



Science Update: Joint Industry/MPI Mānuka Honey Science Steering Group

Claire McDonald and Steve Hathaway

June 2019

Who are we?

- Collaboration between Industry and MPI
- Ensure mānuka honey regulatory definition remains fit for purpose and recognise opportunities to develop industry value in new science
- Prioritise a range of projects:
 - Stability study on honey markers
 - Understanding influence of honey sampling techniques on test results
 - Pilot trial for establishing a NZ honey reference collection



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APICULTURE
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Unique Mānuka Factor™
Honey Association



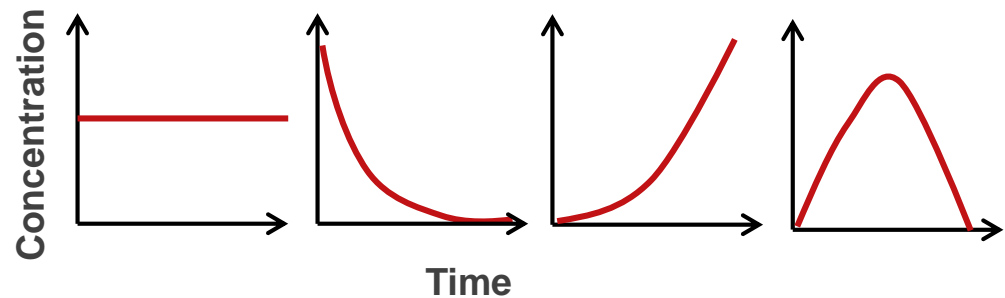
Stability study

1. Source honeys with similar levels of one manuka marker e.g. **3-phenyllactic acid**
2. Blend samples to have standard levels of 3-phenyllactic acid
3. Test samples for range of markers
4. Store for 24 months at 3 different temperatures (4°C, 20°C and 35°C)
5. Test samples again and look at pattern of change

A) Samples > 400 mg/kg

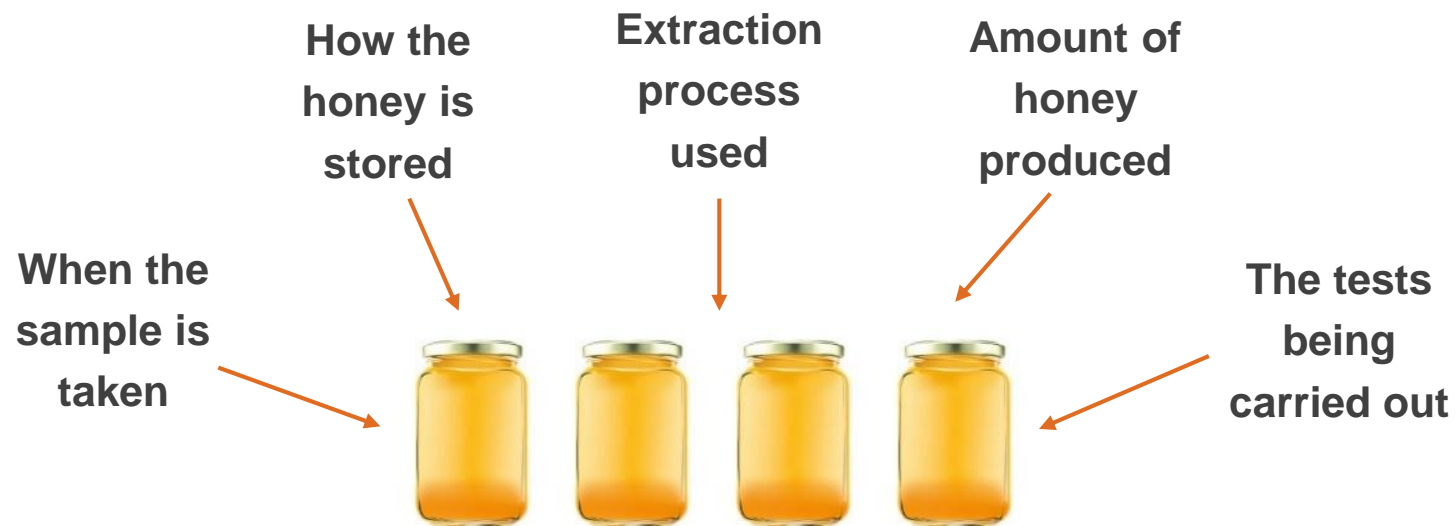


B) Samples < 400 mg/kg



Influence of honey sampling techniques

- Sampling can influence confidence in any test results



AIM: To understand what can influence collection of honey samples and how test results can change

Stages of the project

1. Industry Survey



2. Design experiments



Currently at this stage



3. Source and test honey samples



4. Analyse results and develop sampling guidance



Results to date

- Importance of sampling is well understood, but variety of techniques used.
- Samples taken throughout supply chain, but mostly from 300kg drums, IBCs or retail packs
- Challenges:
 - Using corer/auger at low temperatures and viscous honey
 - When to take samples?
 - How many samples to take?

Final retail product



Final product blending efficiency and sample

Drums



Differences within a drum

IBCs



Differences within an IBC

NZ Honey Reference Collection – Pilot trial

- Partnership between MPI and industry for regulatory and industry in-market purposes
- Ensure confidence in new scientific research on NZ honeys
- To plan for future science work, need to know:
 - When and where the honey was collected?
 - How the honey was collected?
 - What is the honey type?
 - What test results are there?



Aim: develop and trial different protocols for use in establishing a New Zealand honey reference collection

Pilot trial – the approach

Protocols for collecting honey both from hives and drums

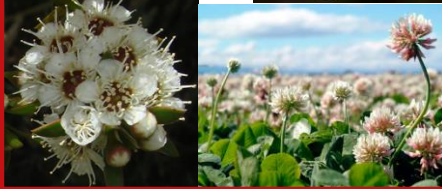
- Known location
- Size of sample
- Storage of sample



Extraction and subsampling protocols

- How is the honey mixed before subsampling?
- How many subsamples?
- How should it be stored?

Botanical survey of each apiary site



Test results needed:

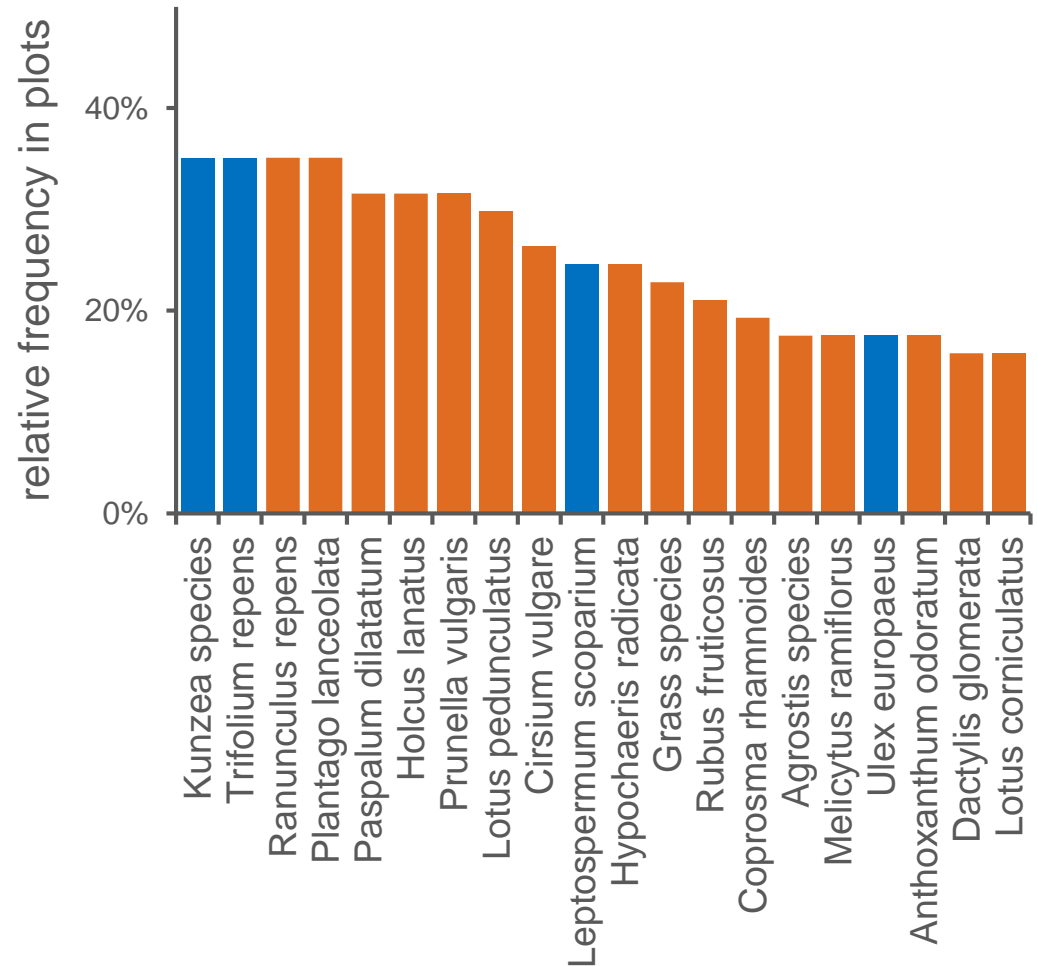
- HMF?
- Manuka honey markers?
- Tutin?
- C4 sugars?



Should this honey be in a NZ honey reference collection?

Botanical survey

- 18 apiary sites across 5 regions
 - Northland, Waikato, Manawatu, East Cape and Nelson
- Number of plots measured at a site depends on the diversity of vegetation types.
- 855 plant species occurrences recorded across 57 plots



Next Steps Pilot Trial

- Analyse the test results for the honey and relate to the botanical data and traceability information.
- Investigate the value of satellite images and GIS layers for estimating plant abundance at an apiary site.
- Collate results from all aspects of the pilot trial to plan a medium to long term New Zealand Honey Reference Collection.
- Plan for upcoming season for collection of new samples.



Acknowledgements

- **Industry**
 - Supply of honey samples for all projects, completing surveys and facilitating access to apiary sites.
- **Influence of honey sampling on test results**
 - Hill Laboratories
- **Long term stability study**
 - Fera
 - University of York
- **Pilot Trial for New Zealand Honey Reference Collection**
 - SPS Biosecurity Ltd
 - Manaaki Whenua Landcare Research
 - ESR
 - Analytica Laboratories



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