

Beginning Beekeeping

Honeybee Pests and Control Part 2

Northwest Arkansas
Beekeepers Association
www.nwabeekeepers.com

Honeybee Pests – Wax Moths

- Greater Wax Moth – *Galleria mellonella*
 - Found in weak hives and stored combs
 - Can rapidly destroy drawn combs
 - Larvae can be confused with small hive beetle larvae
 - SHB larvae are about an inch long
 - Wax moth larvae are about two inches long, very obvious

Honeybee Pests – Wax Moths

- Greater Wax Moth larvae
 - Tunnels through comb
 - Eat honey and wax
 - Spins webbing on the comb and frame
 - Leaves frass
 - Chews up wood
 - Highly destructive

Honeybee Pests – Wax Moths

- Treatments:
 - Stored combs:
 - Paradichlorobenzene (Para Moth Crystals)
 - Use at least 3 ounces per 5 hive bodies. Stack bodies, place crystals on top, and cover
 - Replace as they evaporate
 - Air out for two or three days before you put the bodies back on the hives
 - DO NOT use inside a hive with a live colony
 - DO NOT use naphtha mothballs or crystals. Naphtha is highly toxic to bees

Honeybee Pests – Wax Moths

- Treatments

- Stored combs

- Glacial acetic acid 80%

- DO NOT use inside a hive with a live colony

- Will corrode metal parts, e.g., wire, nails, frame rests

- Freeze the combs

- For at least 72 hours

- Most effective treatment

Honeybee Pests – Wax Moths

- On live colonies
 - Strong hive is the best defense

Honeybee Pests – Minor pests

- Bee Louse
 - Wingless fly
 - Steals food from worker's mouths
 - Not parasitic on bees
 - Most varroa mite treatments effective

Honeybee Pests – Minor pests

- **Zombie fly**
 - Lays egg in bee
 - Larvae feeds on the bee from the inside while it is alive
 - Not common

Honeybee Pests – Minor pests

- Ants
 - Attracted to syrup and honey
 - Can place hive stand legs in oil
 - Cinnamon around the hive may help
 - Nuisance

Honeybee Pests – Minor pests

- Spiders and other insects
 - Nuisance
 - Strong hive will drive them away
 - Spiders may be attracted to build nests around hive if high vegetation is available
 - Destroy the web and kill the spider

Honeybee Pests – Minor pests

- Mice
 - Will try to enter the hive during winter to find a warm place
 - Mouse guards for hive entrances available
 - Bees will sting a mouse to death and then propolize it, creating a mouse mummy

Honeybee Pests – Minor pests

- Skunks and racoons
 - Attracted to hives for the bees as a protein source
 - Will eat the bees at the hive entrance
 - Hive stands expose their soft underbelly to the bees
 - You can also place tack strips in front of hives
 - If you have chickens, they may leave your hives alone. Everything loves chicken

Honeybee Pests – Minor pests

- Bears
 - Bears are attracted to honey and bees as a protein source
 - They can destroy hives in a moment
 - Electric fence around apiary may be the best/only defense

Integrated Pest Management (IPM)

- Approach to pest control sensitive to the environment and to the economic of each pest situation
- Not necessarily the same as organic pest control
 - Organic solutions can be part of an IPM approach
- You have to manage pests because eradication is rarely possible

Integrated Pest Management (IPM)

- Integrates all tools for the most effective and least intrusive solution
 - Know the life cycle of the pest and treatment tactics
 - Cultural and mechanical controls
 - Prevention and strong hives
 - Good beekeeping practices
 - Screened bottom boards
 - Mechanical traps

Integrated Pest Management (IPM)

- Genetic controls

- Hygienic breeds, VSH, Russian, Buckfast

- Chemical controls

- Start highly targeted and less toxic chemicals
- Move up the scale as needed

Integrated Pest Management (IPM)

- The key is to sample pest populations
 - Does the hive have a pest problem?
 - How many pests does it have?
 - How many pests can the colony handle?
- What is the most effective method to manage the pest problem?

Integrated Pest Management (IPM)

- How many pests a colony can handle is influenced by:
 - Colony population
 - Colony health
 - Time of year
 - Weather
 - Fecundity of the queen
 - Genetics

Honeybee Diseases – American foulbrood

- American foulbrood – *Paenibacillus larvae*
 - Caused by bacterial spore
 - Highly resistant and difficult to kill
 - Remains on combs and woodenware
 - Spores can remain active up to 69 years
 - Bee larvae ingest spores in contaminated food
 - Larvae dies **after** the cell is capped
 - Extremely lethal and contagious
 - Only dangerous to honeybees
 - Spores are sometimes found in store bought honey

Honeybee Diseases – American foulbrood

- American foulbrood Detection
 - Sunken, perforated caps
 - Sulphurous decay odor
 - Ropiness test (larvae pulled out with toothpick are stringy goo)
 - Dead larvae form a tough scale, difficult to remove
 - Dying colonies are robbed out by other colonies

Honeybee Diseases – American foulbrood

- American foulbrood Treatment
 - State apiary inspector should be notified and consulted
 - Antibiotics do not cure American foulbrood
 - Destruction of infected hives (bees and equipment) by burning is mandatory
 - Apiary is quarantined
 - Other colonies in apiary are treated with antibiotic

Honeybee Diseases – European foulbrood

- European foulbrood – *Melissococcus plutonius*
 - Transmitted by larvae consuming spores in contaminated food
 - Larvae die **before** cell is capped
 - Bacteria does not form long-lived spores
 - A colony can recover from a mild infection

Honeybee Diseases – European foulbrood

- European foulbrood Detection
 - Spotty brood pattern (this may also have other causes)
 - Discolored, melting larvae
 - Larvae die before they are capped
 - Light-colored, rubbery scale
 - No ropiness

Honeybee Diseases – European foulbrood

- European foulbrood Treatment
 - State apiary inspector should be notified and consulted
 - Terramycin or Tylan (antibiotics)
 - Treatment must be completed 6 weeks prior to adding honey supers
 - Requeen hive or cage queen for 10 days to break brood cycle
 - Requeen with hygienic stock

Honeybee Diseases – Chalkbrood

- Chalkbrood – *Ascosphaera apis*
 - Fungal infection
 - Transmitted by contact or ingestion
 - When infected larvae die, fungus invades entire host
 - Forms spore bodies
 - Larvae becomes a chalky mummy

Honeybee Diseases – Chalkbrood

- Chalkbrood Detection
 - Visual inspection of chalky larval mummies

Honeybee Diseases – Chalkbrood

- Chalkbrood treatment
 - Elevate hive
 - Ventilate hive

Honeybee Diseases – Nosema

- Nosema – *Nosema apis* or *Nosema cerana*
 - Microscopic protozoa
 - Microbe attacks cells in the wall of bee's stomach
 - Will eventually destroy stomach lining
 - Bee is increasingly unable to digest food
 - Bees weaken and hind gut fills with feces
 - Severe dysentery symptoms show up around hive and entrance
 - Housecleaning activities cause other bees to ingest spores

Honeybee Diseases – Nosema

- **Nosema Detection**
 - Brown spots and streaks on hive and around hive entrance

Honeybee Diseases – Nosema

- Nosema Treatment
 - Fumadil-B, Fumaglin-B, Nozevit
 - Mixed into syrup
 - Used in late fall and early spring feedings of overwintered hives
 - DO NOT use during honey flow

Honeybee Diseases – Viruses

- Sacbrood virus
- Deformed Wing Virus (affects immune system)
- Israeli Acute Paralysis Virus
- Acute Bee Paralysis (ABP)
- Kashmir Bee Virus (KBV)
- More than 30 different viruses
 - No medical cure
 - Spread by varroa mites
 - Control of varroa mites helps to control viruses

Biosecurity

- Simple procedures can reduce exposure of bees to disease and pests
- Humans are the major contributor in transmitting diseases from one place to another
- Biosecurity are measures that are taken to reduce or eliminate the spread or introduction of harmful organisms to human, animal, and plant life

Biosecurity

- Protozoa, bacteria, and viruses can be transmitted on
 - Clothing
 - Tools
 - Woodenware
 - Other bees
 - In food
 - In water
 - In other words, anything that a bee can come into contact with

Biosecurity

- What to do to reduce increase biosecurity?
 - Control viruses by controlling mites
 - Clean equipment regularly
 - Wash your beesuit before visiting another apiary and after coming back
 - Know your nearby beekeepers and how they operate
 - Use entrance reducers to control robbing and drifting between hives

Biosecurity

- Consider bee swarms to be a potential source of problems that may contaminate your bee hives
 - You don't know the environment they came from
- Use caution in purchasing used equipment
 - You are buying someone else's problems
- Have some artificial watering holes, use chlorine to disinfect the dishes on a regular basis
- Have well ventilated and sunny spots for hive
- Have sufficient food sources nearby for your hives

Wrap up

- Most people don't know much about bees
- Educate them – bees are vital to our ecosystem and food supply
- Feral bee populations have declined dramatically and created a genetic bottleneck
- Bees will not go extinct
- Breeding disease and pest resistant bees will allow swarms to repopulate the wild

Wrap up

- Consider membership in the Northwest Arkansas Beekeepers Association
- Meet once per month on the second Monday of the month at the Extension Center starting in March and ending in November (when we have a potluck dinner)
- Have speakers at monthly meetings, very educational. This is how you expand your knowledge of bees
- Find a mentor
- Have an annual training class
- Have a Field Day either in May or June in lieu of monthly meeting
- Have an apprenticeship program for young beekeepers
- Dues are \$15 for single memberships and \$20 for family memberships
- Payment of dues allows the use of the Club's honey extractor

Wrap up - Credits

- Zawislak, Jon, Beginning Beekeeping, Powerpoint presentation
- Bakker, Winfridus, Biosecurity in Beekeeping, Powerpoint presentation
- Bakker, Winfridus, Varroa Mite and its Control, Powerpoint presentation
- University of Arkansas, Division of Agriculture, Cooperative Extension Service, many publications