

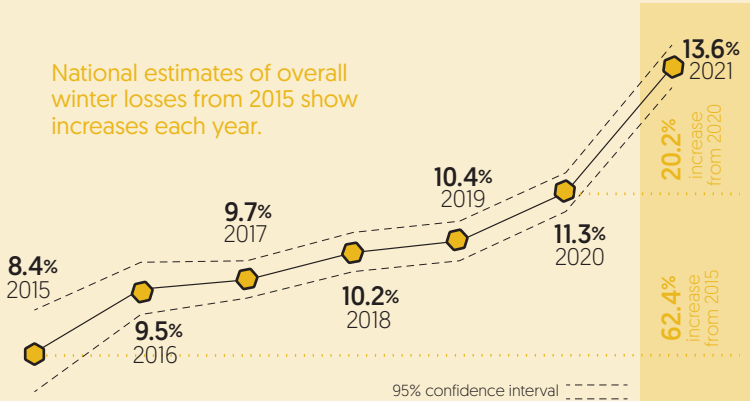
SUMMARY 2021



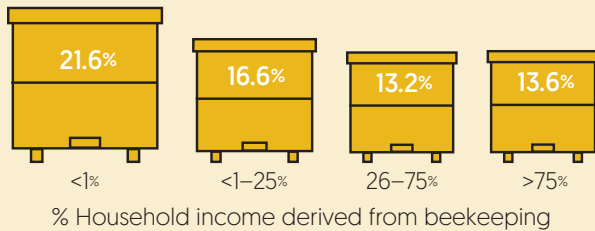
This is an on-line survey of beekeepers that aims to quantify winter colony losses. The survey has been conducted annually since 2015. The questionnaire is based on the international COLOSS survey and has been adapted to include topics of specific interest to NZ beekeepers. This year we focus on varroa and its monitoring and treatment.

Overall loss rates

Overall loss rates attributed to all causes

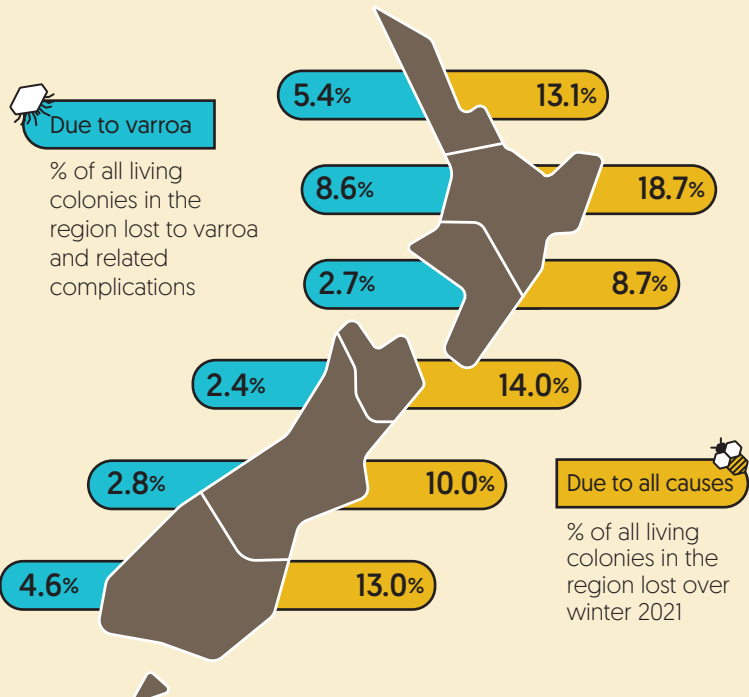


Acceptable winter loss rates



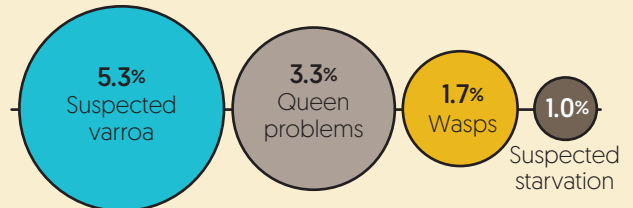
Winter losses meet or exceed the loss rates considered 'economically acceptable' among those who depend on beekeeping for a living.

Regional estimated loss rates



Losses attributed to selected causes

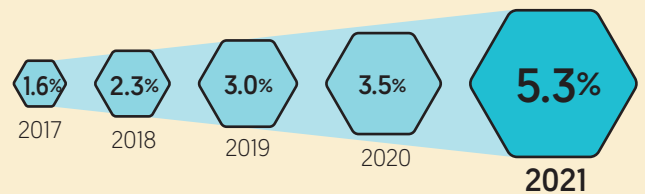
Estimated overall losses attributed to selected causes



Beekeepers across all size classes reported that suspected varroa and related complications and queen problems accounted for more losses than other causes.

Losses attributed to varroa

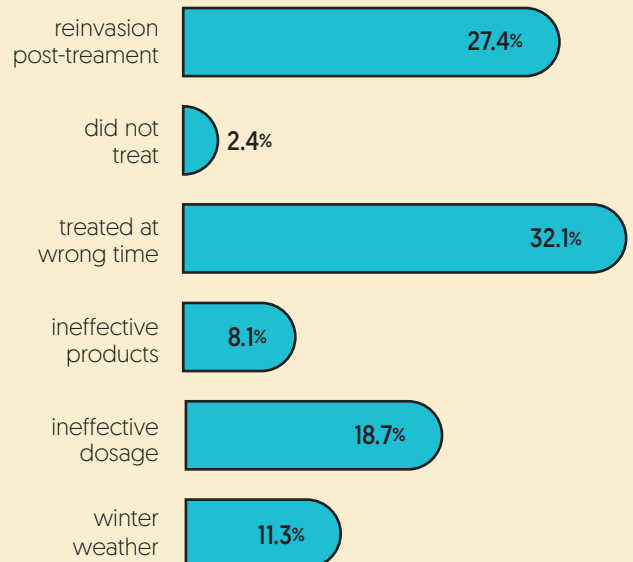
Overall loss rates attributed to varroa and related complications



An estimated 5.3% of all living colonies were lost to varroa and related complications over winter 2021, significantly higher than in any previous survey.

Main factors attributed to varroa losses

Single largest factor underlying losses attributed to varroa and related complications, according to respondents





Monitoring for varroa

Many beekeepers monitor for varroa using multiple methods



Most accurate monitoring

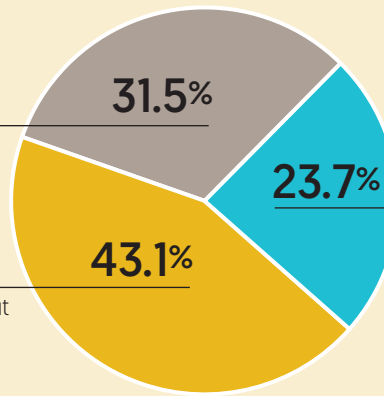
Use at least one or more of the four recommended processes:

- alcohol wash
- sugar shake
- CO₂ injection
- lab sampling

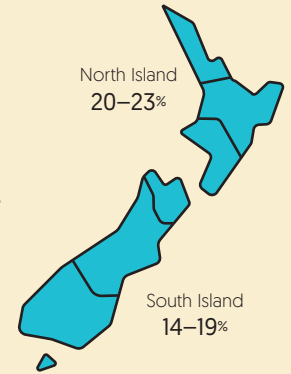
Other monitoring

Use one or both of the following, but not the more accurate methods:

- sticky boards
- visual inspection of drone brood



% beekeepers with more than 250 colonies who did not monitor



Treating varroa

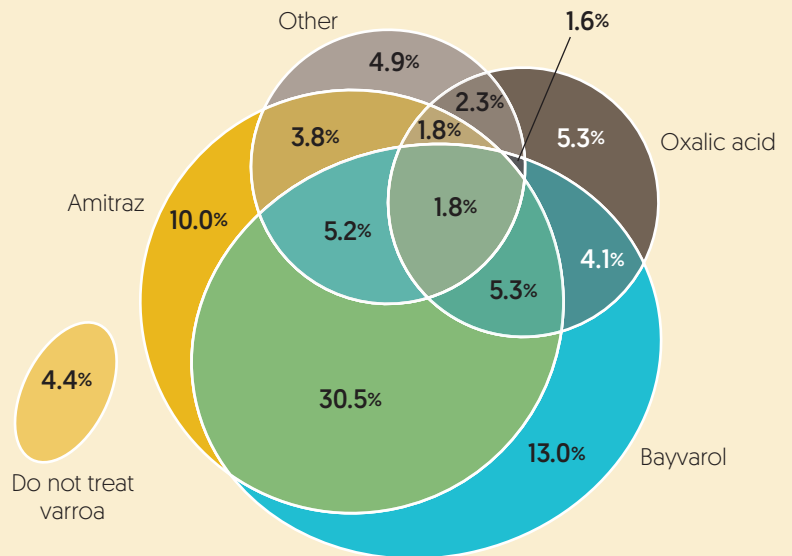
Treatment of varroa by beekeepers (commercial and hobbyist)



Treatment with Bayvarol, amitraz [the active ingredient in Apivar or Apitraz], and oxalic acid [including sublimation/vaporisation, dribbling/trickling, or glycerine strips/staples] are commonly used to treat varroa.



Most beekeepers use multiple treatments, most often in spring and autumn.



In a nutshell



Based on reports from 381,000 colonies and 47% of New Zealand beekeepers, we estimate the overall loss rate over winter 2021 to be 13.6%, or approximately 109,800 colonies. This loss rate is 62% higher than the loss rate for 2015, the first year of the survey.

Loss rates exhibit considerable regional variation. For example, whereas 8.7% of all living colonies entering winter were lost in the Lower North Island, 18.7% of all such colonies were lost in the Middle North Island. Loss rates among hobbyists were nearly triple those for large commercial operators.

In previous waves of the survey, losses were most frequently attributed to queen problems. However, this changed in 2021: for every 1 colony reported to be lost to queen problems, 1.6 colonies were reported to be lost to varroa. The share of all colonies reported to be lost to varroa over winter increased from 1.6% in 2017 to 5.3% in 2021.

The most reliable methods for monitoring varroa are the sugar shake, alcohol wash, CO₂ injection, and sending samples to a lab. 31.5% of beekeepers monitor for varroa using at least one of these procedures while 23.7% of beekeepers do not monitor for varroa.

The vast majority of beekeepers treat varroa using Bayvarol, amitraz [the active ingredient in Apivar and Apitraz], and oxalic acid, most often in combination. However, 4.4% of beekeepers [including both commercial operators and hobbyists] did not treat for varroa between spring 2020 and winter 2021. Many beekeepers who use Bayvarol and amitraz do not follow the manufacturer's instructions.

The share of colonies lost that is considered to be 'acceptable' is highest among those who do not depend on beekeeping for their livelihoods. Regardless, overall winter colony loss rates meet or exceed levels that beekeepers who earn a living from beekeeping consider to be economically viable.

View full survey results at:
www.landcareresearch.co.nz/bee-health



Manaaki Whenua
Landcare Research

Survey and report commissioned by
Ministry for Primary Industries

Ministry for Primary Industries
Manatu Ahu Matua

