

Summer treatment for Varroa depending on the infestation – treat if necessary

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Introduction

To keep Varroa infestation under control, it is recommended in Switzerland to adopt a control strategy involving multiple interventions throughout the year. This strategy includes biotechnical measures as well as the application of acaricide treatments. It is therefore currently recommended that, in addition to a winter treatment with oxalic acid, formic acid (FA) is applied systematically twice after the honey harvest. This can lead to unnecessary treatments when colonies are only lightly infested. In order to reduce the risk of resistance developing and the exposure of bees to acaricides, it would be advisable to limit interventions to what is necessary. Beekeepers are also showing a strong demand for integrated pest management (IPM) approaches.

Here we present a field trial carried out with beekeepers with the aim of validating the infestation thresholds at which treatment with FA is necessary, and this without any negative impact on the colonies' overwintering.

Material and methods

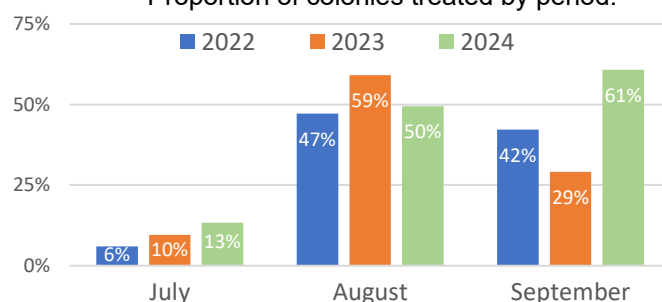
For each of the three years of the field trial, between 16 and 21 beekeepers were recruited from across Switzerland to take part in the trial with their production colonies.

Instead of carrying out the two routine FA-treatments in the summer, they were asked to count the Varroa natural mite fall during 3-5 days in July, August and September, and where the intervention thresholds were exceeded (see figure below), apply individually a long-term treatment using a FA-dispenser.

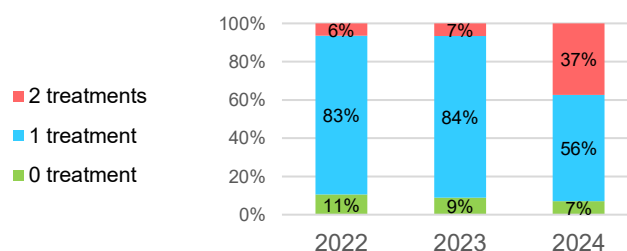
Results

Year	2022	2023	2024
# colonies in trial	183	230	301
# FA-treatments	166	220	387
Ø summer treat./colony	0.91	0.96	1.29

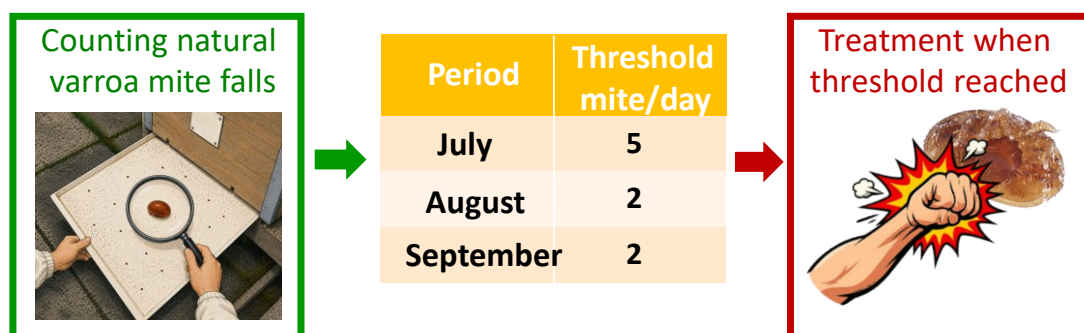
Proportion of colonies treated by period.



Number of summer Varroa treatments



Year	2022	2023	2024
Winter loss rate / this trial	4.9%	8.0%	8.9%
Winter loss rate / Switzerland (COLOSS)	15.0%	14.9%	18.9%



Summer treatment concept with three infestation assessment windows and their respective intervention thresholds

Summary

During the three-year large-scale trial, with the intervention thresholds set, it was possible to carry out on average, depending on the year, between 0.9 and 1.3 treatments per colony instead of the two routine FA treatments. Although a direct comparison with the COLOSS data on winter losses in Switzerland is not possible, the losses in our trial were rather lower.

A reduction in summer treatments by nearly half, based on individual counts of each colony, is therefore possible without increasing colony winter loss rates. This treatment strategy is intended for beekeepers who have the time to monitor and treat their colonies individually and who have experience in counting Varroa mites.

