NZ COLONY LOSS SURVEY

SUMMARY 2023

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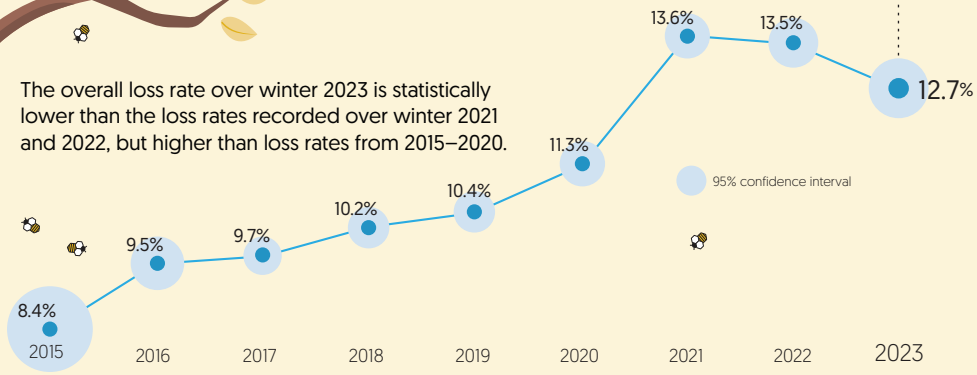
This is an online survey of beekeepers that aims to quantify winter colony losses. The survey has been conducted annually since 2015. The questionnaire is based on the international COLOSS survey and has been adapted to include topics of specific interest to New Zealand beekeepers.

Overall winter loss rates attributed to all causes, 2015–2023

The overall loss rate over winter 2023 is statistically lower than the loss rates recorded over winter 2021 and 2022, but higher than loss rates from 2015–2020.



Notably, these winter losses followed autumn losses.

AUTUMN 16.8% 2023

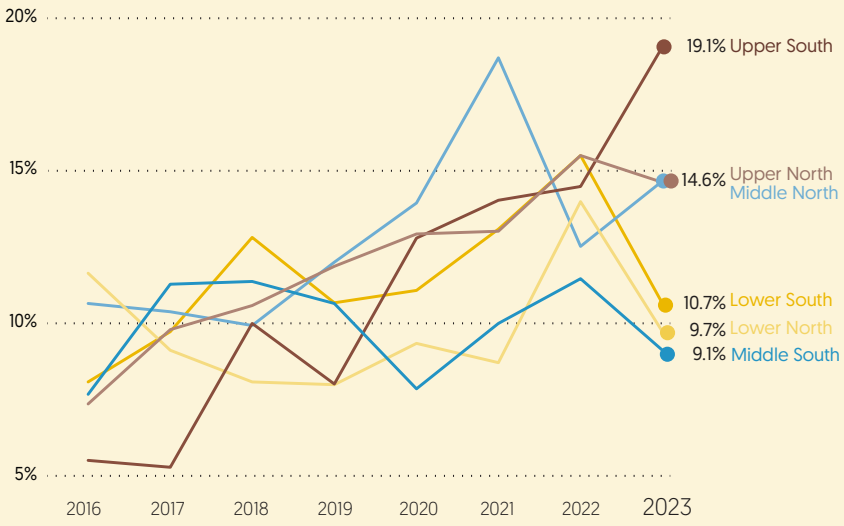
Autumn losses were recorded for the first time in 2023.

WINTER 12.7% 2023

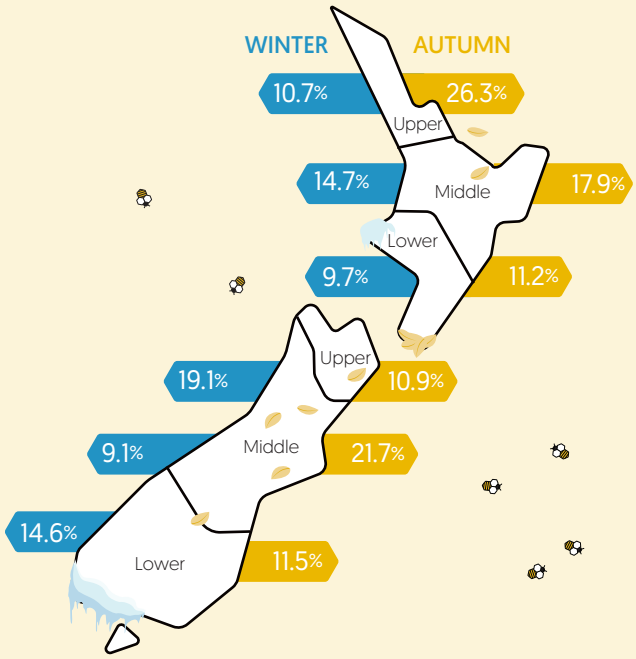
75,269 COLONIES LOST (WINTER)

Overall winter loss rates, by region, 2016–2023

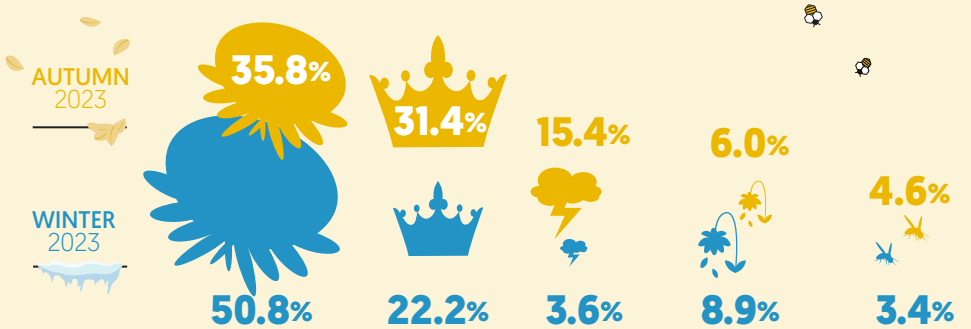
Overall winter loss rates varied more in 2023 than in previous years. Overall winter loss rates increased in the middle North Island and upper South Island and fell elsewhere.



Regional loss rates for winter and autumn 2023



Share of losses attributed to specific causes, autumn and winter 2023



Varroa was the cause of over half of all winter losses.

Queen problems and natural disasters were behind a higher share of losses in autumn than winter.

Suspected starvation losses were higher than in previous years.

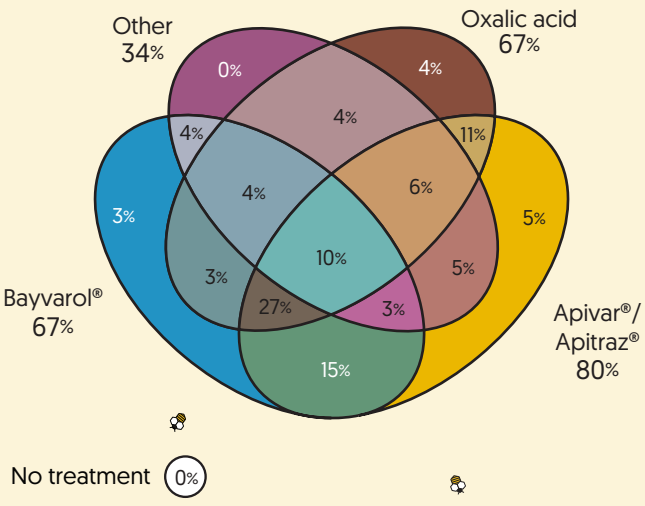
Wasps were less prominent in 2023.

Cyclone Gabrielle

The survey asked about losses to Cyclone Gabrielle. 144 survey respondents reported losing 7,659 colonies. Based on these figures, we estimate that over 21,000 colonies were lost to the storm and its aftermath.

Treatment of varroa

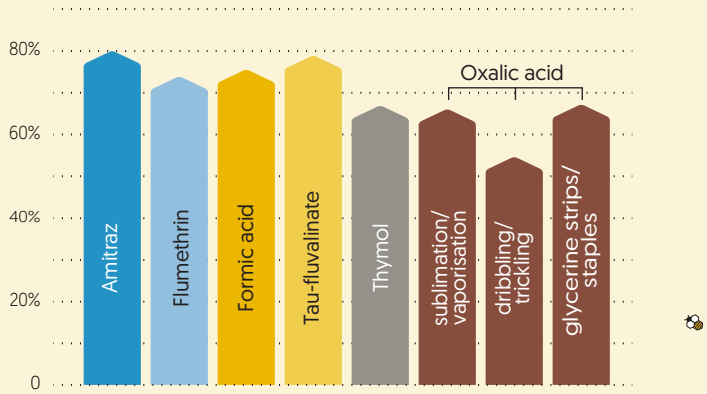
Different varroacide treatments used by beekeepers with more than 250 colonies.



No treatment 0%

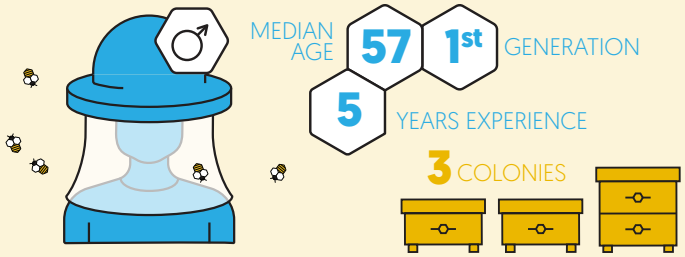
Effectiveness of varroa treatment

Across treatments, approximately 75% of beekeepers described the efficacy as being "mostly successful" or "completely successful".



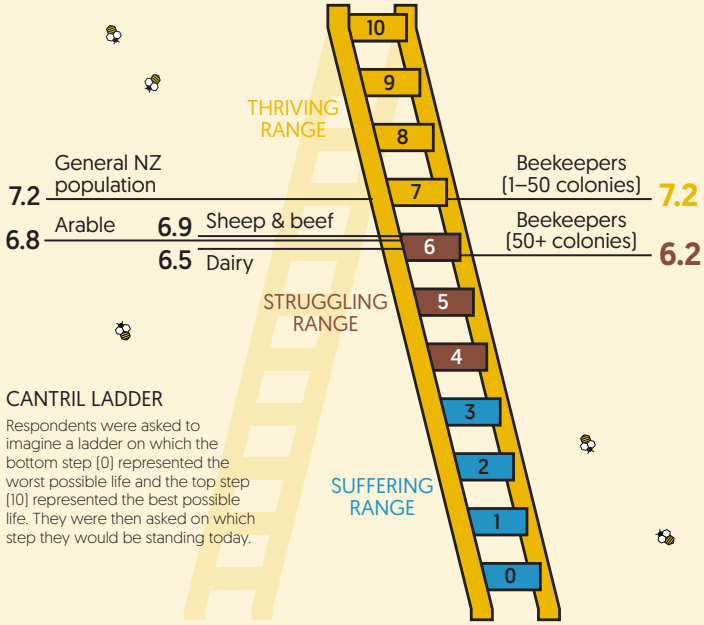
Beekeepers – demographic profile

The 'typical' NZ beekeeper is a male in his late 50's. He is a first generation beekeeper with 3 colonies and 5 years of experience.



Beekeepers – wellbeing

Hobbyist beekeepers reported well-being similar to the general NZ population. Commercial beekeepers reported wellbeing well below that of the general population as well as other primary producers.



In a 'queen cell'

Based on reports from 42.6% of beekeepers managing 35.0% of New Zealand's honeybee colonies, we estimate the overall loss rate over winter 2023 to be 12.7%. These loss overall rates are statistically lower than over-winter loss rates recorded in 2021 and 2022 but are higher than those recorded between 2015 and 2020. Over-winter loss rates were highest in the upper North Island and lowest in the upper South Island.

These winter losses followed overall autumn losses of 16.8%. Overall autumn loss rates – which were included for the first time in 2023 – were highest in the upper North Island and lowest in the upper South Island. This is the first NZ Colony Loss Survey in which autumn losses were systematically recorded, so we cannot yet report on trends in autumn losses.

Varroa was the most prominent cause of colony losses over both autumn and winter. Indeed, we estimate that 5.6% of all healthy, living colonies entering autumn 2023 were lost to varroa, and a further 6.4% were lost to varroa over winter 2023. Queen problems and suspected starvation were problematic issues in both autumn and winter, although losses attributed to wasps were down compared to previous years. Natural disasters were the underlying cause of many losses in autumn.

Commercial beekeepers treated varroa using various combinations of amitraz (Apivar® and Apitraz®), flumethrin (Bayvarol®), and oxalic acid during the 2022/23 season. Indeed, commercial beekeepers are more likely to use each of these treatments than non-commercial beekeepers.

Three-quarters of beekeepers described their treatment as "mostly successful" or "completely successful", suggesting that these treatments maintain their efficacy. That said, amitraz, flumethrin, and glycerin strips/staples were all perceived to be less successful than in the previous survey.

The 'typical' NZ beekeeper is a male in his late 50's. He is a first generation beekeeper with 3 hives and 5 years of experience.

The 2023 survey also asked about wellbeing. Results showed that hobbyist beekeepers are 'thriving' with wellbeing scores similar to those of the general NZ population. Commercial beekeepers, on the other hand, are 'struggling'. Their wellbeing is not only lower than the general population, on average, but also lower than other primary producers.

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

Manaaki Whenua
Landcare Research

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Biosecurity New Zealand
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Manatū Ahu Matua