Summary on ApiSave™ Field Trial in Bee Colonies for Nature Recombined Sciences Inc., 2023/24.

OBJECTIVE:
This study was to determine the efficacy of ApiSave™ for varroa mite and disease control and to measure the tolerance of the bees to different concentrations of ApiSave™.

STUDY DESIGN:
The trial was performed in Huatulco Mexico and commenced December 29, 2023. The study was 8 weeks long. 5 yards with a total of 150 colonies were included in the trial.

Sugar dusts containing three different doses of ApiSave™ or oxytetracycline or no additive were applied once a week for 8 weeks. 2 control yards received either only sugar or sugar+ oxytetracycline. In the 3 test yards, each received a different concentration of ApiSave™ with sugar. Varroa mites were sampled from 5 colonies in each yard and were counted at the beginning of the trial, at 4-week point and at the end of the trial (Total 3 data points, See appendix for results).

OBSERVATIONS:
After initial screening, high varroa mite infestation was observed in all the yards. In Canadian apiaries with similar levels of varroa infestation, we see evidence of viral and bacterial infection and eventual colony collapse due to parasitism. Varroa will vector disease in honeybee colonies, but little or no brood disease was observed in the Mexican colonies. Even more surprising was the productivity of these bees.

Despite a heavy mite infestation, the bees in this trial were producing honey. While one colony with an exceptionally high mite load did collapse, most of the bees in the study continued to produce honey throughout the trial period.

A trend was observed over the duration of the trial period. A slight increase in varroa infestation was observed in both control yards and slight declines in infestation in the test groups. While field testing for mite infestation is subjective, there is evidence to suggest that ApiSave™ may affect varroa mite population. All 5 yards in the study continued to produce honey for the duration of the trial period.

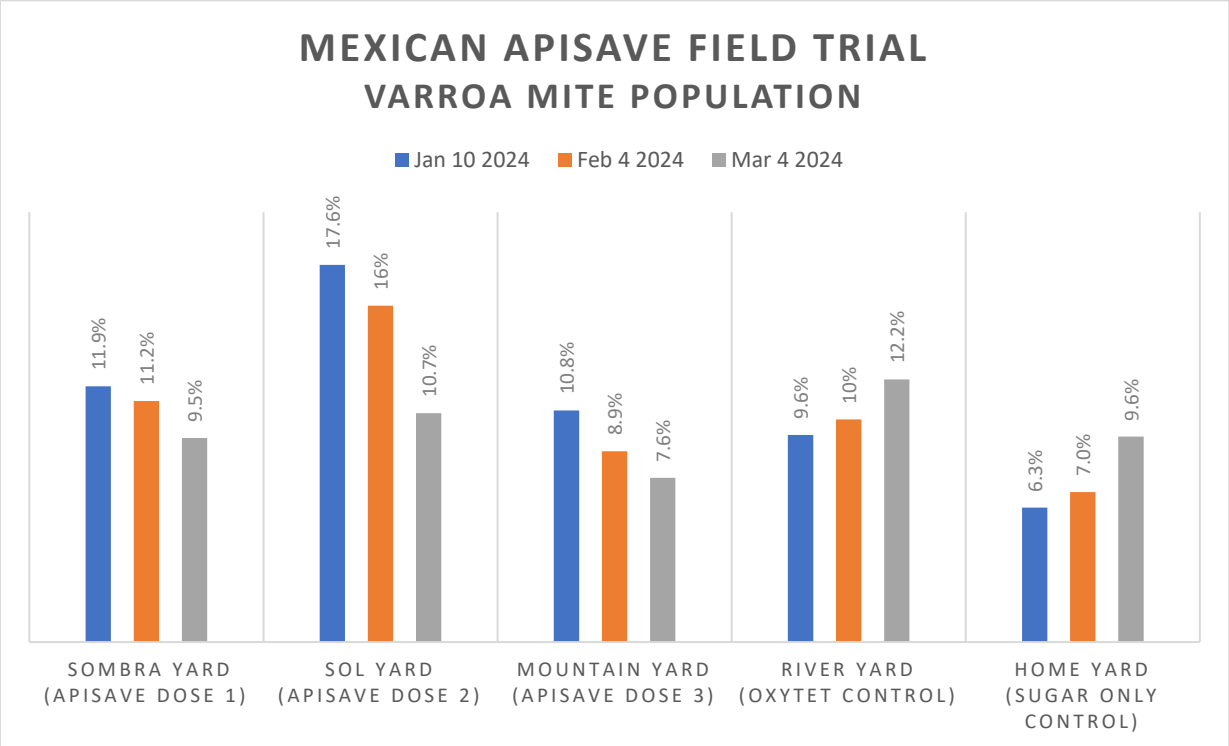
In conclusion, the colonies in the test yards experienced a decline in varroa mite infestation. The hives were productive and continued to increase in population. The yards that received the application of ApiSave™ appear to tolerate the dust well and the overall health of the test yards unaffected. I would conclude that the reduction of varroa mite pressure in the test colonies had a positive impact on colony health.

Scott Gordon
Apiary Inspector
BC Ministry of AG

APPENDIX:

STUDY RESULTS (VARROA MITE COUNT)

	Jan 10 2024	Feb 4 2024	Mar 4 2024	Relative % mite change (Jan - Mar)	Absolute % Mite change/group
Sombra Yard (ApiSave™ Dose 1)	11.9%	11.2%	9.5%	-20%	-2.4%
Sol Yard (ApiSave™ Dose 2)	17.6%	16%	10.7%	-39%	-6.9%
Mountain Yard (ApiSave™ Dose 3)	10.8%	8.9%	7.6%	-29%	-3.1%
River Yard (Oxytet Control)	9.6%	10%	12.2%	27%	2.6%
Control Yard (Sugar Only)	6.3%	7.0%	9.6%	53%	3.3%



RESULT SUMMARY:

1- There seems to be a dose response to ApiSave™ from varroa mite.

2- A relative reduction of 39% from January mite load and March mite load was observed in ApiSave™ dose 2 group, which represents a 6.9% absolute reduction in mite load from Jan to March in that group. The other two doses also showed mite level reduction but not as significant as dose 2 group.

3- The control group (sugar only group) showed an average 3.3% absolute increase in mite load.

4- The oxytetracycline control group showed an average 2.6% absolute increase in mite load.

5- Comparing the best treatment group (ApiSave™ dose 2 group) and the sugar only control group, a difference of 10.2% in mite load was observed.