foraging on to make their honey and feed their brood (Newstrom-Lloyd 2017b).

The lack of pollen data in the classification procedure of the MPI new Standards is a significant problem because it makes it difficult to relate the results generated by the classification to the proportionality of the pollen composition in the honey and hence problematic to relate the results to the Codex definition of honey types.

Pollen was identified as a candidate criterion in the MPI new Standards:

> "*The presence of pollen is an attribute used to identify numerous honey types around the world. The method traditionally used (microscopy) to identify pollen, however, has challenges when it comes to distinguishing between pollen grains of mānuka and kānuka plants. Microscopy also has limitations in a commercial sense because it does not allow for high throughput and requires specialist expertise. …To combat the limitations of microscopy, a DNA approach that allows for high throughput and high specificity was selected to detect plant DNA from pollen present in honey*."

The remainder of this response focuses on the use and reliability of pollen profiles for the mānuka honey type definition and a conceptual framework for considering the data. Based on our s 9(2)(b)(ii) experience with this type of data and the new research conducted on mānuka and kānuka pollen by s 9(2)(b)(ii) I believe that the role of pollen profiles is a crucial clue to the botanical source of the nectar brought in by bees. The interpretation of this type of data is generally based on a scientific understanding of the floral structure and flower life cycle in conjunction with the size and behaviour of all of the floral visitors in terms of them dislodging pollen into the nectar or picking it up on their bodies to carry it back to the hive. There are other considerations in using pollen profiles which are covered by s 9(2)(b)(ii) response submitted to MPI and other reports.

The Veracity and Usefulness of Pollen

The exercise to analyse the 64 submissions submitted in the Sept2013 submission.doc was designed to understand why pollen is so widely distrusted as evidence for determining the mānuka honey type, especially for monofloral. The Sept 2013 submission.doc shows that 50% of the submitters agree that pollen should be included in the definition but 36% reject the use of pollen for the definition and propose that bioactivity replaces it as the priority marker. Then about 7% state that pollen should be included in the definition only under certain conditions distinguishing mānuka from kānuka pollen and/or lowering the

threshold level for the amount of pollen from 70% to 50% as well as using it only with other Codex attributes. Note that at that time the 70% threshold was based on a mixture of mānuka and kānuka pollen (Moar 1985, Raine 2014b).

The submission #61 from the UK states that

> *The floral honeys are defined by the presence of the pollen in the honey. Pollen is the characterising aspect that enforcers use to verify the origin of other honeys and this should be the same for mānuka. If there are difficulties then the research should be concentrated on differentiating between the mānuka and kānuka.*

In the UK and EU there is a need to ensure compliance with the Codex derived legislations.

The following is the list of reasons presented in Sept2013 submission.doc that are used to reject pollen as relevant to the definition. My comments explain or refute them.

1. **Mānuka and kānuka pollen cannot be distinguished** so all pollen profiles could be either of both species, which does not serve the need for distinguishing mānuka from kānuka monofloral honey that the market now requires. (e.g. #20, #29). The new research on the differentiation of pollen has answered this objection. In 2014 Jim Sim of MPI asked s 9(2)(b)(ii) to look at the problem of differentiating the mānuka and kānuka pollen and the first two populations were sampled from the East Coast in Gisborne and delivered to s 9(2)(b)(ii) determined the differences were observable at the microscopic level and the s 9(2)(b)(ii) proceeded to conduct further research with s 9(2)(a) to analyse the geographic and taxonomic variation of all the different mānuka and kānuka species, subspecies and types of both taxa. These positive results for the differentiation of mānuka and kānuka were reported at the APINZ conference in 2016 (Li et al. 2016). The differences had in fact already been reported by McIntyre (1963). This means that the obstacle of mixed mānuka and kānuka pollen for a mānuka honey definition is no longer valid and all past data needs to be reviewed because those counts are mixed. We can now obtain pollen analyses with the mānuka and kānuka pollen counted separately. It was not impossible to distinguish them; the differences had been overlooked, partly because the important melissopalynology study by Moar (1985) preceded the rise to importance of mānuka honey so it had never been studied in detail before.

2. **Manuka/kānuka pollen counts do not predict activity** therefore the mixture of the two invalidates the use of pollen data for the mānuka honey type. (e.g. #20 and many others). This is the prima y objection for the wide held belief that pollen counts cannot be trusted which was published in the New Zealand Beekeeper Magazine (Stevens and Molan 2008). This objection requires the bioactivity concept for mānuka honey and the inclusion of kānuka in the count. In any case, the objection may no longer be true because Xun Li has been building a data set with preliminary results showing that there is predictive linear relationship between the pure mānuka pollen count and the level of MGO (see s 9(2)(b)(ii)). It will be important to verify that the pennyroyal pollen content is low in the pollen profiles because this species also adds MGO to the honey (#33).

3. **Pollen is not directly proportional to the nectar source** and there is little to no relationship between the two. If this were true, then pollen profiles would not have become the gold standard method for determining monoflorality in honey for the last nearly 100 years worldwide. It is the premier line of evidence as it is the most direct method and much used by beekeepers in New Zealand. Many different misconceptions about bee foraging behaviour in mānuka flowers have been presented (e.g. #20, #29, #58). For instance, since bees do not collect mānuka pollen there will be little pollen in the

nectar and hence the honey. These misconceptions are cleared up in the investigation by Newstrom-Lloyd 2017a). This field study of the mānuka flower and bee foraging behaviour shows that although honey bees do not collect pollen directly in pellets to take to the hive they do dislodge pollen into the nectar at the flower, as do native bees and wind mechanically shaking the flower. s 9(2)(b)(ii) confirmed results that mānuka and kānuka pollen is not normally present in bee pollen loads and therefore is present in honey principally through its incorporation at source in nectar collected by the bees (Harris & Filmer 1948; Raine et al. 2016). If any pollen stored in the hive got into the honey during extraction it would be unlikely that it was mānuka or kānuka pollen. Like carbon dating data, palynology data needs to be interpreted according to the biological and ecological dynamics of the pollen getting into the nectar (Raine et al. 2014a, 2014b). Some pollen types are over- or under-represented in honeys due to the structure of the flower, the size of the pollen grains and the time of pollen presentation and nectar production, but these considerations are consistent for each plant species. Further details of how melissopalynologists handle the characteristics of each species can be found in the literature (Moar 1985, Sawyer 1988, Bryant 2001, Bryant and Jones 2001, Bryant 2014, Raine and Li 2014b) For example it is important to use both the percentage content and the absolute pollen count (APC) which reflect proportionality and the total concentration of the pollen respectively.

4. **Methods for pollen analysis are unreliable because they are not standardised.** This implies that the pollen counts methods cannot achieve the repeatability and reproducibility required for good lab practices. However, the s 9(2)(b)(ii) is in the process of becoming accredited and belongs to the International Honey Commission which conducts ring testing of pollen counts among 50 labs worldwide. The s 9(2)(b)(ii) is participating in these procedures. The repeatability and reproducibility can therefore be calculated. The reports of wide variances in procedures (#29) may reflect the differences among the trained technicians embedded in the industry to conduct routine pollen counts at low cost. These technicians could receive training in the new mānuka/kānuka pollen differentiation and ring test ng within New Zealand can be re-initiated. The high cost of high level pollen analyses for special purposes would be managed by trained technicians learning the basic techniques for the finite number of plant species that are relevant to pollen counts for mānuka monofloral honey. Certification programs are also possible as in any other good laboratory practice and harmonisation has already been put in place (Von der Ohe et al. 2004).

5. **Honey can be adulterated by addition of mānuka pollen or filtering out of larger pollen grains.** The pollen grains of mānuka are very tiny and not abundant in each flower. Furthermore each branch of mānuka has few flowers per branch that are presenting pollen and the remainder are old flowers hanging on that do not have pollen remaining in them. The practicality of selecting these flowers, extracting sufficient pollen, and adulterating by adding pure mānuka pollen to honey would be too expensive and time consuming as anyone who has worked with these flowers will have experienced. Kiwi fruit and other flowers with abundant pollen could be cost effective. Filtering honey to retain the smaller manuka pollen would be detected by the reduction of the total pollen concentration (APC) and using other codex parameters (#31). Filtering down to 200 microns is customary but this would not filter out pollen grains. Any smaller filters are illegal and would be detected during the RMP inspections (#33). It is important to compare the ease of adulterating with pollen versus chemical which are simple to obtain and use and also cost less.

6. **Focus on pollen will downgrade the bioactivity story and disallow honey of low pollen count to be labelled mānuka**. These commercial considerations are important but if they do not comply with the Codex system of defining a honey type then alternative solutions need to be found. Those in the bioactivity market require that their low pollen count genuine mānuka is included while those in not in the bioactive market need to continue to use the pollen count as they have been doing for their mark of quality. Further comments on this aspect are outside the scope of my expertise.

CONCLUSIONS

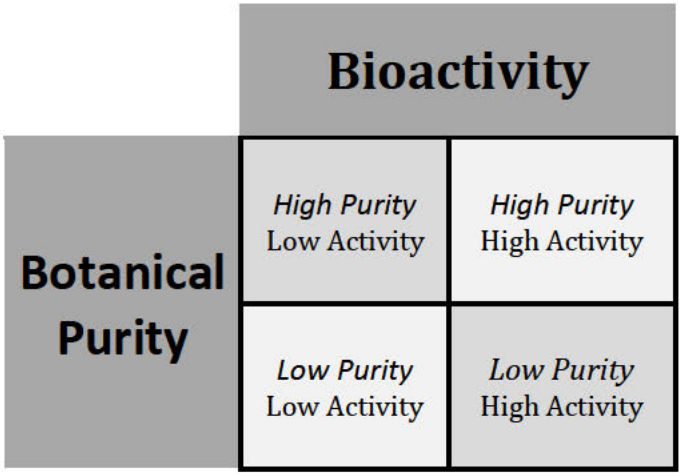
The MPI new Standard has achieved significant gains towards a robust science based definition of mānuka. Now the validation of the choices for the candidate attributes for the classification and the approach and methods can be validated. The two key attributes proposed in the Sept 2012 document were pollen and MGO. Neither of these has been included in the construction of the new classification but for different reasons.

The implementation of the tests has been tried in the industry with a measure of success but there are a few remaining problems:

1. Resolution of the false negatives and false positives.
2. Elucidation of the relationship of the MPI new Standard results to the Codex particularly addressing the impact of those attributes left out
3. Reconciliation of the polarised debates about bioact vity and botanical purity definitions that will serve both segments of the market.

The resolution of the false negatives and false positives would be a simple fix if the pollen profiles along with the remaining Codex attributes especially thixotropic characters were used to discern the truth of each sample. For the false negatives (i.e. a genuine mānuka pollen fails the DNA qPCR test) many samples have already had the mānuka pollen counted at the s 9(2)(b)(ii) and showed the presence of mānuka pollen. Using additional data from a previous technology is common during the development of new tests, for instance during the development of DNA tests for HIV virus the prior technology of using Western Blot methods was used to discriminate the false negatives and positives (Rob Smisson pers. comm.). For the false positives the situation is much more complex but once again the pollen profiles and other Codex characters can be utilised for rapid resolution.

The complexity of the false positives problem lies in the underlying issues in the manuka definition debates (bioactivity versus botanical purity). This can most readily be understood by using Quadrat thinking based on the two attributes in question.



The submission #20 actually uses this same type of quadrat analysis to analyse the impact of setting the levels of MGO and the levels for the pollen counts at different thresholds based on actual data (#20 Pages 70 to 71). A quadrat gives clarity of the problematical situation in the New Zealand mānuka honey market.

Firstly, in the high purity cases, there is no debate for the high purity/**high** activity mānuka honey types as there is no question that this type is valued by all consumers in all segments of the market.
Secondly, the high purity/**low** activity honey types are still actively debated. Those honey types with a predominance of mānuka content ("wholly or mainly" mānuka) but low or no activity have been known for decades and may be geographically and taxonomically identifiable (Peter de Lange pers. comm.). Proponents for the bioactivity concept would consider low activity mānuka honey as not genuinely mānuka as mentioned above. The MPI new standard has opted for the botanical purity definition of manuka honey but the question is where should the threshold be set? At present it is a measure on the DNA qPCR test but we do not know what this translates to for pollen count or other Codex attributes.
Thirdly, in the low purity cases, there is no debate about the low purity/**low** activity honey types as these are not mānuka monoflorals and since they do not meet the threshold for activity they would not be claimed to be mānuka even if there was a small portion of mānuka in them. Again the threshold values are important as above.
Fourthly, the low purity/**high** activity mānuka honey types is the most controversial as this quadrat contains genuine manuka (based on the bioactivity) with low pollen counts. Here the other markers such sensory markers and thixotropy are used to detect genuine manuka. The MPI new Standard needs to succeed at this task at the same time as it is able to detect genuine other honeys that have been excessively blended with small amounts of very high manuka honey. This is the essential problem to consider in terms of commercial impacts and authenticity of labelling. Low purity/high activity honey can be obtained in two ways: (1) by dilution in the field when bees collect nectar from a variety of plant species including very highly active mānuka or other species carrying significant amounts of MGO like pennyroyal and (2) by blending the honey in the extracting plant when honey producers mix selected drums of honey together to meet desired characteristics for flavour, consistency or activity.
This fourth quadrat is the focus of nearly all the problems and debates. Whatever thresholds are used for the pollen counts will have significant commercial and international impact. They will also need to detect fake mānuka honey derived from excessive blending. From reading the Sept 2013 submissions, it is very clear that very high bioactivity with very low pollen counts is a real problem because the honey is genuinely

mānuka based on organoleptic and thixotropic measures. These typically occur in Northland.
This unusual genuine North Island mānuka honey that has such low mānuka pollen count and yet is so high in activity is as important for the definition of mānuka monofloral standards as is the unusual genuine South Island mānuka honey that has such high pollen count (based on mānuka and kanuka combined) and such low activity. This is the main task for the definition of the standards. It highlights the need to use all of the Codex attributes to investigate the biological and ecological reality of these honey types. Setting thresholds too low to include the Northland types would allow too many fake manuka honeys to pass and this would compromise New Zealand's international reputation. Setting it too high will cause losses in the genuine high active manuka honey operations. The threshold values can be tested using additional attributes from the Codex. Understanding why the genuine North Island low pollen count maunka honey is under-represented would allow a science based decision to resolve this issue. There are several biological reasons why this honey may have under-represented pollen because the flowers are larger than other manuka types and the predominance of native bees in some of these habitats may mean all the pollen has been taken away before significant nectar is produced (see Newstrom-Lloyd May issue of the New Zealand Beekeeper Magazine. A systematic process to handle all these options based on pollen counts AND all other Codex attributes will enable MPI to unravel the complexities of quadrat four without allowing excessive blending to be passed off as genuine manuka honey.
An overly reductionistic approach at too early a stage of the research will compromise the ability of MPI to achieve this. By elucidating the relationship between the new classification and the results that would be obtained using established Codex criteria, MPI will be able to resolve the false positive and negatives quickly and serve the needs of all the segments of the manuka market in New Zealand while at the same time displaying transparency and integrity to the international community. We think that a step forward to look at all the attributes in their relationship to he new chemical profile and DNA qPCR tests would benefit MPI to rapidly resolve the remaining issues and put New Zealand in a strong position that could be well defended in any court of law or court of public opinion.

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25. Do you have any further comments regarding the definition of mānuka honey?

See above

Laboratory Tests

26. Do you support the proposed requirements for sampling and testing mānuka honey set out in Part 6 of the draft GREX?

☐ I agree because:

☐ I disagree because:

27. The costs associated with these proposals are likely to vary depending on the size and volume of samples being tested. What impact do you consider these proposals will have on your business?

Do you have any suggestions for minimising any impacts?

Transitional provisions

28. MPI proposes a lead in time of **six weeks** between when the GREX is notified and when it comes into effect. Do you agree or disagree with this proposal?

☐ I agree because:

☒ I disagree and propose an alternative timeframe:

It is premature to implement the Manuka Definition for the reasons stated in the comments on the summary science and on the definition. If the standard is not right the first time there will be too much new confusion and loss of New Zealand's reputation. A delay to co rect the false positive and false negative as well as elucidate the relationship to the internationally accepted Codex will be beneficial to New Zealand's reputation.

29. MPI proposes stock in trade provisions for honey exported between the date of commencement until six months after the date of commencement. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Any other feedback

30. Are there any other parts of this discussion document or the draft GREX that you would like to provide feedback on? (Please indicate which part of the discussion document or draft GREX you are providing feedback on).

Proposed General Export Requirements for Bee Products

For all exporters of bee products from New Zealand

SUBMISSION FORM

Consultation document 2017

Submissions are public information

Your name and title:	s 9(2)(b)(ii) [redacted]
Your organisation's name (if you are submitting on behalf of an organisation), and whether your submission represents the whole organisation or a section of it:	s 9(2)(b)(ii) [redacted]
Your contact details (such as phone number, address, and email):	s 9(2)(a) [redacted]

General questions: getting to know you

1. What part of the supply chain do you operate in:

   ☒ beekeeper

   ☒ extractor

   ☒ processor

   ☒ packer

   ☒ exporter

   ☒ retailer of bee products

   ☐ other – please specify

2. How long have you been involved in the apiculture industry:

   ☐ 0-5 years

   ☐ 5-10 years

   ☒ 70 YEARS

   ☐ not applicable

3. Do you operate under:

   ☒ an RMP under the Animal Products Act 1999

   ☐ the Food Act 2014 (Food Control Plan or National Programme)

   ☐ the Food Hygiene Regulations

   ☐ none of these

   ☐ not applicable

4. If you are a beekeeper, how many hives do you currently have:

   ☐ 0 – 5

   ☐ 6 – 50

   ☐ 51 – 500

   ☐ 501 – 1000

   ☐ 1001 to 3000

   ☒ approx 12000

5. What region of New Zealand do you operate in?

Hawkes Bay, Manawatu, Wairarapa, Taranaki and Bay of Plenty

6. If you export bee products please tell us a little about your business. How many people do you currently employ?

☐ 0

☐ 1 – 5

☐ 6 – 19

☒ 20 or more

What are the roles of your employees and how many are:

☒ beekeepers 29

☒ processors 8 (YOU MEAN EXTRACTION?- seasonal)

☒ packers 3

☒ other – please specify 3 ADMIN

Impact of compliance costs for beekeepers, processors and exporters

7. Table 4.1.1 of the Discussion Document provides a summary of the estimated costs of the proposals. What do you think the overall impact of the new proposals will be on your business?

COMPLIANCE COSTS MUST BE MINIMAL, MUCH OF THE MANUKA WE PRODUCE IS SOLD TO NZ'ERS IN SUPERMARKETS IT IS NOT PURCHASED FOR A PERCIEVED HEALTH BENEFIT BUT BECAUSE FOR DECADES THESE NZ ERS HAVE BEEN ENJOYING THE TASTE OF A STRONGER FLAVOURSED HONEY ON THE R TOAST. TO FORCE THE PRICE OF THIS COMMODITY UP EVEN FURTHER TO THE DOMESTIC CONSUMER IS UNACCEPTABLE. Of course it will increase costs

8. In order to estimate the total cost to industry of the proposals contained in the draft GREX, it would be useful for MPI to understand how many beekeepers, operators and exports of bee products will be affected by the proposals. Please specify which of the proposals listed in the table at 4.1.1 will affect you and how.

DIFFICULT TO ASSESS BUT SAY s 9(2)(b)(ii) EXTRA VISITS AND INSTALLATION s 9(2)(b)(ii) 10 SCANNERS @ GUESSING s 9(2)(b)(ii) Administrative work $50000 At least four or five more staff would be required so perhaps $250000 An extra $178 when companies may or may not produce Manuka Honey Extra testing per drum $200-$300 = could $s 9(2)(b)(ii) including retesting MPI admits NAIT does not work for large animals, how can it propose impose an unworkable similar compliance on thousands honey boxes

9. Do you foresee any other costs that will arise from the proposals contained in the draft GREX which are not contained in the table at 4.1.1? If so, how significant do you think these will be (e.g. administration costs such as time to fill in forms, and time to learn about the new requirements)?

Extra administrative staff

No additional substances to be present in New Zealand honey

10. To ensure additional substances are not present in New Zealand honey, MPI p oposes to prohibit the feeding of bees when honey supers are present on hives for the purpose of collecting honey, with an exception if it is necessary for the survival of the bees. Do you agree or disagree with this proposal?

☒ I agree because:

This has always been best practise in NZ, however the influx of new bee keepers and corporates with low beekeeping skill has changed the norm.

☒ I disagree because:

On occasions to give bees sufficient space they need the super on but the weather dictates things from there on in and sometimes it is necessary to feed the bees with the box on as they have large populations that require food to sustain them. A week of wet weather is the difference between live and dead hives. Does MPI have evidence beekeepers are adding something to the sugar syrup and what has been done about it? s 9(2)(a) work showed a problem with C4 sugars and bio active Manuka honey it is a similar problem that your scientists have found with the DNA tests which are not successful. Has this knowledge been lost? Until the early 1980's Manuka honey was produced but fed back to the bees as fed honey. Section 3.1 has totally out of date information in it and should be withdrawn.

Please suggest any alternatives to this approach that would ensure additional sugars and synthetic chemicals are not present in the honey:

Beekeepers should be following best practise but also using a double brood nest would remove much of this problem as trying to get a large population of bees in a single brood of overwintered hives with sufficient stores is very very difficult Beekeepers should be keeping their honey frames separate to a large extent – our companies use whole plastic in the honey boxes and wood with plastic inserts in the brood

nest this clearly defines the purpose of the frames. A regular comb replacement programme is also very important for keeping residues to a minimum.

At present if beekeepers register their hives, keep their labelled stacks of harvested honey separate to yards (or groups of yards for larger operations), and drumming off records are tied back to the harvest declaration as is expected in their RMP's, there should not be further compliance necessary. The problem is the industry cowboys that continue to get away with acceptable behaviour yet can still export their honey because there no connection of the dots between HD's and the AFBPMS.

Recommend MPI supports fully an enhanced AFBPMS and its register which needs upgrading then many of these issues would not exist esp. if registration was within 7 days for sites.

11. To prevent the contamination of honey with varroacide residues, MPI proposes honey is only harvested from honey supers that do not contain honeycomb previously part of a brood nest. Do you agree or disagree with this proposal?

☒ I agree because:

Beekeepers should be keeping their honey frames separate to a large extent – our companies use whole plastic in the honey boxes and wood with plastic inserts in the brood nest this clearly defines the purpose of the frames. A regular comb replacement programme is also very important for keeping residues to a minimum.

Beekeepers under best practise should not be extracting honey from the brood nests yet some beekeepers with poor practises continue to do that as they can make extra money.

☒ I disagree because:

All beekeepers manage their hives differently and if your neighbouring beekeeper is not using miticides as per the label- i.e. over treating, undertreating or leaving in strips all year then you are vulnerable to reinvasion and it may be necessary to urgently treat hives. Therefore this section is too prescriptive and beekeepers need to able to do their work without over regulation which could take away their ability to manage hives as necessary.

Please suggest any alternatives to this approach that would ensure varroacide residues are not present in the honey

Some producing beekeepers need auditing and intelligence needs following up as they are leaving in strips all year around as currently AFB inspectors, pollination auditors, other beekeepers have this knowledge but nothing happens to it. Perhaps there needs to be a reporting bad practises APP connected to MPI compliance officers.

Part 3 3 1 1 b should be removed

Processors of bee products to operate under a risk based measure

12. MPI proposes that processors of bee products for export under the Food Hygiene Regulations must move to a risk-based measure (either an RMP under the Animal Products Act 1999, or Food Control Plan or National Programme under the Food Act 2014). Do you agree or disagree with this proposal?

☒ I agree because:

We have traceability of product through our RMP's already.

If RMP's for some companies are not working properly then MPI needs to deal with those people and not create over compliance for others.

It should be a level playing field for all exporters.

☐ I disagree because:

Please suggest any alternatives to this approach that would provide MPI with oversight of these processors:

Bee products to be sourced from listed beekeepers

13. MPI proposes to extend listing requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☒ I agree because:

Yes but the renewal cost could be less or it should be like your exporter number which is only withdrawn if you are noncompliant.
Small operators would find this too expensive and be forced to sell their honey on the domestic market.
The lists needs to be available for view.

☐ I disagree because:

Can you think of any alternatives to this approach that would address this gap in the traceability chain?

Change the AFBPMS to ensure hives placed for any production are registered within 7 days. Many hives these days are a moving or flying target that no-one is capable of catching up with because the regulations says register within thirty days!!!.

MPI needs to back the AFB PMs upgrade and changes to the order in council to a seven day registration and make an example on non-conformers by making product ineligible for export by linking the dots between the AFBPMS and export product. Think back to how quickly industry complied with PDB regulations.

Pre-processing traceability requirements

14. MPI proposes beekeepers keep additional records. Do you agree or disagree with this proposal?

☐ I agree because:

☒ I disagree because:

Most beekeepers already keep very good records, if MPI was proactive and made an example of some non-compliant operators then it would clean up the industry.

Unique markers will not work for honey boxes as when taking off honey beekeepers need to sort frames for many reasons hence frames do not end up in the box they started in
Ie there is a brood frame in the honey box (this cannot return to the processing factory)
There is an empty frame in the honey box(this can be put into another box and utilised properly)
There is uncapped honey in the honey box (this needs ripening before returning to the factory)
There is different honey type in the outside frames so they are sorted out of the box.
This shuffling of frames would make a mockery of any unique code on the boxes.

MPI already acknowledges unique markers do not work for cows and they are huge you can't switch their tails around like you can a honey frame.

The additional cost would horrendously affect the retail price of honey domestically in NZ of Codex standard Manuka Honey as a decision where honey is sold or even what the bees produce from an area is not made when the box is put on, this affected by seasonal variability of the plants flowering and the weather.

A beekeeper can target a Manuka area and because of weather and seasonal conditions the bees collect clover instead. A beekeeper can target pasture honey and because of weather the bees fly 5 kms and collect Manuka.

The method already used by most beekeepers works by labelling stacks of honey to the yard. Most Beekeepers already have their apiary registration number branded on the hive boxes doubly ensuring no mix ups in the extraction plants.

Beekeepers should be adhering to the AFBPMS and removing pre-existing registration numbers when hives change hands.

Can you think of any alternatives to this approach that would address gaps in the traceability chain?

Beekeepers should be adhering to the AFBPMs and removing pre-existing registration numbers when hives change hands. We have found thieves of our hives are very good at grinding out brands so it is totally possible! **Add an office use section to the harvester declaration to capture the date of arrival at the plant and an area to record the drum numbers this would make things a lot quicker at the extraction plants to link the HD to drums and double checks the drumming off register**

15. The costs for businesses associated with implementing the proposed traceability

requirements are likely to vary depending on their existing systems and processes. What impact do you think these proposals are likely to have on your business?

These proposals are not acceptable to industry and possibly show a lack of understanding of the Industry by MPI as they will be hugely costly at all levels.

Traceability from beekeepers to operators – harvest declarations

16. MPI proposes to introduce harvest statement requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☒ I agree because:

Yes export honey needs a harvester declaration.

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

A generic Harvester declaration at the end of the season should still be acceptable for all other non-export(domestic market)honey although the honey still needs to be able traced back for tutin testing by alternative paper work and compliance to the AFBPMS with alternative paper work such as hive round sheets and drumming off records

17. MPI considers, for most businesses, the costs associated with these proposals are unlikely to be onerous. Do you agree or disagree and why?

☐ I agree because:

☒ I disagree because:

Drop the tagging and it will be ok.
The cost associated with MPI is proposing with the tagging will be too expensive and force beekeepers to tell lies as they do jiggle frames between boxes making a mockery of the entire tagging concept.

Traceability between operators – transfer documentation in AP E-Cert and reconciliation

18. MPI proposes to introduce transfer documentation requirements to all bee products intended for export. Do you agree or disagree?

☒ I agree because:

This is basically already in place for drums and packed honey but MPI needs to appreciate these are packs of drums of honey are not meat or livestock(no one will die if it changes truck) and Transport Operators need to be able to consolidate loads for economic and isolation reasons.

Hopefully MPI is not meaning for boxes of honey as this would micro managing boxes- some small operators might bring in 20 boxes per day for 15 days then the extracting premises extracts the 300 boxes in one day. With a crazy amount of ED's??

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

Labelling of monofloral and multifloral mānuka honey

19. MPI proposes to implement the mānuka honey definition for export using the GREX. Do you agree or disagree?

☒ I agree because:

Yes but it must be in line with the Codex which NZ is signatory for.

☐ I disagree because:

Can you think of any alternatives to this approach that ensures mānuka honey is true to label?

Yes you could use the codex standards
No mention has been made of pollen counting which can now distinguish Manuka form Kanuka(however that was not the problem it is the addition of Rewarewa and other honey types)
No mention has been made of thixotropic properties, a strong attribute of Manuka meaning it can only be extracted after processing through a honey lossener, and this information is not usable when it is in jar but back in extraction it is very clear.
No mention has been made of the organoleptic values such as taste, smell or colour of Manuka honey.

20. MPI considers there are likely to be options available to businesses to support compliance with the proposed definition (e.g. relabelling, changes to blending practices etc.). Do you agree with this assessment or do you have concerns about ability of some businesses to comply?

☒ I agree because:

Yes beekeepers need to stop blending in honey such as Rewarewa and Honey dew to Manuka packs.
All other honeys have become overpriced while this blending down of high activity honey persists- it's not a Manuka Kanuka fraud its every other honey and our samples provided

to the science programme showed us that we would legally be able to blend down x 1.4 times while working to the codex of 70% by pollen count would not allow this.

☐ I disagree because:

☐ I have concerns because:

21. MPI's proposal may have an impact on existing rights associated with using the word "mānuka" on labels, including registered trademarks. Do you agree with MPI's assessment of the impact on existing rights?

☒ I agree because:

We have been packing and selling Manuka honey since at least the early 1980's before any of the bio active work was done because NZ people like the taste. It would be very sad if the ability to continue to sell Manuka Honey in NZ is removed by over compliance and costs of testing, no consultation has taken place on domestic honey with our company only veiled insinuations that these regulations might filter down to domestic honey.
We feel we have existing rights to the name use as since the 1970's when phone numbers were 4 digits long our company had the agency to import the Norwegian honey looseners allowing ourselves and NZ beekeepers to process their Manuka rather than use it for bee fed. We want to be able to continue packing and selling Manuka honey for NZ'ers toast without any claims.

☐ I disagree because:

22. MPI does not propose to make changes to the current use of grading systems. Do you agree or disagree with this position?

☒ I agree because:

It should not impact on the current grading system of MGo's etc for those making that claim but it should also allow for domestic market table Manuka honey to be packed under the codex using the principles of 70% pollen.

☐ I disagree because:

23. What do you think the impact of the mānuka honey definition will be on the current use of grading systems?

The science needs to be robust and repeatable with a clear mark for what is and isn't monofloral.
At this stage it would not be good for MPI's reputation to set the standards on the work done do far as it is not reliable

24. Do you have any comments on the summary science report?

Please see Section 30

25. Do you have any further comments regarding the definition of mānuka honey?

Laboratory Tests

26. Do you support the proposed requirements for sampling and testing mānuka honey set out in Part 6 of the draft GREX?

☒ I agree because:

☐ I disagree because:

27. The costs associated with these proposals are likely to vary depending on the size and volume of samples being tested. What impact do you consider these proposals will have on your business?

Drum by drum expensive testing

Do you have any suggestions for minimising any impacts?

Transitional provisions

28. MPI proposes a lead in time of **six weeks** between when the GREX is notified and when it comes into effect. Do you agree or disagree with this proposal?

☐ I agree because:

☒ I disagree and propose an alternative timeframe:

Six weeks can never work. Generally major changes take over a year, what happens to bulk product in storage?

29. MPI proposes stock in trade provisions for honey exported between the date of commencement until six months after the date of commencement. Do you agree or disagree with this proposal?

☐ I agree because:

☒ I disagree because:

There is uncertainty with large bulk amounts of honey in sheds that now may not qualify because of the DNA test failing to perform on high MGO honey. MPI could bankrupt many beekeepers with premature science being released and NZ inc could end up with egg on their face.

Any other feedback

30. Are there any other parts of this discussion document or the draft GREX that you would like to provide feedback on? (Please indicate which part of the discussion document or draft GREX you are providing feedback on).

We wish to provide feedback on the science despite being told this is not acceptable at the consultation i.e. the words used were “done done” and “set in stone” Clearly these words have been spoken pre-maturely as since the consultation several additional documents have been provided all trying justify the failures of the DNA science . We do not live a country under a dictatorship and MPI’s approach to this section was dictatorial and not consultative.

We support the standard concept and feel MPI has made some progress but it not ready for release until the anomalies can be ironed out and additional features are added.

NZ is signatory of Codex, codex worldwide uses Pollen count for Monofloral honeys. MPI is driven to not have pollen counting, we cannot understand why MPI is against the principles of Codex and wonder is MPI bowing to external pressures or even internal ones with the focus on triple exports by 2525. Using pollen counting could certainly make a high percentage of the currently exported Manuka ineligible but it would give the industry integrity and credibility to our trading partners and the only loss of business would the fraudulent business. It would also allow MPI to put its hand on its heart when approving export certificates.

Manuka and Kanuka pollen can be defined by the work of the s 9(2)(b)(ii) lab so that can no longer be an objection by large Manuka players in the industry for not using it.

The samples our company provided to MPI using the chemical Markers and DNA current values clearly allowed the addition of other floral varieties to what we considered to be a Manuka Blend to become then become ”Monofloral Manuka” . While we were told this was not the intention of the science, it a true outcome. Our integrity would not allow this but many other operators will do it if MPI makes this the Standard.

MPI does not seem to be information sharing fully with industry and at a consultation meeting said the information couldn’t be shared because industry would not understand. Many of the people being presented to have PHD’s.

We were told most other honeys have the Manuka DNA in them which could make all honey in NZ into Manuka creating pressure on reserves of all other varieties. This shows us that the Test doesn’t measure how much DNA just that there is some- it could be 1% or even less. How is this test helpful to a standard?

Apparently MGO was not used as a marker because it could be added yet synthetic MGO is detectable so this fraud could easily be stopped. Why can’t that be used?

Leptosperin was not used because it was found in another plant somewhere in the world yet it apparently is a clear marker here and who exactly could obtain this obscure honey and add it to Manuka to make more. Why can’t that be used?

The DNA test is a failure and apparently to resolve this pollen testing is being used as backup this appears to reinforce the DNA project work is far from ready for release.

The science behind the “cart “results and boundaries coming out of that seem questionable. Industry has no assurance the original information fed into the “cart” training module was correct so actually this could = garbage in /garage out.

Our understanding is there is a discrepancy with the cycle counts on the DNA, another factor indicating it is premature to release a standard at this stage.

There seems to be a lot of unanswered questions on the multiflora levels, the DNA results, DNA v pollen present

It is disconcerting to Industry that MPI can rush through science on DNA in honey that doesn’t seem to be effective when no-one in the world has achieved this objective to date yet decades of work have been done on it.

This whole scenario is hatching pre-maturely.

Proposed General Export Requirements for Bee Products

For all exporters of bee products from New Zealand

SUBMISSION FORM

Consultation document 2017

The Ministry for Primary Industries (MPI) proposes to consolidate, clarify, and introduce export requirements for all bee products intended for export.

You are invited to have your say on the proposed changes, which are explained in the discussion document and specified in the draft Animal Products Notice: General Export Requirement for Bee Products notice.

Consultation closes on **23 May 2017.**

How to have your say

Have your say by answering the questions in the discussion document, or commenting on any part of the proposals outlined in the draft Animal Products Notice: General Export Requirements for Bee Products. This submission form provides a template for you to enter your answers to the questions in the discussion document and email your submission back to MPI.

Please include the following information in your submission:

☐ the title of the discussion document 'Proposed General Export Requirements for Bee Products';

☐ your name and title;

☐ your organisation's name (if you are submitting on behalf of an organisation), and whether your submission represents the whole organisation or a section of it; and

☐ your contact details (such as phone number, address, and email).

MPI encourages you to make your submission electronically if possible. Please email your submission to: manuka.honey@mpi.govt.nz

If you wish to make your submission in writing, these should be posted to the following address:

General Export Requirements for Bee Products Submission
MPI Food Assurance Team
PO Box 2526
Wellington 6140

The following points may be of assistance in preparing comments:

☐ where possible, comments should be specific to a particular section in the document. All major sections are numbered and these numbers should be used to link comments to the document;

☐ where possible, reasons and/or data to support comments should be provided;

☐ the use of examples to illustrate particular points is encouraged; and

☐ as a number of copies may be made of your comments, please use a legible font and quality print, or make sure hand-written comments are clear in black or blue ink.

Submissions are public information

Everyone has the right to request information held by government organisations, known as "official information". Under the Official Information Act 1982, information is to be made available to requesters unless there are good or conclusive grounds under the Official Information Act for withholding it.

If you are submitting on this discussion document, you may wish to indicate any grounds for withholding information contained in your submission. Reasons for withholding information could include that information is commercially sensitive, or that the submitters wish personal information such as names or contact details to be withheld. MPI will consider such grounds when deciding whether or not to release information.

Any decision to withhold information requested under the Official Information Act 1982 may be reviewed by the Ombudsman.

For more information please visit http://www.ombudsman.parliament.nz/resources-and-publications/guides/official-information-legislation-guides

Your details

Your name and title:	s 9(2)(a)
Your organisation's name (if you are submitting on behalf of an organisation), and whether your submission represents the whole organisation or a section of it:	s 9(2)(a)
Your contact details (such as phone number, address, and email):	s 9(2)(a) s 9(2)(a) s 9(2)(a) s 9(2)(a) s 9(2)(a)

General questions: getting to know you

1. What part of the supply chain do you operate in:

   ☐ beekeeper

   ☐ extractor

   ☐ processor

   ☐ packer

   ☐ exporter

   ☐ retailer of bee products

   ☒ other – please specify Scientist – Floral biology and bee behaviour, bee nutrition

2. How long have you been involved in the apiculture industry:

   ☐ 0-5 years

   ☐ 5-10 years

   ☒ 10 + years

   ☐ not applicable

3. Do you operate under:

   ☐ an RMP under the Animal Products Act 1999

   ☐ the Food Act 2014 (Food Control Plan or National Programme)

   ☐ the Food Hygiene Regulations

   ☐ none of these

   ☒ not applicable

4. If you are a beekeeper, how many hives do you currently have:

   ☐ 0 – 5

   ☐ 6 – 50

   ☐ 51 – 500

   ☐ 501 – 1000

   ☐ 1001 to 3000

   ☐ More than 3000

5. What region of New Zealand do you operate in?

Throughout New Zealand but most demonstration farms and extension work is in the central and lower North Island and in Canterbury and Otago in the South Island

6. If you export bee products please tell us a little about your business. How many people do you currently employ?

   ☐ 0

   ☐ 1 – 5

   ☐ 6 – 19

   ☐ 20 or more

   What are the roles of your employees and how many are:

   ☐ beekeepers

   ☐ processors

   ☐ packers

   ☐ other – please specify

Impact of compliance costs for beekeepers, processors and exporters

7. Table 4.1.1 of the Discussion Document provides a summary of the estimated costs of the proposals. What do you think the overall impact of the new proposals will be on your business?

8. In order to estimate the total cost to industry of the proposals contained in the draft GREX, it would be useful for MPI to understand how many beekeepers, operators and exports of bee products will be affected by the proposals. Please specify which of the proposals listed in the table at 4.1.1 will affect you and how.

9. Do you foresee any other costs that will arise from the proposals contained in the draft GREX which are not contained in the table at 4.1.1? If so, how significant do you think these will be (e.g. administration costs such as time to fill in forms, and time to learn about the new requirements)?

No additional substances to be present in New Zealand honey

10. To ensure additional substances are not present in New Zealand honey, MPI proposes to prohibit the feeding of bees when honey supers are present on hives for the purpose of collecting honey, with an exception if it is necessary for the survival of the bees. Do you agree or disagree with this proposal?

    ☐ I agree because:

    ☐ I disagree because:

    Please suggest any alternatives to this approach that would ensure additional sugars and synthetic chemicals are not present in the honey:

11. To prevent the contamination of honey with varroacide residues, MPI proposes honey is only harvested from honey supers that do not contain honeycomb previously part of a brood nest. Do you agree or disagree with this proposal?

    ☐ I agree because:

☐ I disagree because:

Please suggest any alternatives to this approach that would ensure varroacide residues are not present in the honey.

Processors of bee products to operate under a risk based measure

12. MPI proposes that processors of bee products for export under the Food Hygiene Regulations must move to a risk-based measure (either an RMP under the Animal Products Act 1999, or Food Control Plan or National Programme under the Food Act 2014). Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Please suggest any alternatives to this approach that would provide MPI with oversight of these processors:

Bee products to be sourced from listed beekeepers

13. MPI proposes to extend listing requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that would address this gap in the traceability chain?

Pre-processing traceability requirements

14. MPI proposes beekeepers keep additional records. Do you agree or disagree with this proposal?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that would address gaps in the traceability chain?

15. The costs for businesses associated with implementing the proposed traceability requirements are likely to vary depending on their existing systems and processes. What impact do you think these proposals are likely to have on your business?

Traceability from beekeepers to operators – harvest declarations

16. MPI proposes to introduce harvest statement requirements to all beekeepers providing bee products for export. Do you agree or disagree?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

17. MPI considers, for most businesses, the costs associated with these proposals are unlikely to be onerous. Do you agree or disagree and why?

☐ I agree because:

☐ I disagree because:

Traceability between operators – transfer documentation in AP E-Cert and reconciliation

18. MPI proposes to introduce transfer documentation requirements to all bee products intended for export. Do you agree or disagree?

☐ I agree because:

☐ I disagree because:

Can you think of any alternatives to this approach that ensure full traceability through the bee product supply chain?

Labelling of monofloral and multifloral mānuka honey

19. MPI proposes to implement the mānuka honey definition for export using the GREX. Do you agree or disagree?

☐ I agree because:

☒ I disagree because:

Can you think of any alternatives to this approach that ensures mānuka honey is true to label?

20. MPI considers there are likely to be options available to businesses to support compliance with the proposed definition (e.g. relabelling, changes to blending practices etc.). Do you agree with this assessment or do you have concerns about ability of some businesses to comply?

☐ I agree because:

☐ I disagree because:

☐ I have concerns because:

21. MPI's proposal may have an impact on existing rights associated with using the word "mānuka" on labels, including registered trademarks. Do you agree with MPI's assessment of the impact on existing rights?

☐ I agree because:

☒ I disagree because:

22. MPI does not propose to make changes to the current use of grading systems. Do you agree or disagree with this position?

☒ I agree because:

The grading system has already been successfully reviewed and represents a separate and secondary part of the issue of mānuka honey verification.

☐ I disagree because:

23. What do you think the impact of the mānuka honey definition will be on the current use of grading systems?

24. Do you have any comments on the summary science report?

13 June 2017

MPI Food Assurance Team
Ministry for Primary Industries
PO Box 2526
WELLINGTON 6140

Email: manuka.honey@mpi.govt.nz

Dear Sir/Madam

Attached are the comments that the New Zealand Food & Grocery Council wishes to present on the *Proposed General Export Requirements for Bee Products: MPI Discussion Paper No: 2017/11.*

Yours sincerely

s 9(2)(b)(ii)

s 9(2)(b)(ii)

Proposed General Export Requirements for Bee Products: MPI Discussion Paper No: 2017/11

Submission by the s 9(2)(b)(ii)

13 June 2017

s 9(2)(b)(ii)

1. s 9(2)(b)(ii) welcomes the opportunity to comment on the *Proposed General Export Requirements for Bee Products: MPI Discussion Paper No: 2017/11*.

2. s 9(2)(b)(ii) represents the major manufacturers and suppliers of food, beverage and grocery products in New Zealand. This sector generates over $34 billion in the New Zealand domestic retail food, beverage and grocery products market, and over $31 billion in export revenue from exports to 195 countries – some 72% of total merchandise exports. Food and beverage manufacturing is the largest manufacturing sector in New Zealand, representing 44% of total manufacturing income. Our members directly or indirectly employ more than 400,000 people – one in five of the workforce.

OVERARCHING COMMENTS

3. There are many areas that s 9(2)(b)(ii) is in agreement with proposals in the consultation. For example we agree that:
    - additional substances should not be present in New Zealand honey
    - processors of bee products for export should all be operating under a risk-based measure
    - all beekeepers providing bee products for export should be listed
    - harvest statement requirements should be applied to all beekeepers providing bee products for export
    - transfer documentation, already a requirement for export product to countries requiring certification, could be extended to all export product
    - information relating to the GPS location of the apiary site, the dates and volumes of honey harvested from those sites (rather than the supers) should be recorded
    - implementation of the mānuka honey definition using the GREX is appropriate.

4. However, we do not necessarily agree with the means of delivering the outcomes for a number of proposals. Our greatest concerns are around costs and transition. These two components are linked – a lead in/transition time that is extremely tight raises issues of unnecessary cost, impracticality and feasibility. While we appreciate the desire that the changes apply to the coming season, this should not be 'at any cost'.

5. We are well aware that the standard period for amendments to the Australia New Zealand Food Standards Code is 12 months and at times this period is extended. A transition period of 12 months does not prohibit earlier uptake by industry should that prove commercially feasible or advantageous. However, a reasonable transition period provides particular relief for those operators with extensive stock-in-hand and for smaller operators. A reasonable transition period could also help to address issues with changes to business practices, current label stocks and, to some extent, changes to labelling.

6. In other areas of the proposal, s 9(2)(b)(ii) has identified concerns about where and when honey supers might be used and with the proposal for a unique identification of every super and does not consider this is feasible to apply across New Zealand at this time. Such a system might be voluntarily adopted by the larger producers at this time where other uses of the information can be applied. We are reminded of the many years taken before the likes of the National Animal Identification and Traceability (NAIT) system was mandated and this is a parallel case. We also note that NAIT is not mandated for all commercially farmed animals for reasons of feasibility and cost.

7. s 9(2)(b)(ii) makes limited comments relating to the criteria for identifying 'mānuka' honey and the supporting science but draws your attention to issues still to be resolved in terms of criteria, testing and ultimately the definition and use of the term 'mānuka'.

SPECIFIC COMMENTS

Responses to questions

Getting to know you

Q1 What part of the supply chain do you operate in? (e.g. are you a beekeeper, extractor, processor, packer, exporter and/or retailer of bee products?)

Other: s 9(2)(b)(ii) is an association representing manufacturers including a small number of manufacturers and exporters of honey.

Q2. How long have you been involved in the apiculture industry? (e.g. 0-5 years, 5-10 years or 10+ years?)

s 9(2)(b)(ii) has had members who manufacture and export honey for 10+ years.

Q3. Do you currently operate under an RMP under the Animal Products Act 1999, under the Food Act 2014 (Food Control Plan or National Programme), the Food Hygiene Regulations, or none of these? Q4. If you are a beekeeper, how many hives do you currently have? (e.g. 5 hives or fewer, 6-50 hives, 51-500 hives 50 to 1000 hives, 1001 to 3000 hives, or more than 3000 hives?) Q6. If you own a business involved in the export of bee products, please tell us a little about your business

N/A

Q5. What region of New Zealand do you operate in?

s 9(2)(b)(ii) members operate across New Zealand.

Impact on beekeepers, processors and exporters

Q7 Table 4.1.1 of the Discussion Document provides a summary of the estimated costs of the proposals. What do you think the overall impact of the new proposals will be on your business?

s 9(2)(b)(ii) understands that cost, time and administration will be high for businesses – estimated at 1 FTE per 5,000 hives. While there are over 800,000 hives across New

Zealand, a percentage of these are used by hobbyists who will generally not be impacted to the same extent as the largest commercial businesses nor will a number of commercial businesses operating in the domestic market only. However, if even a 100,000 hives are impacted, that cost is around 20 FTEs which, with salaries and overheads etc ($150,000), could be around $3m. This does not include adapting existing systems or establishing new ones, changing labels (around $3,000-$5,000 per SKU) or testing. Nor does is address traceability as proposed for supers which may reach as much as $10m in set up and operation.

We are aware that the estimated administrative costs are around 1% of export value but a part of it could be avoided by a fair and reasonable transition period. Such a transition period could also help to address issues with changes to business practices, current label stocks and to some extent changes to labelling. By reasonable, s 9(2)(b)(ii) believes 12 months to be reasonable which is the standard period applied to changes made under the Australia New Zealand Food Standards Code for other food and beverage products. Such a period will minimise the need for over-sticking labels which is very labour intensive.
It will also minimise the need to test currently finished product destined for export markets.

We note that the research has taken a lengthy period of time and a further period for finalisation and transition should be considered.

Q8. In order to estimate total cost to the industry of the proposals contained in the draft GREX, it would be useful for MPI to understand how many beekeepers, operators and exporters of bee products will be affected by the proposals. Please specify which of the proposals listed in the table above will affect you and how.

In relation to Part 4 – traceability requirements and Part 7 – record keeping requirements, see the comments on costs above.

In relation to Clauses 5.1-5.3 – honey re-labelling, we note that the intention is not to circulate the label requirements until the Export Notice is finalised. We would have no issues with this if the transition period was reasonable. Taking into account the extent of changes to labels, the need for all labels to be replaced, a reasonable transition period, as noted above, of 12 months is the only way to address at least in part the costs involved. This is a commercial reality that MPI should be well aware of. In addition, if stock-in-hand has to be over-stickered to change its status as a result of new requirements, there should be no prohibition on doing so. Without a reasonable transition period there will be significant losses sustained for un-useable labels.

In relation to Clause 5.4 – export certification and eligibility documents, s 9(2)(b)(ii) understands that re-testing of finished product for major markets will be very costly – in excess of $50,000 per exporter. There appear to be 409 registered honey/beeswax/bee product risk management programmes[1] and even if only half of these are exporters (a number would be transporters, stores or domestic market processors), the cost is $10m. Again this could be significantly reduced by a reasonable transition period.

In relation to Part 6 – laboratory tests for mānuka honey, time is again significant for laboratories to validate test methodologies and be accredited for export certification.

[1] http://foodsafety.govt.nz/registers-lists/risk-management-programmes/index.htm?setup_file=rmpssi.setup.cgi&no_contact_details=&no_moh_details=&no_capabilities_details=true&no_date_details=&statu s=&sort_by=&rows_to_return=20000&submit_search=Search

Q9. Do you foresee any other costs that will arise from the proposals contained in the draft GREX which are not contained in the table above, and if so, how significant do you think these will be (e.g. administration costs such as time to fill in forms, and time to learn about the new requirements)?

Exporters requiring specific accreditation, changing blend processes and supply chains and communicating to distributors on multi and mono floral honey will all involve additional costs.

No additional substances to be present in New Zealand honey

Q10. To ensure additional substances are not present in New Zealand honey, MPI proposes to prohibit the feeding of bees when honey supers are present on hives for the purpose of collecting honey, with an exception if it is necessary for the survival of the bees. Do you agree or disagree with this proposal? (Please provide a sentence or two explaining your support or objection, and provide any alternative approaches that would ensure additional sugars and synthetic chemicals are not present in honey).

s 9(2)(b)(ii) understands and agrees with the intention of this proposal but we disagree with the measures proposed. As we understand it, there are many reasons why beekeepers might have honey supers on hives in addition to supplementary feeding for survival such as for managing swarm control by encouraging less bees to cramp the hive and suppress the swarming impulse. Beekeepers are well aware of the impact of their honey being rejected based on 'sugar' content and that testing for this could be undertaken at any time.

We also do not believe that documentation to accompany this proposal is appropriate, necessary or cost effective in terms of compliance. There are at least two more effective alternatives that would be of greater assistance, achieve the desired outcome and less impost on compliance:

1) Guidance be provided on 'Good Operating Practice' for beekeeping in a box after Part 3: 3.1. s 9(2)(b)(ii) is not expert in this area but believes that the likes of Apiculture New Zealand would assist in this area.
2) Beekeepers make a statement in the Harvest Declaration that the 'Good Operating Practice' for beekeeping as set out in guidance has been followed.

11. To prevent the contamination of honey with varroacide residues, MPI proposes honey is only harvested from honey supers that do not contain honeycomb that was previously part of a brood nest. Do you agree or disagree with this proposal? (Please provide a sentence or two explaining your support or objection, and provide any alternative approaches that would ensure varroacide residues were not present in honey).

As for Question 10, s 9(2)(b)(ii) understands and agrees with the intention of the proposal in Question 11 but we disagree with the measures proposed. A reduction in residues in honey from miticides and the consequential decrease in honey bacterial loading and honey quality improvement comes from overall improved beekeeping practices. This could be encouraged but also channelled by clause 3.1(1)(b) in Part 3 being amended to read: "honey is not harvested directly from honeycomb previously part of a brood nest;".

Processors of bee products to operate under a risk-based measure

12. MPI proposes that processors of bee products for export under the Food Hygiene Regulations must move to a risk-based measure (either an RMP under the Animal Products Act 1999, or Food Control Plan or National Programme under the Food Act 2014.) Do you agree or disagree with this proposal?

s 9(2)(b)(ii) considers it appropriate that processors of bee products for export should all be operating under a risk-based measure. It is likely that the majority already do so since there are over 400 registered RMP operators dealing with honey products (over 28% of a l 1456 entries on the MPI RMP register).

The integrity of traceability depends ultimately on the accuracy of all documentation.

New Zealand's RMP operators are generally professional in their operations, they are required to have verifiable record-keeping systems in place, and are audited regularly. Industry should not need to carry the burden of potentially non-compliant product stemming from premises operating under differing criteria that may potentially damage our overseas reputation.

s 9(2)(b)(ii) considers that all bee products compliant for export must be processed, and remain, within an RMP system.

Bee products to be sourced from listed beekeepers

13. MPI proposes to extend listing requirements to all beekeepers providing bee products for export. Do you agree or disagree? (Please provide a sentence or two explaining your support or objection, and provide any alternatives to this approach that would address this gap in the traceability chain).

s 9(2)(b)(ii) agrees that all beekeepers providing bee products for export should be listed. This is essential for traceability and ensures beekeeper details are available to RMP operators, to verifiers and to MPI. Although there is cost involved in listing, this can be considered a cost for having access to export processors. The alternative for beekeepers with few hives would be to remain supplying the domestic market.

We note that the *Animal Products Fees Charges and Levies Amendment Regulations 2015* sets most listing applications at $155 and some limited renewals/ re-listing at $77.50 plus an assessment charge on an hourly basis after the first 30minutes. We appreciate there may have been cost of living movements since 2015 which may account for some of the 15% increase of $23.25 to $178.25 but we would expect some parity across listing charges. More importantly, some relief for annual renewal should be considered as it is in other areas.

Pre-processing traceability requirements

14. MPI proposes beekeepers keep additional records. Do you agree or disagree with this proposal? (Please provide a sentence or two explaining your support or objection, and provide any alternatives to this approach).

s 9(2)(b)(ii) does not agree with a unique identification of every super and does not consider this is feasible to apply across New Zealand. This might be a system voluntarily adopted by the larger producers where other uses of the information can be applied. Rather, identifying all supers with the beekeeper's listing number would provide recognition for checking and, for the beekeeper, the ability to identify/track supers that are stolen for example. We are reminded of the many years taken before the likes of NAIT was mandated and this is a parallel case. We also note that NAIT is not mandated for all commercially farmed animals for reasons of feasibility and cost.

The information relating to the GPS location of the apiary site, the dates and volumes of honey harvested from those sites (rather than the supers) should be recorded.

15. The costs for businesses associated with implementing the proposed traceability requirements are likely to vary depending on their existing systems and processes. What impact do you think these proposals are likely to have on your business?

As noted in response to Question 14, s 9(2)(b)(ii) considers unique identification of supers not to be feasible and cost is a major factor as well as practicality.

Traceability from beekeepers to operators – harvest declarations

16. MPI proposes to introduce harvest statement requirements to all beekeepers providing bee products for export. Do you agree or disagree? (Please provide a sentence or two explaining your support or objection, and provide any alternatives to this approach that ensure full traceability through the bee product supply chain).

s 9(2)(b)(ii) agrees that harvest statement requirements should be applied to all beekeepers providing bee products for export. This might be expected to include date of harvest and location of harvest since this information would already exist in the form of the GPS coordinates and the volume etc of honey collected from apiary sites.

17. MPI considers, for most businesses, the costs associated with these proposals are unlikely to be onerous. Do you agree or disagree and why?

s 9(2)(b)(ii) considers that the proposals for honey supers to be excessively costly and add significantly to compliance costs. The alternative, information proposed for inclusion in harvest statements, is likely to be collected in some form currently and would be collected for operations associated with Tutin regions. It is likely that, as anticipated, the costs associated with harvest statement requirements are manageable.

Traceability between operators – transfer documentation in AP E-Cert and reconciliation

Q18. MPI proposes to introduce transfer documentation requirements to all bee products intended for export. Do you agree or disagree? (Please provide a sentence or two explaining your support or objection and provide any alternatives to this approach that ensure full traceability through the bee products supply chain).

s 9(2)(b)(ii) recognises that this proposal, for transfer documentation, is already a requirement for export product to countries requiring certification and that it parallels requirements in other animal product sectors. A reasonable transition period would be necessary for implementation.

Labelling of monofloral and multifloral mānuka honey

19. MPI proposes to implement the mānuka honey definition for export using the GREX. Do you agree or disagree? (Please provide a sentence or two explaining your support or objection, and provide any alternatives to this approach that ensures mānuka honey is true to label).

s 9(2)(b)(ii) considers implementation of the mānuka honey definition using the GREX to be appropriate.

20. MPI considers there are likely to be options available to businesses to support compliance with the proposed definition (e.g. relabelling, changes to blending practices etc.). Do you agree with this assessment or do you have concerns about ability of some businesses to comply? (Please provide a sentence or two explaining your concerns).

Any regulatory change requires businesses to change processes and approaches and this is no exception. A key issue is transition period which will impact both practicality and cost. A period that minimises re-labelling requirements or that addresses stock-in-trade provisions must be a feature of the arrangements. As noted at the outset, this will also assist with laboratory developments for test methodologies.

21. MPI's proposal may have an impact on existing rights associated with using the word 'mānuka' on labels, including registered trademarks. Do you agree with MPI's assessment of the impact on existing rights? (Please provide a sentence or two explaining your support or objection).

s 9(2)(b)(ii) appreciates the need to manage the use of the term 'mānuka' but for companies that have the term incorporated in their company name, they should be able to continue to use that company name for any products in their product range. There is the prospect that such use could be conditional on clear distinction between the description of the honey or bee product and the company name.

22. MPI does not propose to make changes to the current use of grading systems. Do you agree or disagree with this position? (Please provide a sentence or two explaining your support or objection).

s 9(2)(b)(ii) agrees that the definition of mānuka can proceed without impacting the voluntary industry grading system.

23. What do you think the impact of the mānuka honey definition will be on the current use of grading systems? (Please provide a sentence or two to explain your view).

s 9(2)(b)(ii) understands that the definition of mānuka honey is unlikely to impact on the grading systems in place although there could be some mutually applied elements.

24. Do you have any comments on the summary science report?

s 9(2)(b)(ii) does not have the expertise to comment on the science report and leaves this to experts in the industry. However, comments below seem common to a number of stakeholders.

25. Do you have any further comments regarding the definition of mānuka honey?

s 9(2)(b)(ii) is aware of concerns about the use of DNA as a marker for mānuka honey and particularly the robustness of the testing for honey over its shelf life. s 9(2)(b)(ii) understands that, in part to address this issue, there have been proposals for the inclusion of methylglyoxal to be added to the criteria for several reasons:

- high levels (>600mg/kg) of methylglyoxal could provide a threshold above which DNA testing is not required;
- such a criteria would address regular failures in DNA testing where it is believed methylglyoxal is affecting the DNA;
- such a criteria would limit the prospect of inappropriate blending;
- methylglyoxal has wide familiarity and use across processors and customers alike and would make transition to the new definition more acceptable for all;
- stability over the shelf-life of products is managed now and, as with other chemicals that might be purchased for adulteration, similar intervention measures to address such activity could be applied to methylglyoxal.

s 9(2)(b)(ii) understands there have also been calls to reduce the 3-Phenyllactic acid level for monoflorality to add leptosperin at levels equal to or greater than 63mg/kg, and that C4 sugar be included in the criteria. We support consideration by MPI of these requests based on potential impacts presented as well as the prospect of deferring the DNA criteria for the interim if reliability to accurately identify mānuka honey through DNA testing remains uncertain.

There have been suggestions (alluded to in preceding responses) that the standard as proposed has the potential for abuse through blending For example, levels of 5% of a monofloral mānuka (already as low as 30% mānuka content) when blended could be sold as a mānuka blend. If this is correct, we would encourage MPI to reconsider the standard from a common sense, consumer expectation perspective.

There is also the issue of ‘kanuka’ vs ‘mānuka’ and claims that the terms have been used interchangeably in the past even though the species are different. Further consideration might be given to resolving this issue before finalising the requirements.

Laboratory tests

26. Do you support the proposed requirements for sampling and testing mānuka honey? (Please provide a sentence or two explaining your support or objection).

s 9(2)(b)(ii) considers the sampling and testing proposals to be appropriate.

27. The costs associated with these proposals are likely to vary depending on the size and volume of samples being tested. What impact do you consider these proposals will have on your business? Do you have any suggestions for minimising any impacts?

The costs associated with the proposals are likely to be significant for all as noted at the outset. The key to minimising costs at the outset is time and that transition of 12 months is

not unreasonable. This allows processors to manage the uptake of the measures in the most appropriate timeframe for them taking account of their commercial arrangements. s 9(2)(b)(ii) understands that drum by drum testing is the common approach currently undertaken for mānuka honey.

Transitional provisions

28. MPI proposes a lead in time of six weeks between when the GREX is notified and when it comes into effect. Do you agree or disagree? (Please provide a sentence or two explaining your support or objection, and suggest an alternative timeframe if you consider it appropriate).

s 9(2)(b)(ii) considers the MPI lead in/transition time to be entirely impractical and not feasible adding significantly to cost in several areas. While we appreciate the desire that the changes apply to the coming season, this should not be 'at any cost'. As noted at the outset, the standard period for amendments to the Australia New Zealand Food Standards Code is 12 months and at times this period is extended. A transition period of 12 months does not prohibit earlier uptake by industry should that prove commercially advantageous or commercially feasible. However, it does provide relief for those operators with extensive stock in hand and for smaller operators.

29. Do you support the stock in trade provisions proposed in the draft GREX? (Please provide a sentence or two explaining your support or objection, and provide any alternative suggestions).

As noted above a transition period of 12 months accommodates stock-in-trade arrangements.

Any other feedback

30. Are there any other parts of this discussion document or the draft GREX that you would like to provide feedback on? (Please indicate which part of the discussion document or draft GREX you are providing feedback on, and provide a sentence or two explaining your support or objection).

Nil