HONEYBEE PESTS AND DISEASES

FACTS:

- Honeybees can no longer fend for themselves.
  - The days of "set and forget" like when Grandpa kept bees are over.
  - Many pests and diseases plague a colonies of honeybees year around.
  - Many of these pests were introduced by… HUMANS!
    - Thanks to:
      - global transportation of bees, products, and produce.
      - the shipping of bees all over the country for pollination.
- A "wild" colony of bees can only survive about 2 years on it's own.

CHANCES ARE:

- Bees that you see out foraging are either your bees, or someone else's.
- Chances are slim that it is a colony living in the wild
  - Unless it was a swarm that got away from you or someone else, and then, it's days are numbered.

BOTTOM LINE:

Beekeepers MUST attend to the needs of their bees in an effort to ensure survival of a colony of bees.

HONEYBEE DISEASES:

- Honeybee diseases include:
  - Viruses
  - Bacteria

HONEYBEE PESTS

- Honeybee pests include:
  - Protozoans
  - Insects
  - Mammals

CAUTIONARY STATEMENT:

- When treating for any pests or diseases, a few warnings:
  - Use only *approved* treatments!
  - Never use anything inside the hive that could affect the honey.
  - *Always* follow manufacturers directions:
    - Don't follow the belief that if a little is good, even more is better.
  - Understand that some of these treatments are hazardous to not only the bees health, but to the beekeeper as well.
- Consumers view honey as a healthy, nutritious, and safe food product.
  - ***Let's strive to keep that understanding and not jeopardize it in any way!***

FOULBROOD DISEASES

American Foulbood

- Highly contagious bacterial infection.
- Affects brood only.
- Characterized by foul smell (rotting meat)
- Can kill a colony if bad enough.
- Most colonies have a bit of an infection, but sometimes it can get out of hand and cause problems.

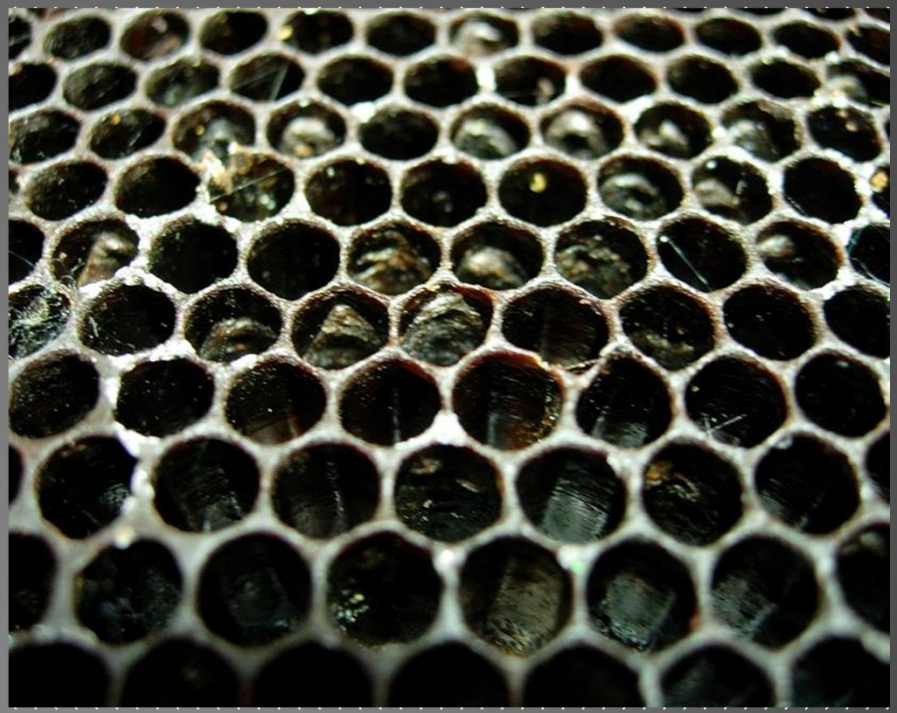
Ropiness Test

FOULBROOD DISEASES

American Foulbrood Treatment

- No cure for disease.
  - You only treat the symptoms.
- Treatment to cure the disease:
  - Dig a pit, throw hive in, and set fire.
    - ONLY treatment for American Foulbrood in some states.
- Terramycin:
  - Some resistance is being found.
- Tylan:
  - Some belief that it will cure disease due to long half life of chemical.

Foulbrood Scale



SIGNS OF AFB

- Foul odor of rotting meat.
- Larval capping's that have holes in them, and sunken in.
- Positive ropiness test.

FOULBROOD DISEASES

European Foulbrood

- Less deadly than American Foulbrood.
- Often overlooked in a colony.
- Often considered a "stress disease".
- Often clear up on their own, or can be treated with Terramycin.

Terramycin

TERRAMYCIN TREATMENT FOR AFB AND EFB

- Use same method for both AFB and EFB
- Mix one package of terramycin with two pounds of powdered sugar.
- You can add cinnamon to the mixture to control growth of molds.
- Dust the ends of the top bars with 1 oz (about 2 tablespoons) of the mixture.
- Apply 3 times at 5-7 day intervals.
- AVOID:
  - Adding to grease or "extender" patties
  - Giving in syrup.

FUNGAL DISEASE

- Chalkbrood:
  - Characterized by mummified larvae that looks like pieces of chalk.
  - Mummies often found in front of hive or on bottom board.
  - Often seen during damp, cool conditions, especially in early spring.
  - Treatment:
    - Usually clears on its own.
    - Add a few drops of chlorine bleach to sugar syrup and feed.

VIRAL DISEASES

- Most are pretty rare and don't cause problems unless combined with other diseases. No treatments available.
  - Chronic Paralysis Virus:
    - Characterized by trembling wings and body. Often seem crawling on the ground and grass.
  - Acute Bee Paralysis:
    - Sometimes plays a role in sudden collapse of hives.
  - Israeli Acute Paralysis Virus:
    - Thought to be an agent of Colony Collapse Disorder
  - Sacbrood Virus:
    - Forms sac around pupae. Often overlooked.
  - Deformed Wing Virus:
    - Causes deformation of wings of bees. Often associated with *Varroa destructor*.

PROTOZOANS

Nosema apis

- Characterized by colonies exhibiting dysentery.
- Bees defecate both inside and outside the hive.
- Treat with Fumigilin in the fall.
  - Treatment is a bit costly: $10.00/hive
- Can kill colony if it is bad enough.

Nosema Streaking

PROTOZOANS

Nosema ceranae

- A bit of a mystery disease in honeybees.
- Thought to be a contributing factor to colony collapse disorder when bees have Acute Israeli Paralysis Virus.
- Possibly treat with fumagilin???

Treatment for Nosema

DYSENTERY

- Similar symptoms as Nosema
  - Bees defecate outside hive, not inside hive.
- Often seen in early spring.
- Thought to be caused by poor quality honey.
- Treatment:
  - Feed bees with 1:1 sugar syrup.

COLONY COLLAPSE DISORDER

- Appeared in 2006.
- Colonies of bees left the hive.
  - Few live bees left behind.
  - No dead bees found inside the hive.
  - HUGE losses for some beekeepers.
- A lot of research has been done, but no true conclusions have been drawn yet.
- Recent research indicates that it is a combination of Acute Israeli Paralysis Virus and *Nosema ceranae*.
- No real treatment, but it is thought if Nosema ceranea is kept under control, then there is a lower risk of CCD.

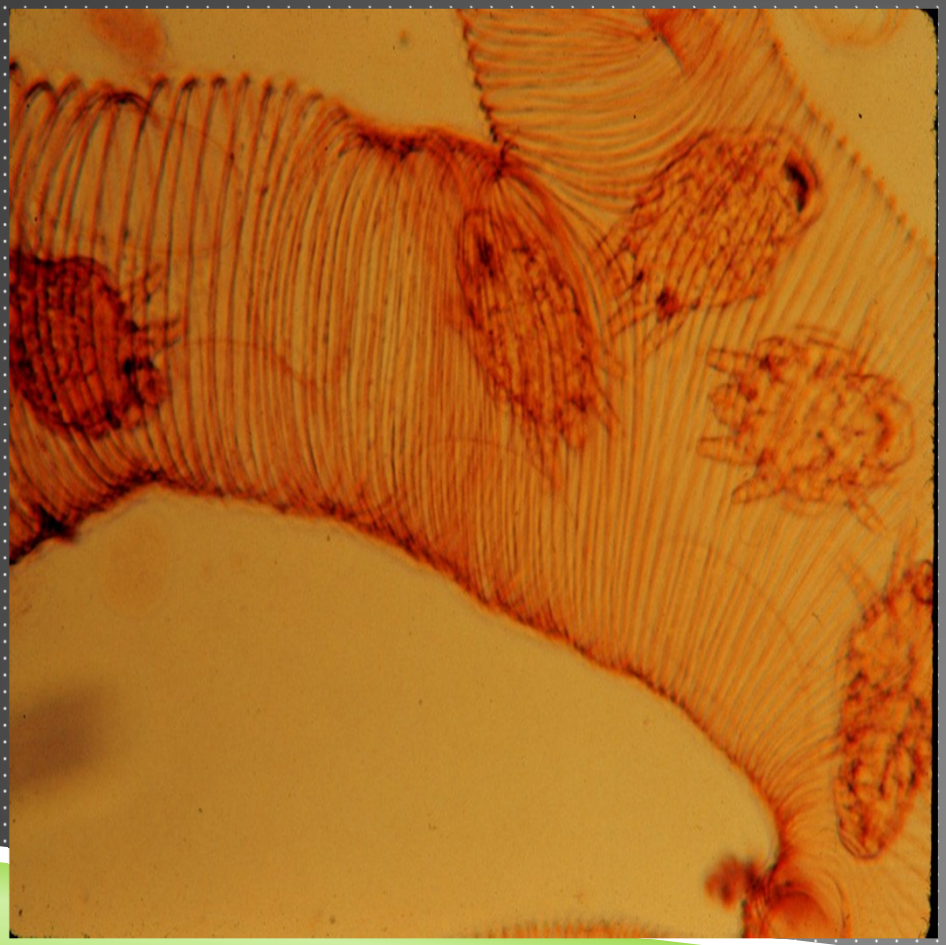
HONEYBEE PESTS

- *Varroa destructor*
  - Found only in honeybees.
  - External parasite of bees.
  - Quite large in size.
  - Feeds on the honeybees hemolymph.
  - Prefers to reproduce in drone brood because of the longer brood cycle.
  - Varroa population peaks in August-September

VARROA DESTRUCTOR TREATMENTS

- Varroa mites quickly become immune to many chemical treatments.
  - Apistan- Many mites are resistant.
  - Apilife Var- Thymol based treatment.
  - Acid based treatments:
    - Formic acid- Mite away/MAQS
    - Oxalic acid- drench
  - Mineral Oil Fogging
  - Powdered sugar dusting- only affective with screened bottom boards.
  - Drone brood methods

TRACHEAL MITES

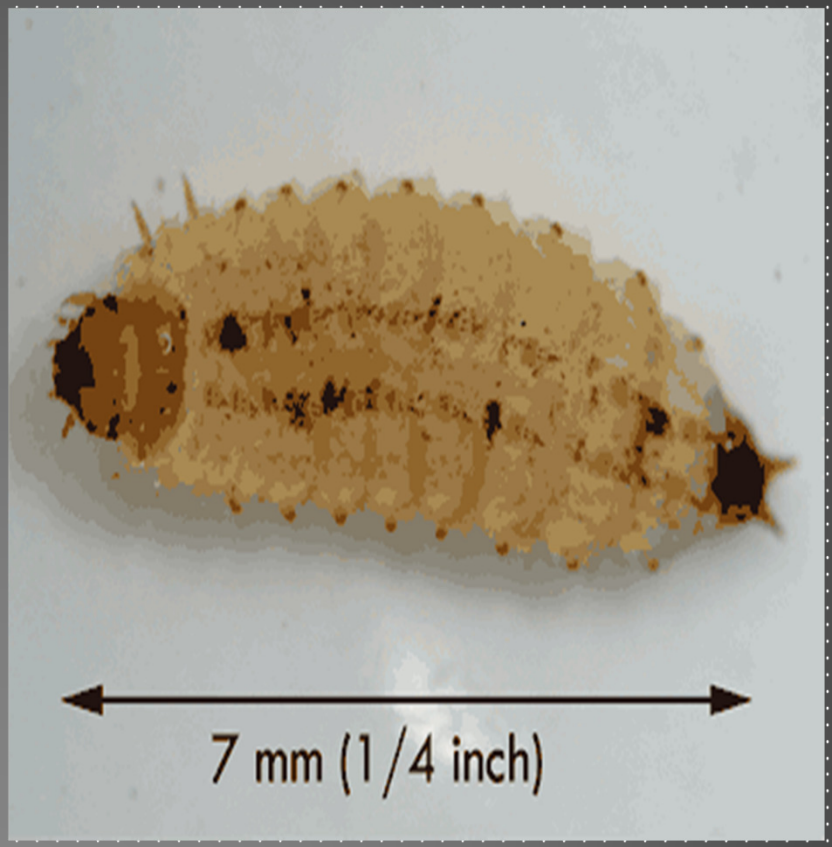


- Found in the trachea of honeybees.
- Causes scarring of the trachea, and limits the uptake of oxygen.
- Can clog the trachea
- Treatment:
  - Menthol in the fall.
  - Grease patties
  - "Bee Burritos"

SMALL HIVE BEETLES

- A recent pest of honeybees.
- Attack hives under stress or weak.
- Not a big problem in strong colonies.
- Can destroy weak colonies.
- Can live on a wide variety of foods, including cantaloupes and other fruits and vegetables.
- The larvae do the most destruction as they burrow through the comb.
- Can cause the honey to run out of the hive.
- More of a problem in the honey house: Extract honey within 2 days.
- Treatment:
  - Lots of things have been tried, but few things work.
    - Ground drench does not work.
  - Keep colonies strong.
  - Move hives to full sun.

SHB



WAX MOTH

- Moth lays eggs inside colony at night.
- Usually not a problem for strong colonies. The bees will keep them under control.
- The larvae eat the cocoons from the bee larvae, and will destroy the comb.
- Bigger trouble for stored comb.
  - Properly store your comb during the off season.
- Proper comb storage:
  - Store the comb with Para dichlorobenzene (moth crystals) NOT MOTH BALLS!!!!
  - Treat comb with Certan (Certan is a bT bacteria that kills the waxmoth larvae)
  - Freeze comb????

WAX MOTH LARVAE AND DAMAGE

Larvae

Damage

OTHER PESTS

- Skunks and Opossums
  - Usually a problem in late winter or early spring.
  - Can eat up to a pound of bees a night.
  - Signs include:
    - Scratch marks on the front of the hives.
    - Wads of bee carcasses on the ground.
    - Aggressive bees
  - Treatment:
    - Trap offending animals.
    - Install tack strips across the bottom board.
- Bears
  - Can be a problem in some areas including Franklin and Jefferson County.
  - Install bear resistant fence if bears are a problem.
  - Usually destroys the hive.
  - They are after the larvae, not the honey.
- Humans
  - Vandalism
  - Theft