Small hive beetle

The Small Hive Beetle (SHB) is a pest insect affecting European honey bee colonies all over the world. They are usually about 5mm long and are dark brown or black in colour. Native to Africa, the small hive beetle has spread across the world at an alarming rate. The pest was first identified in the United States in 1996. It made its way into Australia in 2002 and now affects beekeepers in both Queensland and New South Wales. SHB infestations can devastate European honey bee colonies, damaging all the major components of a hive. This includes the honey stores, pollen supplies and even the comb itself. Severe cases of infestation can significantly impact colony function. In extreme cases, this may cause the bees to abandon their hive altogether.

Symptoms

Symptoms of SHB presence will vary based on the seriousness of the infestation. Beekeepers should should keep an eye out for the following:

- damaged/destroyed brood combs: SHB larvae will eat and burrow through a colony's combs, causing extensive damage if left unaddressed.
- contaminated honey: These beetles will eat and contaminate honey stores.
- Contaminated honey combs appear slimy and have a characteristic smell similar to rotten oranges.
- Hive abandonment: In extreme cases, bees will fully abandon their hive due to the infestation.

How It Spreads

The spread of SHB between colonies may be largely a result of beekeepers transporting queen and package bees to other colonies, allowing the SHB to hitchhike and infest new hives. Additionally, beeswax, equipment, fruit, and even soil can contain larvae or adult beetles.

Adult SHBs can survive up to two weeks without

Beetle larvae do not spin webs or cocoons in the bee hive but rather pupate in the soil outside the hive. PHOTO: Jeffrey W. Lotz, Florida Department of Agriculture and Consumer Services, Bugwood.org

food or water, 50 days with honeycomb, and several months with fruit. For shipping, storage and transport, this robustness poses a significant challenge in preventing further spread of the pest.

Prevention & Eradication

KEEP A ROBUST, THRIVING HIVE

A healthy hive that is fully populated can do a remarkable job of defending their comb and honey without the need for beekeeper intervention. This also holds true regarding potential infestation of SHBs. Although European honey bees cannot defend themselves as easily as their African counterparts, a healthy and active hive is always better equipped to eliminate infestation.

Unfortunately, there are no effective methods for eradication once the SHB is well established within a colony. Pesticides are the typically accepted method to help control the spread of infestation once SHB is identified. However, an integrated pest management (IPM) approach is preferable.

IPM is an environmentally-conscious approach to removing the threat of pests like the SHB. It utilises a combination of information and common sense practices to remove the typical risk factors associated with infestation.

The goal of any IPM measure is to understand the life cycle of the small hive beetle and recognise where the primary threats of infestation may occur.

Grease cakes, salt boxes and screen bottom boards (such as the ones included with a Flow Hive) will all help control this dreaded pest but all require vigilance and a systematic approach.

1. SET ACTION LEVELS OR THRESHOLDS

An action threshold represents the point where active measures must be taken to stop a potential infestation. The site of one insect is not necessarily an action point to begin control treatments. However, the presence of multiple insects, evidence of hive or comb damage or the presence of the slimy discharge may indicate the need for action.

2. CONTINUALLY MONITOR HIVES

Ongoing assessment and monitoring of hives is one of the most fundamental components of prevention. By identifying signs of infestation early, beekeepers can ensure that their hives and colonies will not be impacted by these pests.

3. USE BEST PRACTICES

Best practices include proper cleaning and storage for all equipment used in and around hives. Adopting higher quality standards across the board can prevent infestation altogether.

Detection

SCAN HIVE COMBS AND BOXES USING ADEQUATE LIGHT

Beekeepers can use a torch to inspect all areas of the hive. First, the hive roof should be removed and the interior checked for adult beetles scattering away.

Next, the upper brood chamber (for double brood colonies) as well as supers should be inspected. Boxes should be moved out of the way, left for a few minutes and then checked again to see if any beetles are present.

This inspection process should also be completed regularly to ensure infestation does not occur in the future.

USE CORRUGATED CARDBOARD TO DETECT SHBS

Beetles tend to seek out dark places to hide. One of the simplest ways for beekeepers to detect potential infestation is with a simple piece of corrugated cardboard.

Corrugated cardboard can be laid on the bottom of the hive, giving beetles and larva attractive spots to crawl and hide.

Beekeepers can check this cardboard very quickly without affecting the rest of the hive.

SOURCES

www.epa.gov/opp00001/factsheets/ipm.htm
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http://u.osu.edu/beelab/ipm-for-beekeepers/
https://rirdc.infoservices.com.au/downloads/03-050.pdf
https://secure.fera.defra.gov.uk/beebase/downloadDocument.cfm?id=17

BANNER PHOTOS ON PAGE 1

1. Small hive beetle larvae on a comb of honey PHOTO: James D. Ellis, University of Florida, Bugwood.org
2. Adult SHBs are broad, flattened beetles about 5.7 mm long, 3.2 mm wide and dark brown to nearly black in color. PHOTO: Simon Hinkley and Ken Walker, Museum Victoria
3. Small Beetles in a Hive PHOTO: Denis Anderson, CSIRO