

STAHLMAN BEEKEEPING NOTES

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Summer Issues - Small Hive Beetles



A slimed frame of comb and honey destroyed by small hive beetles. The bees abandoned this hive and nothing could be saved except the plastic foundation and the beekeeper was faced with trying to power wash and sanitize any foundation and wood to maybe use again. The smell was best described as something died in the hive. The honey in this hive was fermented and not even fit to feed back to the bees. I will mention that the wax scraped off the frame was put into a solar wax melter and some wax was recovered.

Wax moth and Small Hive Beetles are considered secondary pests but they both are pests of opportunity and can cause a lot of damage. Issue # 26 covered the wax moth and this issue covers the small hive beetle. In some respect, they have a close similarity:

- They enter hives as adults, lay eggs, and **the larvae of the pests does the damage.**
- Both are attracted to weak colonies.
- Both are attracted to pollen and comb that has been drawn out – especially comb containing brood or having contained brood and honey.
- Both can be observed because of their size and shape. Both adult wax moth and small hive beetles do not cause significant damage **other than lay eggs in cracks, empty cells, debris on the bottom board and any other hard to reach place where bees cannot remove them.**
- Both pests are opportunists – meaning they take advantage of a situation by entering a hive without too much trouble from guard bees.

Beekeepers are usually more aware of the presence of adult small hive beetles

than adult wax moths which hide from light. However, the SHB larvae are much smaller than wax moth larvae and often are not observed until some serious damage has been done.



What to look for: Small hive beetles are small.

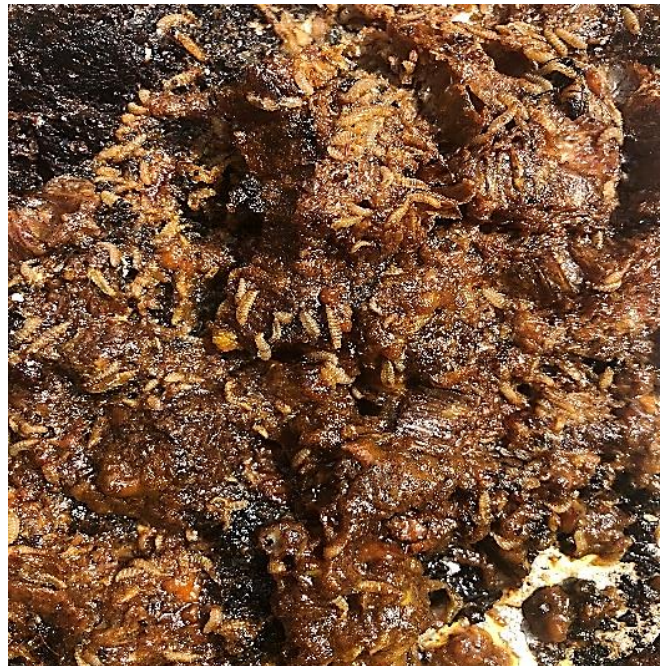
They are almost black and are difficult to pick up or get them to stay on the tip of your finger. They are very active making it difficult to crush them with your hive tool if you decide to try to kill them. Honeybees definitely herd them to areas of the hive where less activity is taking place – thus, the reason why they are found on the inner cover, top bars, or bottom board – depending on the bee population to control them. If seen [on or in] the cells of a frame, one can expect larvae to soon appear.

Regular hive inspections are important. SHB are found regularly here in North



Carolina and warm areas of the country. Beekeepers can not rely on chemical treatment for small hive beetles although CheckMite +™ strips are said to help control them. Once beetle larva appear, they begin to eat and enlarge the feeding area on a frame of drawn comb. This happens to be a frame with plastic foundation and as seen, the larvae can be found in large numbers – sometimes with three to five larvae in a single cell. Note the lack of webbing which would be present if this was wax moth damage.

This is a picture of a slimed honey frame. Not much left to do but burn or bury it.



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The spread of SHB Adult small hive beetles are able to fly and they are attracted to pollen and will spread to other nearby hives. They evidently arrived in the U.S. sometime in the mid 1990's. My references (The Hive and Honey Bee published by Dadant) says the beetles fly before or just after dusk and using olfactory cues to find weakened colonies. They pupate in soil and one female beetle can lay between 1,000 to 2,000 eggs in her lifetime.

I have found that if you see a few beetles running around on top bars, in and out of cells and the bees seem to ignore them, you have a problem. Let me say that frequent inspections need to be made and action taken immediately if they are observed. Almost every reference will point out the following:

- Weak colonies do not have enough worker bees to defend the hive against the SHB and stress leads to collapse of the hive.
- If SHB are present in a hive, they can cause queens to reduce or stop laying eggs which results in fewer new bees to replace older worker bees and open the colony to exposure of wax moth and varroa mites.
- This may result in bees abandoning the hive entirely – it really doesn't take long for this to happen as one of my bee buddies found out.
- Stored equipment containing honey will attract SHB. Any honey harvested must be extracted almost immediately rather than stored in a warm location. Wax moth eggs and small hive beetle eggs and larvae may already be on the frames stored away. Again, I am aware of a plastic tote that held approximately 10 frames of beautiful honey set aside in a basement for safe keeping being destroyed completely by SHB. The only safe way to store the honey is to extract and bottle honey or place comb in cold storage.

The best way to avoid the SHB issue is to keep colonies strong and check them often. When beetles are observed, do something about them before they overrun a hive.

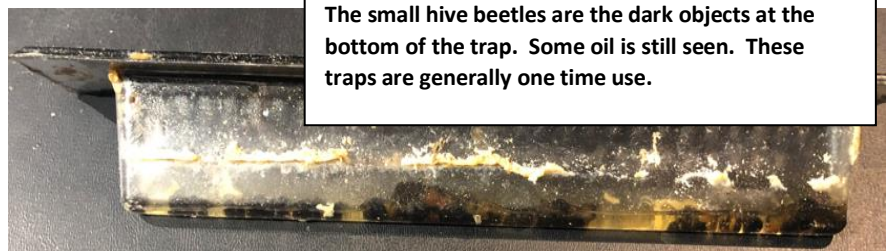
Controls:

Hive management is critical – prevention is accomplished by making sure every colony has been treated for mites, has a good laying queen with a good laying pattern, reduce the space in the hive so bees can cover all frames with bees (eliminate spaces where the SHB can hide).

If beetles are observed:

I have used two control methods and there are others that I have not used but it might be helpful for readers to check others out.

1. I have used traps placed between frames (often referred to as beetle traps). The beetles enter these traps to avoid harassing bees only to drown or be killed by mineral oil or apple cider vinegar.
2. More effective for me has been Swiffer sheets. Placed about the hive, the beetles tend to hide or try to hide and get trapped. Bees are not trapped and walk freely on the Swiffer sheet. These are not expensive and are available at local grocery stores.



The small hive beetles are the dark objects at the bottom of the trap. Some oil is still seen. These traps are generally one time use.



Swiffer sheet full of trapped SHB beetles

I have not used a ground drench to kill beetle larvae and pupae in the soil around infected hives or used beneficial nematodes also placed in the ground to kill pupating beetle larvae before they emerge as adults. I would do this if I was facing a serious infection of SHB's.

One of my bee buddies and neighboring beekeeper is mentoring a student this year that has lost a colony due to SHB. He asked me a number of questions which I could not answer because my experience with SHB is limited. He was asking in particular about what is salvageable when the beetles slime up a hive.

Without seeing the hive and equipment I could only offer this: Because the frames were new and plastic foundation was used in the hive, I could remove the plastic foundation and try to clean the wood with a high-pressure power washer. It most likely would need a good scrubbing because slime as I have been told contains components that are foul and unattractive to bees but very attractive to small hive beetles. I have tried to clean plastic foundation inserts and it would be worthwhile to power wash and apply a thin coat of beeswax on them. That is a lot of labor and effort involved to save a few dollars. My advice would be different if the frames were older and beeswax foundation had been used. In that case, I would burn the frames and comb. I live where we are allowed to burn leaves and trash as long as it is confined to a 50 gal. drum or fire pit. Hive parts/boxes, bottom boards, inner cover, and top cover could be salvaged and cleaned. As I understand it, that equipment would be marked with olfactory smells that would be attractive to adult SHB. Washing and repainting may help in its future use.

Final thought – Save all the bother and check the bees often to make sure you can save the bees and the bee equipment. One small hive beetle is one too many!