Varroa “Bee” Mites

Varroa mites are external honeybee parasites that attack both the adults and the brood, with a distinct preference for drone brood. They suck the blood from both the adults and the developing brood, weakening and shortening the life span of the ones on which they feed. Emerging brood may be deformed with missing legs or wings. Untreated infestations of varroa mites that are allowed to increase will kill honeybee colonies. Losses due to these parasitic mites are often confused with causes such as winter mortality and queenlessness if the colonies are not examined for mites.

The adult female mites are reddish-brown in color, flattened, oval, and measure about 1 to 1.5 mm across. They have eight legs. They are large enough to be seen with the unaided eye on the thorax, most commonly, and on the bee's abdomen. Their flattened shape allows them to hide between the bee's abdominal segments. This mite is often confused with the bee louse, but the bee louse has only six legs, is more circular in shape, and is slightly larger. Mites develop on the bee brood. A female mite will enter the brood cell about one day before capping and be sealed in with the larva. Eggs are laid and mite feed & develop on the maturing bee larva. By the time the adult bee emerges from the cell, several of the mites will have reached adulthood, mated, and are ready to begin searching for other bees or larvae to parasitize. There is a preference for drone brood. Inspection of the drone brood in their capped cells will often indicate whether or not a colony is infested. The dark mites are easily seen on the white pupae when the comb is broken or the pupae are pulled from their cells.

Mites spread from colony to colony by drifting workers and drones within an apiary. Honey bees can also acquire these mites when robbing smaller colonies. Mites reproduce on a 10-day cycle. The female mite enters a honey bee brood cell. As soon as the cell is capped, the *Varroa* mite lays eggs on the larva which hatch into several females and typically one male. The young mites hatch in about the same time as the young bee develops and leave the cell with the host. When the young bee emerges from the cell after pupation the *Varroa* mites also leave and spread to other bees and larvae. The mite preferentially infests drone cells. The adults suck the "blood" of adult honey bees for sustenance, leaving open wounds. The compromised adult bees are more prone to infections. With the exception of some resistance in the Russian strains and Varroa sensitive hygiene (VSH) developed by the USDA, the European *Apis mellifera* bees are almost completely defenseless against these parasites (Russian honey bees are one third to one half less susceptible to mite reproduction).

The infection and subsequent parasitic disease caused by varroa mites is called *varroatosis*. Its treatment has been of limited success. First the bees were medicated with fluvalinate which had about 95% mite falls. However the last five percent became resistant to it and later, almost immune. Fluvalinate was followed by coumaphos. *Varroa* mites can be treated with commercially available miticides. Miticides must be applied carefully to minimize the contamination of honey that might be consumed by humans. Proper use of miticides also slows the development of resistance of the mites. Can also be controlled through non-chemical means. Most of these controls are intended to reduce the mite population to a manageable level, not to eliminate the mites completely.

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