

Mineral Salts: An Innovative Approach to Controlling *Varroa* Mites in Honey Bee Colonies

Project Leaders: Fabiana Ahumada-Segura¹ and Gordon Wardell²

¹S.A.F.E. R&D, LLC, 2000 E. Allen Rd., Tucson, AZ 85719 (520) 670-6380, ext. 134, fabita4@gmail.com

²Paramount Farming, Inc. 33141 E. Lerdo Highway, Bakersfield, CA 93308
(661) 477-0256, gordonw@paramountfarming.com

PROJECT SUMMARY

Objectives:

Study the use of systemic mineral salt-based treatments to control *Varroa* mites.

- Determine the effect on mites of a five-week field trial using both single salts and combinations of salts in corn syrup as bee food.
- Determine the effect on the honey bee colony during the field trial of using both single salts and salt combinations, with emphasis on queen egg laying activity, brood survival, the adult population, and bee behavior.

Background:

The overall purpose of this project has been to explore the use of mineral salts as an alternative means of controlling *Varroa* mites. So named because they were originally obtained by mining, such salts are ingested or absorbed naturally by living organisms.

Taking this approach to combating mites was prompted by reconsideration of the results of research performed in Europe in the 1980s and 1990s.

The first phases of this project drew on the European experience. They included examining the use of several salts and also determining salt threshold levels and feeding concentrations to be used in field trials.

Discussion:

The latest phase explored the use of magnesium gluconate and potassium citrate, singly and in combination. The results showed only a minimal effect on mites, and a lower-than-control brood survival rate for the salt treatments, especially the two-salt combination. No differences in bee behavior were detected.

The project team concluded that the mineral salts tested do not provide an effective mite treatment over time, and can have a negative effect on both the brood and colony.

Project Cooperators: Gloria DeGrandi-Hoffman, USDA/ARS, Carl Hayden Bee Research Center

For More Details, Visit

- 2009-10 Annual Report CD (09-POLL7-Ahumada/Wardell); or on the web (after January 2011) at AlmondBoard.com/ResearchReports