PEST’s, SYMPTOMS, and TREATMENTS

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ANTS, MICE, SKUNKS AND “EAR WIGS”

ANTS – Grease on legs
  Cinnamon
  Diatomaceous earth
  Sprays

MICE – Entrance reducers on until warm throughout the nights where bees are active
  Strong colony

SKUNK – Raise hive off ground about 1 foot or more.

EARWIGS – Sunny spot
  Good ventilation
WAX MOTH

Moth lays her eggs, eggs hatch into larvae – eat, defecate, chew apart wood and comb and spin web. DESTROY STORED COMBS, FRAMES AND BOXES
SHB SMALL HIVE BEETLE

FIG. 1.
Adult small hive beetles are often observed in the hive with their head and antennae tucked down beneath the thorax. They are oblong in shape, around 6 mm long, with variable coloration that ranges from tan to reddish-brown, dark brown or black.
REPORTED SIGHTINGS
When large numbers of adult beetles defecate in the honey, they introduce yeasts, causing the honey to ferment and run out of the cells. In this case, the queen bee may cease laying, and the entire colony may abscond. Weak colonies are particularly vulnerable to attack, but even strong colonies can be overwhelmed.
END RESULT
DETECTION METHOD

FIG. 8. To detect SHB in the top super of a hive, place it on the lid of the hive in a sunny spot for about 10 minutes (a). The bright light will drive the adult beetles down to the bottom. When the super is lifted, adult beetles, if present, will be apparent on the inside of the lid (b).
TREATMENTS
MANY TRAPS TO CHOOSE FROM OR MAKE YOUR OWN.

• **SHB BAIT:** 
  Using one trap for each bait recipe, try a small amount of each bait in a trap, pick the one that works best for you.

• Bait #1. Mix 1/4 cup soy flour, 2 tablespoons of boric acid, and 3 tablespoons of peanut oil and 1/8 of cup of water. Mix into pie dough consistences, put just a little of this bait inside the CD/DVD trap.

• Bait #2. Mix pollen and honey into pie dough consistences, put into trap.

• Bait #3. Mix 6 tablespoons honey, 3/4 teaspoon of boric acid, and 4 tablespoons of Crisco and only enough soy flour to mix into pie dough consistences, put inside the CD/DVD trap.
microscope mites which reproduce in the trachea (airways) of the bee. A visual aid that would suspect tracheal mites would be a large number of bees walking about the outside of the hive.
WHAT THEY DO TO A BEE

- Female mites lay and attach eggs in the trachea
- Eggs mature in 2-3 weeks after hatching
- Female mites migrate to the surface of the bees

The mites affect the bee in two fashions that limit the bees ability to acquire oxygen. The mites physically obstruct the airway. The mites feed on the walls of the trachea causing scarification of the tracheal tubes.
HISTORY

• Tracheal Mites (Acarapis woodi) were first discovered in 1919 on the Isle of Wight in the English Channel and were originally believed to be the cause of Isle of Wight disease which caused great colony losses. The Federal Honey Bee Act of 1922 was passed primarily to prevent spread of the mites into the United States.

• In 1980, tracheal mites were discovered in Mexico, about 200 miles from the Southern U.S. border. USDA,APHIS, in cooperation with the Bioenvironmental Bee Lab at Beltsville, conducted a national survey for tracheal mites from 1980-82. Mite survey results were negative with samples collected from 4,400 apiaries.

• On July 3, 1984, tracheal mites were first detected in the United States from bees sampled from a commercial beekeeping operation in Weslaco, Texas. Mites spread quickly throughout the U.S. by the movement of migratory beekeepers, sale of queens, packages and nucs.
SYMPTOMS

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TREATMENTS

• Menthol crystals were registered as a pesticide for tracheal mite control in the U.S. in January, 1989. Varying

• Vegetable Shortening-Sugar Patty. A vegetable shortening-sugar patty treatment has been shown to provide good tracheal mite control. This treatment is thought to disrupt the tracheal mite life cycle by reducing the ability of the female mite to detect young bees as hosts.

• The patties are made of two parts granulated sugar and one part vegetable shortening. A baseball size patty should be flattened and placed on the top frame bars in the brood chamber. The patty can be placed on wax paper over the top frame bars, but this is optional. Patties should be placed in colonies during brood rearing periods. A fall or early spring treatment or both is recommended. A combination of menthol crystals and vegetable shortening-sugar patty treatments should give optimum mite control.
VARROA MITE
Varroa Mite

*Varroa destructor* can only reproduce in a honey bee colony. It attaches to the body of the bee and weakens the bee by sucking *hemolymph*. In this process, *RNA viruses* such as the *deformed wing virus* (DWV) spread to bees.

A significant mite infestation will lead to the death of a honey bee colony, usually in the late autumn through early spring. The *Varroa* mite is the parasite with the most pronounced economic impact on the *beekeeping* industry. It may be a contributing factor to *colony collapse disorder*. 
REPRODUCTION LIFE CYCLE VARROA MITE
Sacbrood

Black Queen Cell Virus (BQCV)

Slow Bee Paralysis Virus

Deformed Wing Virus (DWV)

Acute Bee Paralysis Virus (ABPV)

Sacbrood

Israeli Acute Paralysis Virus (IAPV)

Kashmir Bee Virus (KBV)

Acute Bee Paralysis Virus Complex

Chronic Bee Paralysis Virus (CBPV)
HOW TO TELL IF YOU NEED TO TREAT

- **Monitoring for mites**
- There are two widely used methods to assess the mite levels in your hive.

  **Corex Sheet.** This is a sheet which slides under a screened bottom board. Spray the corex sheet with a cooking oil so when the mites fall from the hive they stick to the sheet and can then be counted. Insert the sheet for 3 days and then remove it to count the mites. Once you have a total, divide it by 3 to get the average mite drop in a 24 hour period.

  **Sugar Shake.** Place a few table spoons of powdered sugar in a mason jar and gently "slosh" some bees (about ½ cup) around ensuring they are fully coated. Replace the lid with #8 hardware cloth and the sugar will dislodge the mites allowing them to fall through the screen.

- Below is a very general guide to determine if the colony should be treated. However, the prevailing thought is if you have a window of opportunity to treat your colony you should treat.

  - **Sampling Method**  
    - Spring  
    - Fall  
  
  - **Corex Sheet**  
    - 5-10 mites  
    - 50-60 mites  
  
  - **Sugar Shake**  
    - 3-4 mites  
    - 10-12 mites
TREATMENTS

- ApiVar strips
- Apiguard strips
- Api Life Var
- Mite away quick strips
- Oxalic acid (drizzle, vaporizer)
- Screened bottom boards
- Powdered Sugar dust
- Drone comb trapping

- Apistan and CheckMite still available but mites have become resistant to these.
- HopGuard is not registered for use in Indiana

- Follow the labels when using any of these treatments.

- Another treatment
  - Sprinkle powered sugar over the bees in the Hive. This knocks down some mites off the bees.
  - Time consuming and treatment once a week 4 to 6 weeks.
THE
END