



# NATIONAL VARROA STRATEGY

**MITE SMART**   
Working Together Against Varroa

---

# Background

Maintaining healthy and productive honeybee colonies is important to ensuring a sustainable apiculture industry for both the production of bee products and the provision of effective pollination services.

Globally, varroa mite is having a significant impact on hive health (Soroker et al. 2022) and New Zealand is no exception. The 2022 New Zealand Colony Loss Survey shows that varroa is a key driver of hive losses with 6.4% of all overwintering colonies lost to suspected varroa. These varroa losses have been increasing year-on-year since 2017 (Stahlmann-Brown and Robertson 2023).

The increasing losses and anecdotal reports in 2023 indicate varroa are becoming a real challenge for beekeepers in New Zealand. Recent New Zealand research suggests that additional work to replace overwintering losses and support weakened colonies (of which varroa is a significant contributor) cost commercial beekeepers \$24,181,691 over winter 2021 (Stahlmann-Brown et al. 2022).

To address the current and future challenges of varroa management, the apiculture industry in New Zealand needs to develop a long-term strategy. The following proposed National Varroa Strategy outlines and prioritises the work needed to mitigate the effects of this major challenge to apiculture in New Zealand.

## Purpose

Through a national strategy, industry can coordinate shared resources to improve long-term varroa management, resulting in lower colony losses, lower costs, and higher honey yields

## Goal

**Our goal is to reduce over-winter varroa-related colony losses to 2%<sup>1</sup> or less by 2028.**

---

<sup>1</sup> Historical hive losses range from 1.6% (2017) to 5.3% (2022) according to the New Zealand Colony Loss Survey.

# Stakeholder Nexus

The stakeholder nexus gives an overview of the relevant people and groups that interact within the strategy. It is important that there is good interactions between all of these groups.

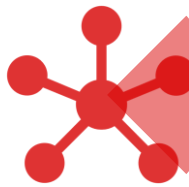


# Values



## Trusted

To be a trusted source of varroa related information and support for New Zealand beekeepers



## Collaborative

Creating a collaborative environment to allow effective knowledge transfer between beekeepers and others within the stakeholder nexus.



## Focused

Entirely focused on reducing the negative effects of varroa in-line with strategy goal.



## Insight Led

All strategy work based off clear understanding of the facts taken from those within the stakeholders nexus.

# Core Strategy Pillars

These four pillars cover the core outputs and aims of the strategy. Some topics within pillars feed back into others. For example, research projects will influence future development of other pillars.

## Communication

- Annual regional field days
- Varroa e-manual
- Targeted best practice documentation through Varroa Hub
- Advertising to distribute key messaging

## Resources and Tools

- Varroa manual
- Targeted best practice documentation
- Interactive varroa management tools
- Training material use of key tools such as monitoring
- Simple mite monitoring tools

## Field Support

- Annual regional field days
- Tech Transfer team
- On call support
- Artificial Intelligence Tools

## Research and Projects

- Annual miticide resistance testing
- "Beekeepers Leading Change"
- Research projects
  - Social science
  - IPM
  - Breeding/VSH
  - New treatment options
  - Management tools

# Summary of Work

This section summaries required outputs to achieve the strategy goal to reduce over-winter varroa-related colony losses to 2% or less by 2028.

The core components of the strategy revolve around the concept of Knowledge, Translation, Transfer (KTT) to ensure effective communication of best practice and relevant support and tools between experts and beekeepers to address these. In addition, these aim to ensure any arising issues are identified and acted on proactively through effective two-way communication with beekeepers.

The following outputs are categorised into the four key strategy pillars:

## Communication

- Best-practice information hub
  - Purpose: To be the go-to trusted information source for beekeepers
  - Key best-practice information disseminated at relevant times through the most relevant channels (free subscription model for targeted audiences).
  - Assess what is already available.
  - Develop new material to fill information gaps (upon determining best route to deliver information e.g., 30-60 second videos).
- Targeted advertising
  - Investigate the use of an ongoing, highly emotive advertising campaign to influence change in beekeeper mindset.
- Field days
  - Create a structured set of annual field days.
  - Coordinated and consistently presented throughout NZ.
  - Initially four in total with more if demand is there. Two in the North Island and two in the South Island. (Locations rotated annually with aim to get good geographical coverage)
- Aim of field day:
  - Gain feedback from beekeepers on current issues and solutions.
  - Disseminate existing and new best practice.
  - Hands on practical advice.

## Resources and Tools

- Varroa manual
  - Already in existence.
  - What triggers the need for a revision?
  - Is a manual the appropriate information delivery method for all beekeepers?
- Best practice documents to go in information hub
  - Template for an interactive annual varroa management plan for a beekeeping operation.
  - Training material use of key tools such as monitoring.

- Fund the development of videos to demonstrate key varroa management techniques, e.g., monitoring tools, treatment application, and annual management plans.
- Beekeeper case studies
- Develop digital calculator and varroa management planning tools
- Simple mite monitoring tool
  - Support the development of a monitoring app to allow beekeepers to record mite counts and make better management decisions.

## Field Support

- Annual regional field days
  - See communications concept.
- Tech transfer team
  - Investigate the demand and resources required for a funded\* tech transfer team to help roll out and support the varroa strategy.
- On-call support
  - Investigate the demand and resources required for a funded\* tech transfer team to provide on-call support for beekeepers to resolve urgent and long term varroa issues in their business.
- Investigate use of future artificial intelligence tools as a support platform.

\*Funding could be a mix of industry, supplier and user pays.

## Research and Projects

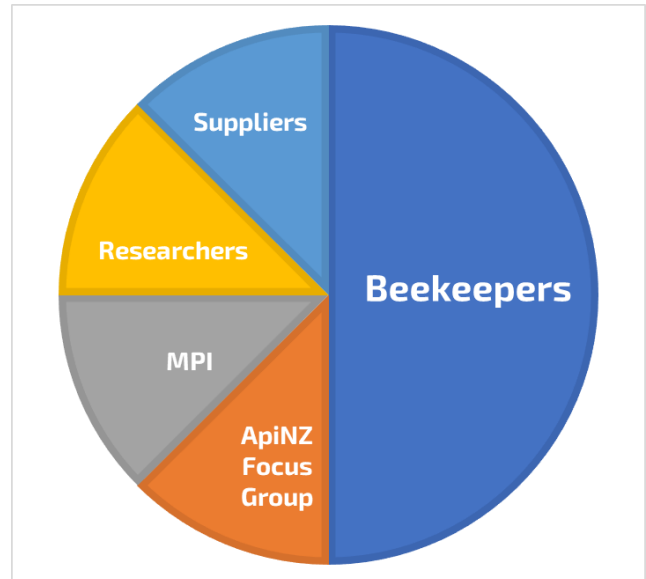
- Research overseas tech transfer programmes to determine what could be successful in the NZ situation.
- Annual miticide resistance testing
  - Investigate the development of a coordinated resistance management screening program to detect resistance issues early to allow industry to adapt.
- Potential research projects are identified, prioritised, and presented to potential researchers. E.g.
  - Beekeeper attitudes and mindset (social science)
  - Integrated Pest Management (IPM)
  - Breeding/varroa sensitive hygiene (VSH)
  - New treatment options
- Any new research outputs are effectively fed back to industry in a coordinated way.
- "Beekeepers Leading Change": Creating a structure for small beekeeper groups to discuss and test out ideas in a safe to fail way.

# Strategy Team

For this strategy to be successful, a small team of experts of four to six people will be formed to provide a function. This team will be involved in ensuring that:

- projects are identified and prioritised based on industry requirements
- prioritised projects are successfully funded and implemented
- strategy is regularly reviewed to ensure that it is fit for purpose

These team roles are likely to be voluntary. There should be a minimum of 50% beekeeper representation to ensure that there is good insight into current challenges and needs.



## Metrics to demonstrate progress

- Reduced over-winter varroa related colony losses targeting strategy goal
- Increased field day attendance.
- Increased visitation to best-practice information hub.
- Increased monitoring as measured in the New Zealand Colony Loss Survey.

## What is required to achieve success?

- Project team setup ensuring required knowledge and skills are included.
  - Initial team a subset of science focus group but transitioning to a broader base as required.
- Engage early with beekeepers to better understand issues and needs.
  - Field days a key channel to achieve this.
- Research overseas examples to determine what is already successful. E.g.
  - Bee-informed partnership [Bee Informed Partnership – Using beekeepers' real world experience to solve beekeepers' real world problems](#)
  - Ontario beekeepers' association [About the Tech-Transfer Program | Ontario Beekeepers' Association, TTP, mandate](#)
  - COLOSS B-RAP [B-RAP – COLOSS](#)



- Develop a clear and achievable roadmap and projects to address key requirements.
- Gain advice from MPI experts in bee health and pest management.
- Prioritise roadmap to determine funding requirements.
- Budget and implement prioritised work to achieve goals.
- Small but high impact projects initially based on available funding sources.

## Funding

Industry and external funding will be required to take on any of the work suggested. For example, to apply for SFFF funding the industry will need to provide approximately 50% of the required total.

## References

Soroker V, Kovačić M, Hatjina F. 2022. The COLOSS *Varroa* Task Force: Combating the Mite in the 21st Century. *Bee World* 99: 14–16.

<https://www.tandfonline.com/doi/full/10.1080/0005772X.2021.1981678>.

Stahlmann-Brown P, Hall RJ, Butt R, McCall B, Torres G, Wright T. 2022. Valuing over-winter colony losses for New Zealand's commercial beekeepers. *New Zealand Economic Papers*. Routledge.

Stahlmann-Brown P, Robertson; T. 2023. Report on the 2022 New Zealand Colony Loss Survey Prepared for the Ministry for Primary Industries. <http://www.mpi.govt.nz/news-and-resources/publications/>.