Beekeeping Insect Note 3B

Varroa Mite Disease

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Dated 11/94
Placed on the Web 3/95 by the Center for Integrated Pest Management

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Introduction

The Varroa mite (*Varroa jacobsoni* is considered to be the most serious pest of honey bees worldwide. First discovered in the United States in 1987, the mites were detected in North Carolina three years later. The mites are now fould throughout the state and most of the country.

Economic Importance

In North Carolina, severe losses have been encountered resulting in the loss of entire apiaries. Infested colonies will usually die if left untreated, and colony loss may occur within a few months after infestation. In addition to the economic losses incurred by beekeepers, fruit and vegetable growers who depend upon bees to pollinate their crops could suffer shortages. Many observers also feel that there has been a reduction in wild bee colonies.

Mite Biology

This reddish-brown mite is about the size of a pin head and is easily visible against a light background. Mated female mites move into brood cells with older bee larvae. Drone brood are preferred, but worker brood are also infested. Mites will feed on the larval food or puncture the larval body and feed on the bee's blood.

A "mother" mite may lay an egg every 36 hours on the side of a cell. The first egg usually hatches into a male and stays within the cell. The other eggs hatch into females and feed and grow within the cell. Next, they mate with the male and emerge from the cell when the bee emerges.

The mother mite will seek out another cell while her daughter mites may hitch a ride on an adult bee and feed for awhile before finding a new larval host. Mite populations increase slowly when starting from just a few mites, but the hitchhiking behavior of the mite can spread large numbers of mites with drifting or robbing bees causing a hive to quickly become heavily infested. When a larvae is infested by two or three mites, it will usually die. As a colony reaches a point of collapse, bees sometimes abandon the hive and carry mites to neighboring hives.

Detection

Detection is the first step toward control. Even if you think your bees are not infested, check regularly every two months. Following are the common detection methods:

1. Extract drone brood when present and visually examine larvae and cells for mites.

2. Fill a quart jar about 1/4 full of live bees. Cover. Insert a 2-second blast from an aerosol ether-based engine starter fluid. Shake jar for 20 seconds. Turn jar on side and rotate slowly and look for mites clinging to the sides of the jar. (A variation of this method is to use aerosol oil cooking spray instead of starter fluid.) If no mites are observed, rinse bees with alcohol, shake, remove the bees and examine the alcohol.

3. The best and most reliable method uses Apistan@ (fluvalinate) strips. Place a piece of waxed or white paper sprayed with aerosol oil cooking spray and covered with 8 mesh (8 squares/inch) wire on bottom board. Insert strips according to label directions. Check the paper in one hour. If there are no mites, check again the next day.

4. Request a (free) inspection from your local NCDA bee inspector.

Control

In North Carolina, control measures are recommended if any mites are detected in any hives in an apiary. The only effective treatment involves the use of Apistan@ (fluvalinate) strips. The best time to treat is in the fall when the amount of brood is lowest in the hive. However, a moderately infested hive in the spring may not survive until fall if left untreated.

Only purchase queens and package bees which are shipped with Apistan@ tabs or strips. So called resistant strains of bees may be slightly less susceptible but still require treatment.

Conclusion

Any hives infested with Varroa mites will be expected to die without treatment. Apistan@ label directions should be strictly followed. Sublethal doses of Apistan-type insecticides have been shown to modify insect mating and feeding behavior. While a beekeeper may be tempted to extend treatment longer than recommended, data indicate that this can reduce honey yield and contaminate beeswax.

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