

Implementing an Integrated Pest Management Program for Varroa

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PROJECT SUMMARY

Objectives:

- Determine the efficacy of various treatments for Varroa control on mite levels.
- Determine the treatment effect on colony strength and behavior.
- Determine the economic impact of the treatments.
- 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 beekeepers are faced with the unfortunate reality of having to apply at least four mite treatments per year. Unfortunately, the repeated application and misuse of registered acaricides over the years has resulted in mites that are resistant to these products, and in chemical residues being found in brood combs as well as in apiculture products.

This is an important issue that needs to be taken into consideration when making management decisions for Varroa control treatments.

The main objective of this research project is to implement a cost-effective Integrated Pest Management (IPM) treatment regime by alternating natural and synthetic miticides throughout the year. This will minimize the development of resistance and residue deposits in the colony by decreasing the use of synthetic miticides. The development of an IPM program

that alternates the use of “soft and hard” chemicals throughout the year can minimize the resistance development as well as decrease the rate of colony losses due to high mite infestation levels.

The results obtained from the 14-POLL9-Ahumada study performed at Mr. Gene Brandi’s apiary allowed us to determine the efficacy of the products, thresholds, and the economic impact of the treatments. Now we have on hand all the necessary information to set up a treatment rotation study to implement an integrated pest management (IPM) program for *Varroa*. A total of 40 bee packages will be purchased and set up in Tucson, AZ and divided in to treatment and control blank groups. Treatment colonies will receive a combination of natural and synthetic treatments at different times of the year while control blank colonies will receive no treatment. Colony strength along with mite levels will be monitored monthly throughout the study.

Changes in colony size relative to colony strength at the start of the study will be used as the test statistic. Significant differences among treatments will be determined by a two-way analysis of variance using proportional changes in colony size, mite levels and sample time as factors. This study will allow us to gather all the information and necessary tools to implement an IPM *Varroa* program through a treatment rotation regime to improve the efficacy of the current miticides and minimize mite resistance development.

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

For More Details, Visit

- Poster location 11, Exhibit A + B during the Almond Conference; or on the web (after January 2016) at Almonds.com/ResearchDatabase
- 2014 - 2015 Annual Reports CD (14-POLL9-Ahumada); or on the web (after January 2016) at Almonds.com/ResearchDatabase
- Related Project: 15-POLL6-vanEngelsdorp