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September 1980

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VARROA MITE: A SERIOUS THREAT TO THE BEEKEEPING INDUSTRY

This publication is to alert beekeepers about *Varroa jacobsoni*, a mite parasite on honey bees. The mite feeds on the body fluids of both adult and immature bees, killing or deforming them. It was first reported in Asia in 1904 on *Apis cerana*, the eastern honey bee. The mite is not a serious pest of the eastern honey bee species but can cause severe colony losses to European honey bees (*Apis mellifera*) which have no natural resistance to mite attack. Once confined to Asia, the mite has now spread to several countries in the world. It is not present in the U.S. If introduced, it would pose a serious threat to the beekeeping industry, because at the present time there are no effective controls. Beekeepers should take every precaution to avoid importation of honey bees from areas where the mite is present.

Description and Life Stages

Adult mites are brown and about the size of a pinhead. They can be found clinging to adult bees or within the brood cells. Immature mites are smaller, white or light brown, and are found in the brood cells.

Female mites lay eggs in brood cells just prior to cell capping. Up to 12 eggs per cell are deposited. Developing mites feed on the body fluids of immature bees in both the larval and pupal stages. When only one or two mites are present in the cell the bee will reach maturity, but frequently has deformed wings and/or legs. With four to six mites per cell, the bee usually dies in the pupal stage. Adult mites attach them-

selves to emerging adult bees and feed on body fluids. Mites are commonly found on the bee where the outer skin is thinnest and easily penetrated, such as the bases of the wings. Attachment to adult bees also provides a means of disseminating the mite.

Damage

Asian honey bee species have a long history of association with the *Varroa* mite and are less susceptible to its attack. The European honey bee, our common honey bee, is highly susceptible. Since mites feed heavily on the brood, infestations can weaken and kill colonies. Whenever European honey bees have been introduced into areas of the world where *Varroa* is prevalent, colony losses have resulted. Recently, Russia reported a loss of 55,000 colonies in one year to mite infestations.

Distribution

Until the 1960s, *Varroa* was limited to Asia and extreme eastern Russia. The exportation of infested honey bees out of these areas has resulted in the spread of the mite into several regions of the world. The mite is now found throughout Asia, in Russia, Bulgaria, Hungary, Poland, Rumania, Yugoslavia, a small area in Germany, Tunisia, and Libya in North Africa, and Brazil, Paraguay, and Argentina in South America. The spread of the *Varroa* mite to South America was due to the importation of infested queens and attendants from Japan.

Control

There is no effective control for *Varroa* although a number of acaricide compounds have been tested as chemical controls. *The only means of preventing the spread of the mite to the U.S. is to avoid the importation of any honey bee stock from countries where the mite now exists. Beekeepers should make every attempt to insure that all bees they import are from Varroa-free areas.*

The presence of a mite infestation is not always easily detected, especially in the early stages. Adult mites can be seen with the naked eye, but use of a magnifying glass will aid detection. They are found on adult bees or on larvae or pupae, usually in the region of the thorax. Immature mites are more difficult to see. Batches

of dead brood may serve as a better indicator of *Varroa* infestations.

If the presence of *Varroa* mites is suspected on any imported honey bee stock, the bees should be sent to the USDA bee disease laboratory for inspection. The address is:

Bioenvironmental Bee Laboratory
Building 476
ARC East
Beltsville, MD 20705

Place the bees in alcohol (ethyl or isopropyl) into a container with a tight-fitting lid that will not leak. If the container is breakable, be sure to surround it tightly with packing material and enclose it in a sturdy box.

Prepared by Lorna Youngs, former entomology assistant, Washington State University, Pullman, Washington.



Use pesticides with care. Read the label and follow its directions. Never smoke while using pesticides and avoid breathing the spray or dust. Wear natural rubber gloves when handling pesticides. Wash hands and face carefully with soap and water after applying. If insecticides are spilled on skin or clothing, remove contaminated clothing and wash skin thoroughly. Store pesticides in their original containers and be sure labels remain on the containers. Keep containers away from food or feed and out of reach of children or irresponsible persons.

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