

Insects and Diseases That Commonly Affect Honeybees in North Carolina

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IPM

What is IPM (Integrated Pest Management)?

IPM is an effective approach to pest management that relies on a combination of common sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information in combination with available pest control methods is used to manage pest damage by the most economical means and with the LEAST possible hazard to people, property and the environment.

So what does this mean?

Monitor your bees, know your pest levels, and only treat when necessary with approved treatment. How IPM works:

- Threshold: set threshold at an appropriate level.
- Monitor: know your pest levels – use sticky board or sugar roll tests.
- Prevention: examples include VSH bees, Russian bees, or swarm controls.
- Control: treat with appropriate treatment – READ YOUR PESTICIDE LABEL.

Three Types of Pests: Insects, Diseases, & Other

INSECTS

- Varroa mites (varroa destructor): This is the main problem with the honeybee health. These mites reproduce in the capped brood; thus many treatments require a minimum time of 21 days. Mite population will trend just a little later than the bee population, meaning mite populations will likely peak in late summer just after peak bee population. If your “strong hive” dies out in late summer or fall, it was likely due to mites. The mites prefer to reproduce in drone brood. If you can see mites on your bees then you probably have a mite infestation. Even if you are “non-treatment” and don’t plan on treating, monitoring mite populations is important so that when your bees die you will know why.
 - Monitor: pulling capped drone brood; sugar roll test; sticky board test; alcohol wash.
 - Treatment:
 - Non-chemical: hygienic bees; break brood cycle; screen bottom board; drone trapping. In spring, it is important that you remove drone frame before they emerge.
 - Chemical: including but not limited to powder sugar (not effective), formic acid (Mite-Away II), thymol (ApiLifeVar) and amitra (Apiguard) - fluvalinate (Apistan) and coumaphos (Checkmite+) are no longer recommended. It is important to rotate chemicals as mites build up resistance quickly. READ YOUR LABEL.
- Small Hive Beetle (SHB): Small, black beetle about the size of a BB. SHB will hide in cracks and crevices inside the hive, in comb, and will often be on top of the inner cover. A small number of SHB is okay, but when numbers get high, they cause severe damage. The SHB larvae tunnel through comb, eating honey, pollen, wax, and larvae, excreting a substance which will cause honey to ferment and ooze out. When it is this bad, bees often leave the hive. For severe infestation, comb may have to be replaced.
 - Monitor: take action at first sight of them; use chemical if needed for high number.
 - Treatment:
 - Non-chemical: keep strong, healthy colony; smash beetles as you see them; place hive in full sun.
 - Semi-chemical: beetle traps like Beetle Barn, AJ’s, Beetle Blaster.
 - Chemical: Checkmite, Guard Star.
- Tracheal mites: Not visible with the naked eye. The only way to get a positive ID is dissecting an adult bee and examining its trachea under magnification. Not a serious problem anymore because miticides used in varroa treatment kill tracheal mites as well.
 - Monitor: symptoms include weakened bees, stumbling about in front of the hive on the ground or trying to fly off of grass blades unsuccessfully. K-wing symptoms.
 - Treatment: menthol, grease patties, Apiguard, formic acid. Again, treatment for tracheal mites is not often recommended anymore.

DISEASES

- American Foulbrood (AFB): AFB is the absolute worst thing that your bees can get. It is a bacterial disease that attacks the larvae and pupae (brood). It is EXTREMELY contagious to bees and if left unchecked, it will kill your colony or maybe even

worse, kill your entire apiary. This disease is no joke and can be spread by spores in honey, so feeding honey from any unknown source (basically, any honey other than yours) is never recommended. Also, it can spread and/or be introduced into your operation by using used equipment which is never a good idea.

- Monitor:
 - Infected larvae turn from a nice milky-white color to a tan or dark brown color and die after they are capped.
 - Cappings of infected pupae (capped brood) appear sunken in and often times have holes in the cappings.
 - Spotty brood pattern.
 - Dead larvae forms scales in bottom of cells.
 - If you see sign of AFB, do the toothpick test – poke capped brood with a toothpick. Stir it around and if it is “ropey” or pulls out stringy, AFB is probably present.
 - Also, if it stinks and smells *foul*.
- Treatment:
 - Can’t be treated, only prevented with Terramycin.
 - If found in high levels, burn the hive!
- Prevention:
 - Hygienic bees.
 - Don’t feed honey or buy/use old or used equipment.
- European Foulbrood (EFB): Disease of larvae. Unlike AFB, larvae often die before they are capped and will not string out with the toothpick test.
 - Monitor:
 - Smells bad.
 - Spotty brood.
 - Infected larvae are twisted.
 - Brown or tan color.
 - Treatment: break the brood cycle or re-queen.
- Nosema (Nosema Apis and Nosema Cerane): Nosema Apis is no longer a real problem. Recommended treatment was Fumagillin B. Nosema Cerane is caused by spores that can survive for many years under many conditions. This disease affects adult bees and depopulation occurs, which will reduce honey production. No longer recommended to treat with Fumagillin B.
 - Treatment / Prevention: rotate out comb every 3 years or less.
- Other diseases you may want to look at but are not common: Chalkbrood & Sacbrood.

OTHER PESTS

- Bears: If you put bees in the mountains or down in eastern NC, you will need a bear fence.
- Skunks & Raccoons: eat brood; it will look like plugs of chewed tobacco on the ground.
 - Treatment:
 - Catch & relocate animal.
 - Nails in board at the hive entrance; jagged edge of #8 hardware mesh.
- Wax Moths: secondary opportunistic pest that will not kill your bees. They will weaken colonies and may speed up the decline, but a strong colony will keep them in check. They are attracted to pollen.
 - Prevention: protect unused pulled comb with Paramoth.
 - Treatment: if you get an infestation, cut out wax, clean up equipment and re-use.
- Roaches & Ants: not a serious problem. Often bees will keep them run up to the top of the inner cover.
 - Prevention: ground cinnamon can help keep ants away.
- Mice: may make homes inside of your colony in late fall or winter. They will typically eat away a corner of the brood frames. If this happens, replace wax in the spring and move on.
 - Prevention: a mouse guard plate at the entrance in fall time.