Using Flash Formic Acid Treatment to Control *Varroa* Mites during Periods of High Ambient Temperatures

Project Leader: Dennis vanEngelsdorp
Dept. of Entomology, Pennsylvania State University, 501 ASI Bldg., University Park, PA 16802
(814) 863-7344, dennis.vanengelsdorp@gmail.com

PROJECT SUMMARY

Objectives:

- Test effectiveness of using Mite-Away II pads (containing formic acid) as a short-term, high-temperature treatment for controlling Varroa mites.
- Assess the physical damage, if any, to Varroa mites that survived while in capped brood cells during the Mite-Away II treatment of the colony.

Discussion:

The chief purpose of this now-completed project was to test various treatments for their effectiveness in controlling Varroa mites both on adult honey bees and in bee brood cells.

One such type of treatment consisted of using MITE-AWAY II pads in two short-term, high-temperature trials.

In the first trial, 45 colonies were randomly assigned to three treatment groups—single brood chamber Mite-Away II, double brood chamber Mite-Away II, and control group-with the formic acid pads being applied in the treated groups for less than 24 hours.

In the second trial, 54 colonies were randomly assigned to four treatment groups—ApiVar strips (Amitraz standard), 24-hour Mite-Away II, 21-day Mite-Away II, and control group.

These trials proved very effective in terms of killing mites in brood cells, and doing so without having any negative effects on either the bees or brood.

However, there was an increase in the number of mites found on adult bees in treated colonies during the course of the treatment period in both trails.

For the project team, that finding raised the issue of whether those surviving mites had been damaged by the treatment in a way that prevented them from re-infesting the brood cells.

Subsequently, the project team planned to use an electron microscope to examine mites that had died in brood cells, as well as mites that had survived colony treatment, in search of signs of damage to the mites' sensory hairs. But no such damage was reported.

The project team concluded that both trials had shown formic acid (Mite Away II) applied at hot temperatures is an effective Varroa mite control product that does not cause significant damage to honey bee colonies. They recommended further work refining its effectiveness be conducted.

Project Cooperator: Jeffery Pettis, USDA/ARS Bee Research Laboratory, Beltsville, MD

For More Details, Visit

- 2009-10 Annual Report CD (08-POLL6-vanEngelsdorp); or on the web (after January 2011) at AlmondBoard.com/ResearchReports