

Honey Bee Medications

Tim Schuler - Apiarist

Healthy Brood Characteristics

- Uniform Pattern
- Most cells full
- Flat light brown Caps
- Larvae pearly white in color



Healthy Brood



Healthy Brood Unhealthy Brood

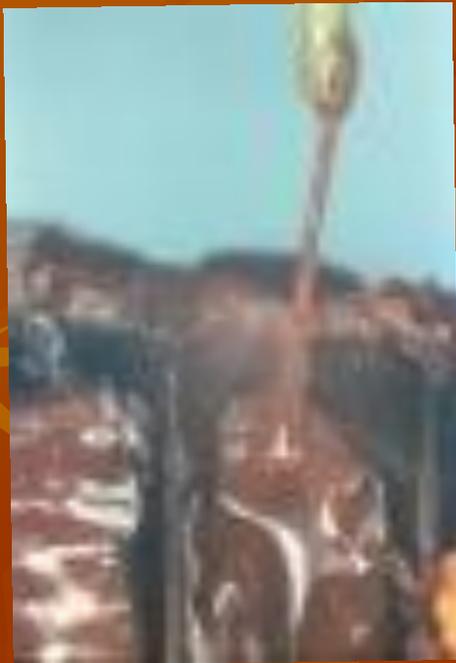


American Foul Brood

- Disease of Capped Brood
- Perforated caps
- Sunken caps
- Dark greasy color
- Scale evident in cells



AFB Vegetative stage Ropy



Rope Test



Scale

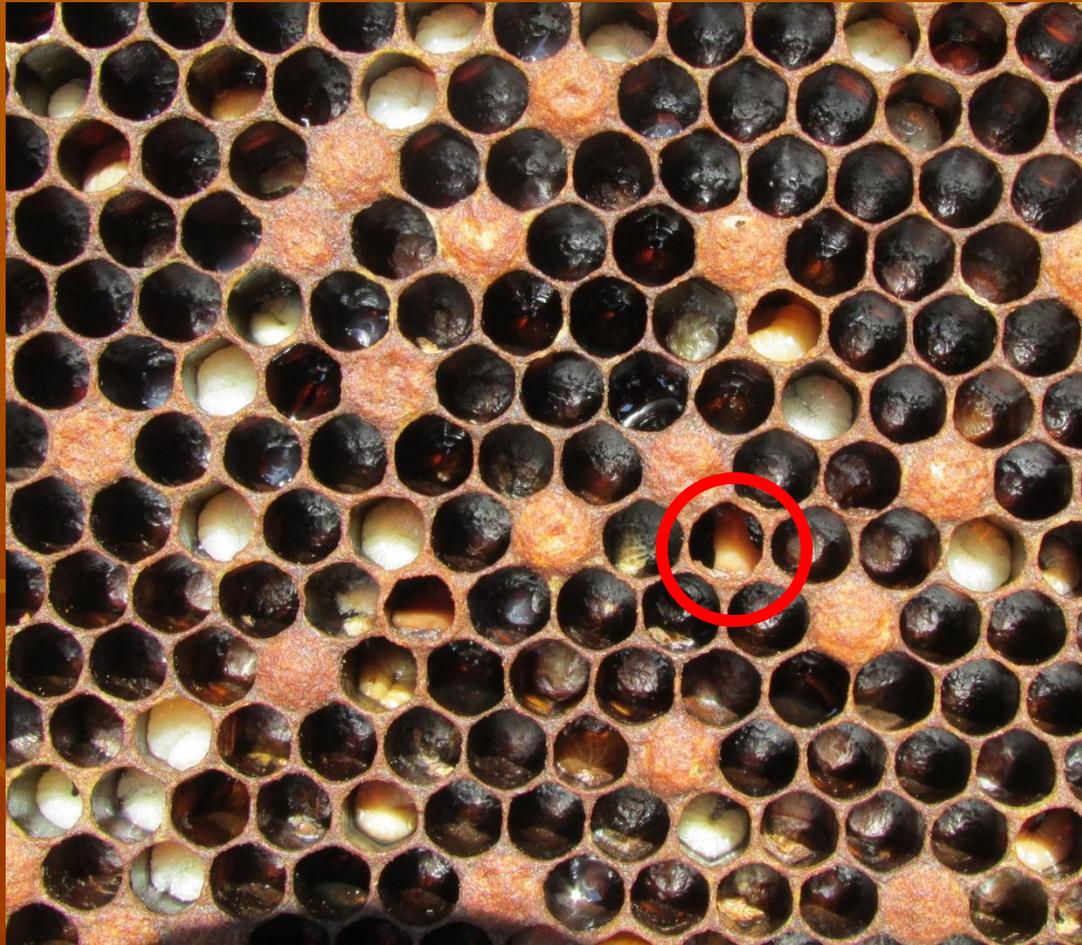


EFB – European Foul Brood

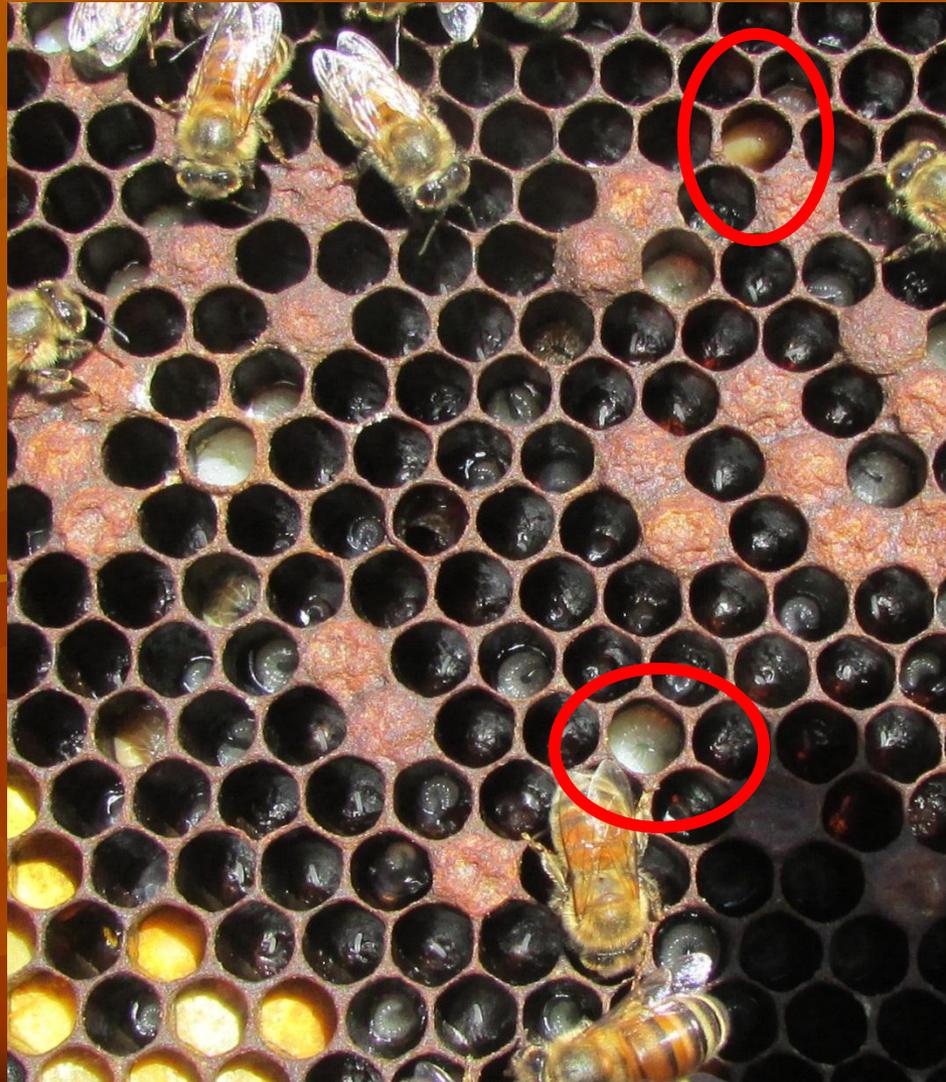


- Generally Effects open cells
- Turn larvae yellowish
- Twists in cell
- Sometimes on side of cell
- Not rosy
- Odor = rotten fish

EFB



EFB



EFB Cause

- Stress on hive
- Usually from poor quality feed
- I see in Blueberry pollination (poor pollen)
- See it in other parts of state, Varroa?



EFB Treatment



- Dust with Tetracycline
- 2 tablespoons 1 X 3 weeks.
- Re-queen if needed
- Good nutrition
- Varroa controlled



**Ready To Use Powder
Terramycin Treatment**

Terra-Pro

For the control of American Foulbrood caused by *Bacillus Larvae* and European Foulbrood caused by *Melissococcus Ptarmic* sensitive to Oxytetracycline.

Apply 2 level tablespoons (approximately 200 mg Oxytetracycline) of Terra-Pro mix to the outer edges of the top bars in the brood chamber. Avoid applying directly on new brood. Repeat this procedure for a total of 3 treatments at 6 to 7 day intervals in early spring prior to the honey flow and fall after honey supers have been removed. Retreat at least 6 weeks prior to the honey flow. Do not apply when honey supers are present.

10 lbs 160 oz 4.54 kg

Miron Lake Ltd.
Herdman, MN 56452
820-280-7694
L197

Recommended Storage: Store below 77°F (25°C).
Contains controlled drug - use only as directed. Not for human use.
For oral honey bee use only.
Keep out of the reach of children.

WARNING: All Terra-Pro™ treated applications should be fed twice in the spring or fall and consumed by the bees before comb capping that begins to avoid consumption of food from a honey. Heavy stress during production periods in order to further reduce the risk for brood following final application of the bee colony and must not be used for human food. Store this bee colony ready to be treated with Terra-Pro should not be used as food source for humans - read work upon of foulbrood and may result in spreading the disease.
BELL 20-029 Rev 8/4/10

Varroa = Beekeeper Enemy #1



Beekeeper Enemy #1



Varroa Mite

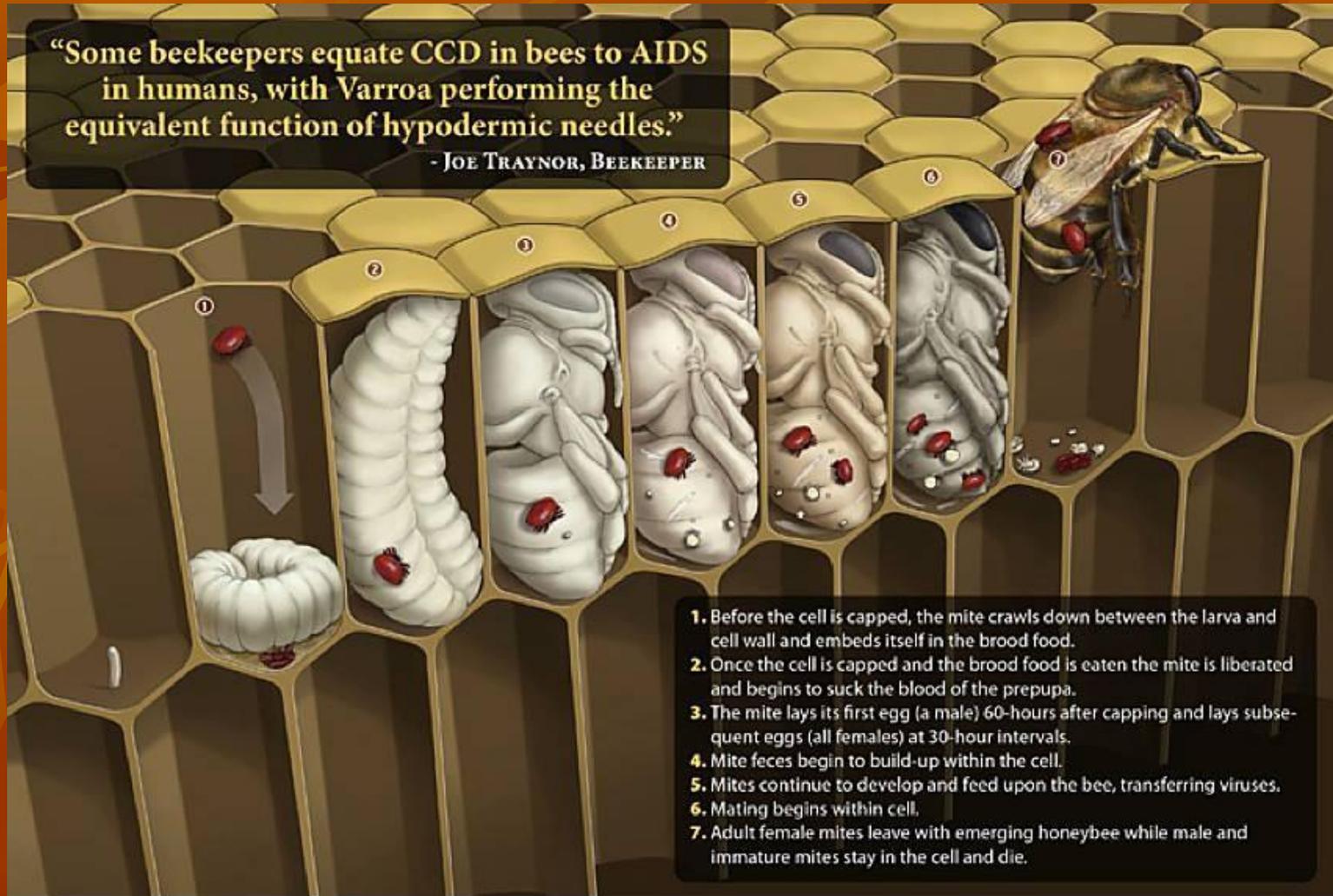


- External Parasite
- Feeds on hemolymph
- Reproduces on Pupae
- Prefers Drone Pupae
 - Longer development = more baby mites
- Spread viruses
 - Weaken bees immune system

Mite Lifecycle

“Some beekeepers equate CCD in bees to AIDS in humans, with Varroa performing the equivalent function of hypodermic needles.”

- JOE TRAYNOR, BEEKEEPER



1. Before the cell is capped, the mite crawls down between the larva and cell wall and embeds itself in the brood food.
2. Once the cell is capped and the brood food is eaten the mite is liberated and begins to suck the blood of the prepupa.
3. The mite lays its first egg (a male) 60-hours after capping and lays subsequent eggs (all females) at 30-hour intervals.
4. Mite feces begin to build-up within the cell.
5. Mites continue to develop and feed upon the bee, transferring viruses.
6. Mating begins within cell.
7. Adult female mites leave with emerging honeybee while male and immature mites stay in the cell and die.

Varroa Detection



- Sticky Board
- Screened Bottom board
- Drone brood burr comb
- Either Roll
- Alcohol Wash
- Powered sugar shake
- String wing bees
- See them on bees

Varroa detection



Varroa Detection Drone brood



Varroa Detection Sticky board



Varroa Detection



Alcohol Shaker



- Bees from open brood
- $\frac{1}{2}$ cup = 300 bees
- Put in shaker
- Alcohol 1 cup
- Shake hard for 30 seconds
- Count mites divide by 3 = # per 100 bees

Alcohol washer is best method of detection

- It is the most consistent
- It allows you to compare “apples to apples”
- It gives you a percent infestation.
- It is quick

Detection



**Dead colony in winter or summer, small cluster,
honey, few to no bees, brood pattern**
From not getting good Varroa control



PMS (parasitic mite syndrome)



PMS (parasitic mite syndrome)

- Typically seen in hives that weren't treated to reduce mites.
- Pupa are highly parasitized
 - They die and never get out of cells.
 - Some die near end of pupation
 - Others at beginning and rot.
- Colony dies early to mid winter or late summer, with small cluster of bees
- Mistaken for AFB

Varroa

- Every one who keeps bees has them
- YOU WONT FIND THEM IF YOU DON'T LOOK FOR THEM!
- Every one should treat to control them and be a responsible beekeeper.
- THEN CHECK TO SEE IF IT WORKED
 - Check mite level before and 2 weeks after treatment. 2 weeks after is most important!

Varroa Treatment

- **Resistant Stock**

- SMR suppressed Mite reproduction
- Russian
- Hygienic

- ~~**Hard Chemicals**~~

- ~~Apistan~~
- ~~Check Mite~~

- **Soft Chemicals** Temp sensitive

- Apiguard
- MAQS (formic)
- Api Life VAR

- **Oils**

- Mineral
- Essential oils

- **Manipulation**

- Drone comb
- Screened Bottom board

- **Other**

- Sugar dusting

- **IPM**

- Apivar = New Hard chemical – works great 98%

Apiguard

- Thymol Gel formulation
- 2 – 50Gram doses
\$6.60/hive
- < 105 degrees F
- Honey must be off
- Need spacer at top so bees have access to the material
- Close screen bottom
- Check Level before and after to make sure it worked!



MAQS

- 2 strips to a pack
 - 1 hive treatment
- Place in brood nest and separate strips
- Bees don't like it
- Nurse and drone death
- < 85 degrees
- \$4.75 / hive
- Close bottom screen
- Safe with honey



MAQS Bearding



Api life Var

- 68-86 degrees
- Remove 30 days before Honey flow
- 3 treatments 10 days apart
- Close screen bottom
- Break tablet in 4 pieces in 4 corners of brood nest
- \$5.50/hive



Soft Chemicals

are they really soft?

- All three are temperature dependent
- All three require screened bottom to be closed
- Apiguard and Apilife VAR = honey off
- All three can shut down brood production
- All three can kill bees and brood
- All 3 are hard on young hives
- At best they are in the 80% effective range and effect the hive in other ways.

Apivar Strip = New 2013



Drone trapping

- Foundation with drone size cells
- Frame placed in #4 position from edge of box
- Check in 20 days for capped brood
- Remove and freeze 3-4 days
- Reinstall frame for removal and refilling.
- **DON'T BREED VARROA!**



Burr comb = Drone comb



Drone removal



2014 Study Avg drop

- Apivar = 721
- MAQS = 563
- Apistan = 395
- Apiguard = 346
- Apivar = 812
- MAQS = 462
- Apistan = 337
- Apiguard = 272

Recommendations

- Average mite load has been increasing (BIP)
- Colonies that are not making honey treat with Apivar
- Treat with MAQS if honey is on and treatment is needed
- Treat at least 2 times per year
- Rotate treatments to prevent resistance
- Use Apivar when honey is removed

DID you check to see if your level is low?

- Several weeks after treatment
- Frame of open brood, $\frac{1}{2}$ cup of bees (300 bees)
- Alcohol wash/sugar roll
- How many per 100 bees?
- Randy Oliver says 2/100 is ok. More treat again.
- Tell about my personal hives 2013.
- BIP says 2 need to treat, 5/100 colony is on verge of collapse
- Tim does not feel good unless 0/100 is the norm.

Virus

- If a colony is heavily infected with Varroa
- And If you are seeing evidence of virus damaged brood.
- Often times the treatment will drop the varroa but the colony will still fail because it takes much longer for Virus to work its way out of a colony.

To be a good beekeeper

You must be good at Varroa mite control