

## Bee Hive Thermal Industries

### Installation Instructions

For

BBH-101 Mighty Mite Killer

Mite Killer Mode

### When to Thermally Treat

For Optimal Hive Health: Colonies should be treated according to your personal tolerance for varroa. We all prefer no mites. The following is a guide that has proven successful by product users. Following this schedule, absent the impact from mite bombs in the area, most find this adequate unless you're in a deep southern area that has no winter. We commonly find low early spring mite counts, if any using this standard.

#### Established Hives

1. Spring - at least 30 days after pollen flow begins. This provides time for colonies to begin brooding up numbers. If test results permit, waiting till nectar flow begins is preferred.
2. August or when mite populations peak in your given area
3. Fall while weather remains favorable for treatments

#### New hives

Packages and newly installed nucleus colonies need some time to get established prior to thermally treating.

1. Package installs - Feed to assist in drawing out comb. Refill immediately when empty until 75-80% is drawn out for 8 & 10 frame hives. Nucleus package installs may be treated when 3/5ths are drawn out with the 5-frame unit.
2. Nucleus colonies that are established when purchased may be treated immediately with the 5-frame unit. If placed in 8 or 10 frame hives, it is recommended that you wait until they draw out 75-80% of the new foundation.

#### Installation Video

<https://www.beehivethermalindustries.com/resources/videos/>

Note: The Ambient Temperature must be 70 degrees F. or higher before running the Mite Mode.

- 1) First slide in the mite killer & install the special closure stick.

- a) Secure the ends of the closure stick with painter's tape. Note: If you feel resistance upon entry remove and inspect for drawn comb that may have sheared off the bottom of the brood frames. Remove wipe clean and re-install.

2) Remove the honey supers

- a) Cut a "V" Notch at the back of the brood box on the top / center to provide for a place for the sensor cable to lay.
- a) An option would be to drill a small hole to pass the cable through which can be filled with wax, propolis, a wooden dowel or tape when finished.

2) Place the sensor in the top center of the center brood frame.

- a) You can attach the sensor with the supplied staple or
- b) a plastic zip tie around the top bar or
- c) by sticking the sensor in place using bee propolis.
- i) Sensor position per different arrangements of brood boxes.

(1) Single deep.

- (a) Sensor goes on top of the center frame.

(2) Double deep

- (a) Sensor goes on the top of the center frame of the bottom brood box.

(3) Single medium brood box.

- (a) Sensor goes on the top of the center frame

(4) Double medium brood box

- (a) Sensor goes on the top of the center frame of the top box

(5) Triple medium brood box

- (a) Sensor goes on the top of the second medium brood box on center of frame

(6) Single deep with a honey super

- (a) Sensor goes on the top of the center frame of the deep. Then insulation board followed by a super to weight down the insulation board

If unsure on other configurations, contact a product representative or Lynn Williams for guidance.

### Queen excluders

When queen excluders are used, they are removed and placed on top of the foam insulation board during treatments and returned when complete.

3) Replace the honey supers and inner cover if used.

a) Hive top / outer lid may be used to inhibit robbing but must be slide to the side to permit the thermal chimney effect to continue which bring fresh air into the hive from the entrance

- 4) Connect the 120-volt power to the unit.
  - a) The flashing that follows indicates software version
  - b) Once flashing lights stop, a solid LED will be displayed in Blue, Green and Red. This indicates power is on.
  - c) This will be where future integration of phone applications and other features may reside.
- 5) Press and hold the Mode button for 2 seconds a Blue Flashing light will now be shown. IF the Blue light is not flashing press and release the mode button firmly again.
  - a) This engages warm up mode
    - i) If unit fails to reach mite kill temp in 45 minutes, the controller will shut off the heater.
      - (1) See Tips and tricks for a list of possible solutions
- 6) Upon reaching Mite Kill Temp
  - a) The blue light will go out and the green light will begin flashing
  - b) Remove the closure stick & vent thru the top of the hive.
- 7) Mite kill will continue and run full cycle at the following times
  - a) 5 frame units run 45 minutes
  - b) 8 & 10 frame units will run full cycle for 2.5 hours

#### **Tips & Tricks and good information shared by product users**

**Q.** My unit timed out and never reached mite kill temp.

**A.** Possible solutions;

- i) If using wooden boxes, know that these have the lowest insulative values and heat loss is greater as a result. Product users have determined that this can be overcome by using any of the following popular methods.

- (1) Blue painters' tape can be used to seal box joints
- (2) Corrugated plastic board or thin wooden panel can be cut and inserted over screen bottoms but under Might Mite to eliminate heat loss
- (3) Use solid bottom boards

**Q.** My unit was heating at mite kill but keeps drifting back to flashing blue

**A.** This can occur during cooler weather. Product users have determined that by installing a typical entrance reducer with the 3-inch opening to provide fresh air permits thermal treatment in cooler conditions

Q. What are the required conditions for doing thermal treatments?

A. All treatments are contingent on the following three primary factors:

i) Ambient temperature

(1) As a rule, with wooden boxes, 70 degrees Fahrenheit is the minimum temp to attempt treatments.

(a) Many users have found that insulating hive exteriors allows for them to treat at lower temperatures

(b) Use solid bottom boards

(c) Plastic hives have high insulative R Values and are used successfully at lower temperatures.

ii) Bee population

(1) Bees are participants in the thermal treatment process. They fan to cool, provide oxygen nourishment and manage humidity internally. This natural behavior permits the hive interior to become a mini convection oven during treatments. Hive bodies that are 75-80% full of bees have adequate populations to spread heat internally in a balance way to be most effective during treatments

iii) Amount of drawn comb

(1) Drawn comb compared to empty frames or blank plastic foundation fills volume of space that must be heated and improves warm up time

(2) Too much empty space lengthens warm up time and can lead to time out of the controller seeking to heat to mite kill temp.

Q. When dos the closure stick need to be removed?

A. When the flashing blue light transitions to a flashing green light. **The closure stick should be removed**

i) Exceptions to this may be in cooler weather. Product users have found that using the 3 inch opening to provide for airflow to be adequate in cooler weather conditions.

ii) In these exception conditions, the controller must be monitored for “red light conditions” which indicates the hive has become too warm. Should you see a flashing red light, don’t panic, just open the reducer a little more and wait about 5 minutes and the flashing green light will return indicating the controller is heating again.

iii) Ensure the upper vent is not obstructed should a red-light condition occur.

Q. How long does treatment last?

A. The controller for the five-frame unit runs full cycle at one hour after reaching and maintaining mite kill temp. Eight and ten frame units run full cycle at 150 minutes each.

Q. Can I run mite kills at lesser times?

**A.** Some product users have found that they can. To determine this, you should test for mites using alcohol or proper sugar roll technique prior to treating and again in 10 days after treating. A follow up testing in 21 days will provide good insight into the effectiveness of thermal treatments for lesser amounts of time. These test results, along with continued monitoring will provide insight as to the degree of mite kill at varied times. Each hive is different in size and total thermal mass including various amounts of bees. Choosing to experiment with lesser times is up to the individual treating the hives. Tests have consistently proven successful at full cycle for each unit size. Mites that on feeding on bees and those running loose on comb succumb to the Mighty Mites heat and experience various levels of physical damages depending on their exposures. As a result, they die off at varying rates. Thermal treatment is designed to kill the varroa mite under capped brood. Achieving mite kill temps under capped brood takes more time compared to those outside the brood capping's.

**Q.** What is the best way to clean the heater board?

**A.** Many users have reported briefly plugging the unit in and permitting it to warm and wiping with a soft cloth or paper towels is adequate. Be sure and unplug prior to doing so.

Additional Questions?

Call your local BHTI rep. or call Lynn Williams at 803-504-9313