**McDowell Bee Keepers**

**Thermal Hive Treatment Program**

**Recommended Treatment Times for Western NC**

* Only treat if mite counts are **greater than 3%** & outside temp is +70OF
* 8- & 10-frame hives (killing mites on adult bees & in capped brood cells):
	+ Heat treat late spring (*mid-May*), late summer (*August*), & mid fall (*October*).
* 5-frame hives (Nucs w/ little to no brood; killing mites on adult bees only):
	+ Heat treat as soon as bees are strong & queen is laying (be sure & include
		- August & October treatments).

**Additional Items to be Supplied by Bee Keeper**

* Properly prepared hive (clean bottom board, sealed screen bottom board, etc.)
* Post-Treatment white board (coroplast, etc.) – available for purchase from MHB at time of rental. You will cut to size.
* Sugar shake/alcohol wash equipment
* Electric source (110V AC, drop cords or generator)
* Pocket knife
* Staple gun w/ 1/2” - 5/8” staples
* Mite counting equipment (magnifying glass, tweezers, etc.)
* Tape (duct, painters, masking, etc.)
* Regular entrance reducer w/ approximately 1/2” & 3” openings
* Cleaning items (soft cloth, paper towels, etc.)

**MMK Use Instructions and Tips**

**Pre-Treatment Hive Preparation to be done prior to MMK rental**

1. Select hive to be treated based on recent mite counts (sugar shake or alcohol wash); record data.  Do not treat hives unless they show above 3% mite counts.
2. Watch Lynn William’s Bee Hive Thermal Industries’ Instructional videos on their website (<https://www.beehivethermalindustries.com/resources/videos/>). Additional videos may be found on YouTube.
3. Set up power source— drop cord or generator. Batteries do not provide adequate power for the length of time required.
4. If solid bottom board, clear out wax & debris before inserting heat plate—requires removing all hive boxes to inspect/clean bottom board.  Reassemble hive and give bees 2 days to clean up any brood juices and/or spilled honey before starting heat treatment. Or replace dirty bottom board with a clean bottom board.
5. If screened bottom board, insert & tape edges of removable insert board—or cover and seal screen bottom to prevent inflow of outside air. Or replace with solid bottom board or properly sealed screened bottom board.

**Day of MMK Treatment**

1. Have separate white board on hand for each hive to be treated (for 3-, 6-, & 10-day mite count following heat treatment).  Coroplast (corrugated plastic sheet) works best.
2. If present, remove queen excluder from hive—can be replaced in hive after heat treatment is completed.
3. Cut small notch in the rear center top edge of lowermost brood box (for exit of temperature sensor wire—too small for bees to enter).
4. Place remote temperature sensor on top of the centermost frame of lowermost brood box.  Sensor must be attached & centered to top of the center frame (or frame closest to center of box) so that it cannot move during treatment—it must not be in the space between frames.  Attach by sliding the metal sensor beneath a previously partially-inserted 1/2-5/8” staple. Partially embed staple on wooden frame before gently inserting temperature sensor under it—avoid stapling sensor directly to frame with staple gun as this can damage the sensor and/or the cord.
5. The remote temperature sensor is supplied with an anti-moisture protective cap covering the quick-connector end.  This black plastic cap must be kept in-place when the temperature sensor is not connected to the controller.  Do not lose or misplace this protective cap—replace on the quick-connector after treatment.
6. If treating two brood boxes on a single hive (5-, 8-, or 10-frame deeps or mediums), the outside temperatures must be 800F or above and all the joints between boxes must be taped to prevent air leaks.  Treating more than two brood boxes on a single hive is not recommended (inability to reach continuous mite-kill temperatures due to excessive volume & air leaks).  However, treating three 8-frame medium brood boxes reportedly works at +800F outside temperature & taped joints (or use a well-insulated hive).
7. Place the provided Styrofoam insulation board atop the uppermost brood box being treated—if there is only one brood box, then the insulation board goes directly above the remote temperature sensor.
8. Place any honey supers previously on the hive (or at least one full-comb, full-frame super) on top of the insulation board (for weight to make tight seal and to give room for bees that pass thru the hole in insulation board during treatment).  Place inner cover & top cover on uppermost box, leaving ventilation hole open in center of inner cover.  Add brick or large rock on top cover for enough weight to ensure tight seal of insulation board (no air leaks along contacts with supers above and below).
9. Connect remote temperature sensor wire to heater controller unit. Cautions—do not misplace the protective quick-connector cap and be careful not to damage the cord when removing the protective cap from the quick-connector.
10. Do not attach the electric controller to the heater plate.  During heat treatment, lay the electric controller on the hive stand, on the ground, or let it hang from the cords.  This set up works for hives with or without landing boards.
11. Insert heater plate (white side up) thru bottom hive entrance.
12. Install the provided special entrance reducer and tape into place so bees cannot move it during treatment (yes, they will).
13. To start heat treatment, plug electric controller into 110/120 v power source (drop cord or generator).
14. Carefully follow Lynn Williams written instructions that come with the MMK.
15. Once green flashing light replaces blue flashing light (approx. 3-30 minutes after plugging in controller—depends on ambient temperature), remove special entrance reducer and let bees come & go freely thru bottom hive entrance.  At outside (ambient) temperatures less than 800 F, insert a regular entrance reducer set at larger (approximately 3”) opening to prevent excessive cool outside air from blowing into hive (to prevent loss of internal mite-kill temp).  If mite-kill temperature fails to continue (green-flashing light goes back to blue-flashing light), try setting entrance reducer to the smaller (approximately 1/2”) opening.
16. After treatment ends, carefully remove heater plate, let cool & count mites (record & submit data). Caution—even gentle air currents (such as bees’ wings) can blow dead mites off the heater plate before you can count them.  Carry cooled heater plate in the plastic bag provided to prevent dead mites being blown away.

**After MMK Treatment**

1. Carefully clean heater plate (do not scratch white surface—do not use hive tool! —best to reheat & wipe clean with soft cloth). To reheat plate for cleaning, attach remote temperature sensor to controller & plug controller into electric for a few minutes. The heater white plate will become discolored (yellow) after repeated use over time—this is normal and expected—these stains will not clean off. **Heater plate must be cleaned of all insects, debris, wax, & honey** before returning to Bee Club.
2. Insert coroplast white board & leave in place for 10 days (to collect dead mites cleaned out of capped brood cells).
3. Counts mites on white board at 3, 6, & 10 days after heat treatment; record & submit data.
4. Once cleaned, coroplast white boards can be reused for future heat treatments.
5. Do not disassemble the controller or heater plate.  If maintenance is required, return unit to the McDowell Bee Keeper Thermal Hive Treatment Program Chairman.
6. Be sure and return all parts and equipment to Program Chairman—be careful not to lose or misplace any parts or instructions.

NOTE: All MMK equipment must be properly cleaned and returned on time and in good working condition, or else deposit forfeiture, late fees, and/or damage fees may apply.

McDowell Bee Keepers Thermal Hive Treatment Program Chairman:

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