

Varroa Control in *Apis mellifera*: A Commercial Scale IPM Validation

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PROJECT SUMMARY

Objectives:

The objective of this research is to implement an effective IPM Varroa control program rotating different Varroacides. Steps include:

- Miticide selection and application schedule
- Determine Varroa mite population growth and treatment efficacy
- Determine colony growth and over winter survival
- Implement an IPM Varroa program

Background and Discussion:

Varroa destructor (Anderson et al; 2000) is a chronic problem in the beekeeping industry and continues to be a threat despite the efforts by beekeepers to control it. Research studies have shown that miticides are failing, and that beekeepers are faced with the unfortunate reality of having to apply at least five treatments per year. In the search for Varroa control, many attempts have been made over the years with different miticides (natural and synthetic) to control mites and minimize the chances of developing resistance.

The objective of current research is to conduct a large-scale longitudinal study in a commercial beekeeping operation, to validate whether the results obtained from a small test can be extrapolated to this setting.

The ongoing study was set up in April 2016 in collaboration with Mr. Randy Verhoek who kindly provided 80 colonies that were divided into 4 groups: Three groups were treated with various rotations of Apivar, Apiguard and HopGuard® II in spring, summer and early fall; and a fourth group not treated in spring and summer but treated in early fall with HopGuard® II. By mid-fall all groups experienced very high colony losses due to pesticide kill and a fourth planned treatment timing in late fall with various materials on the different groups could not be applied. Unfortunately, these events are not uncommon in the bee industry.

Spring mite levels were low in all treatments and increased through summer and by early fall showed significant differences between treatment groups. Additionally, there was no difference in colony strength between treatment groups during spring early summer. But later in summer, colony loss was 10% for the previously treated groups and 26% for the previously untreated group. Fall mite levels and colony losses as of September 24, were higher for all groups and the data will be presented at the Almond Conference.

As planned, the results from this test will be validated in a large-scale setting. The goal is to implement a treatment rotation schedule and a cost-effective IPM regime. By decreasing the use of synthetic miticides and only using them when needed, the development of resistance and residue deposits in the colony will be minimized.

Project Cooperators and Personnel: Mr. Randy Verhoek, IntegriBees; Dr. Gloria DeGrandi-Hoffman, USDA-ARS, Carl Hayden Bee Research Center, Tucson, AZ.

For More Details, Visit

- Poster location 97, Exhibit A + B during the Almond Conference; or on the web (after January 2017) at Almonds.com/ResearchDatabase
- 2015 - 2016 Annual Reports CD (15-POLL9-Ahumada); or on the web (after January 2017) at Almonds.com/ResearchDatabase
- Related Project: 15-POLL6-vanEngelsdorp (15 – 16 Annual Report CD)