

The Small Hive Beetle

A New Pest of Honey Bee Colonies



The small hive beetle, *Aethina tumida* (Order Coleoptera; Family Nitidulidae), was first discovered in Florida in June of 1998 and has now been found in 3 other states, Georgia, South Carolina, and North Carolina. **To date the beetle has not been found in Virginia**, but the movement of migratory beekeepers from Florida may have transported the beetle to other states. If you discover or suspect that any of your hives has an infestation of small hive beetles, contact a Virginia apiary inspector.



Adult Small Hive Beetle, *Aethina tumida*

The small hive beetle can be a destructive pest of honey bee colonies, causing damage to comb, stored honey and pollen. If a beetle infestation is sufficiently heavy, they may cause bees to abandon their hive. The beetles can also be a pest of stored combs, and honey (in the comb) awaiting extraction. Beetle larvae may tunnel through combs of honey, feeding and defecating, causing discoloration and fermentation of the honey.

Life History of the Beetle

Aethina tumida was previously known only from the southern regions of Africa where it has been considered a minor pest of bees. The life cycle information is known primarily from studies in South Africa. No detailed studies have yet been conducted in the different regions of the U.S. where the beetle has been found.

The small hive beetle is a member of the family Nitidulidae, most of which are scavengers or sap beetles. The adult beetle is dark brown to black and about one-half centimeter in length. The adults may live up to 6 months and can be observed almost anywhere in a hive, although they are most often found on the rear portion of the bottom board of a hive. Females beetles lay irregular masses of eggs in cracks or crevices in a hive. The eggs hatch in 2 - 3 days into white-colored larvae that will grow to 10 -11 mm in length. Larvae feed on pollen and honey, damaging combs, and require about 10 - 16 days to mature. Larvae that are ready to pupate leave the hive and burrow into soil near the hive. The pupation period may last approximately 3 - 4 weeks. Newly emerged adults seek out hives and females generally mate and begin egg laying about a week after emergence. Hive beetles may have 4 - 5 generations a year during the warmer seasons.

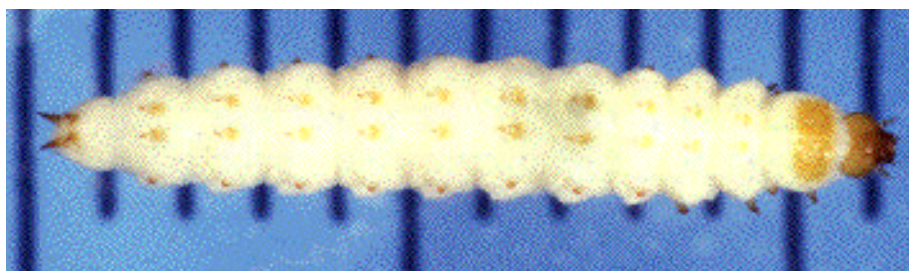
Damage to Colonies and Stored Honey

The primary damage to colonies and stored honey caused by the small hive beetle is through the feeding activity of the larvae. Hives and stored equipment with heavy infestations of beetles have been described as a mess. A summary taken from various reports of damage caused by these beetles is listed below:

- Larvae tunnel through comb with stored honey or pollen, damaging or destroying cappings and comb
- Larvae defecate in honey and the honey becomes discolored from the feces
- Activity of the larvae causes fermentation and a frothiness in the honey; the honey develops a characteristic odor of decaying oranges
- Damage and fermentation cause honey to run out of combs, creating a mess in hives or extracting rooms
- Heavy infestations cause bees to abscond; some beekeepers have reported the rapid collapse of even strong colonies

Control of Hive Beetles

The small hive beetle is considered a secondary pest in South Africa, and, as such, has not been the subject of major control efforts. The beetle is most often found in weak or failing hives and rarely affects strong hives. However, differences in the housecleaning traits of the bees found in South Africa and the U.S. may mean very different responses to the beetles. Some early reports from Florida and South Carolina suggest the beetles may be more damaging here than in Africa. Strong hives are still probably the best protection, and weak hives should be combined or requeened, but care should be taken against using infested equipment on non-infested hives. Protection of stored equipment is recommended and supers with honey should not be left standing for any length of time. PDB (paradichlorobenzene) has been used for protecting empty stored combs.



Larva of the small hive beetle, *Aethina tumida*.. Note the spines on the dorsal side of the abdomen. (The scale lines are in millimeters.)

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Questions? - contact rfell@vt.edu