Promoting Healthy Bees

(Defending the Hive from Bee Diseases and Pests)

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My Philosophy

- Wholistic, Holistic = big picture, whole plan
- Diversified forage, clean water, no sprays, full sun, shelter from wind, no mite stress

  (like humans: adequate sleep, reduce stress, moderate exercise, good nutrition)
- Prevention is better than trying to cure
- Treatment-free, non-chemical approaches
- “Organic” beekeeping, approved list
- Integrated Pest Management (IPM)

Queen: Key to a Healthy Hive

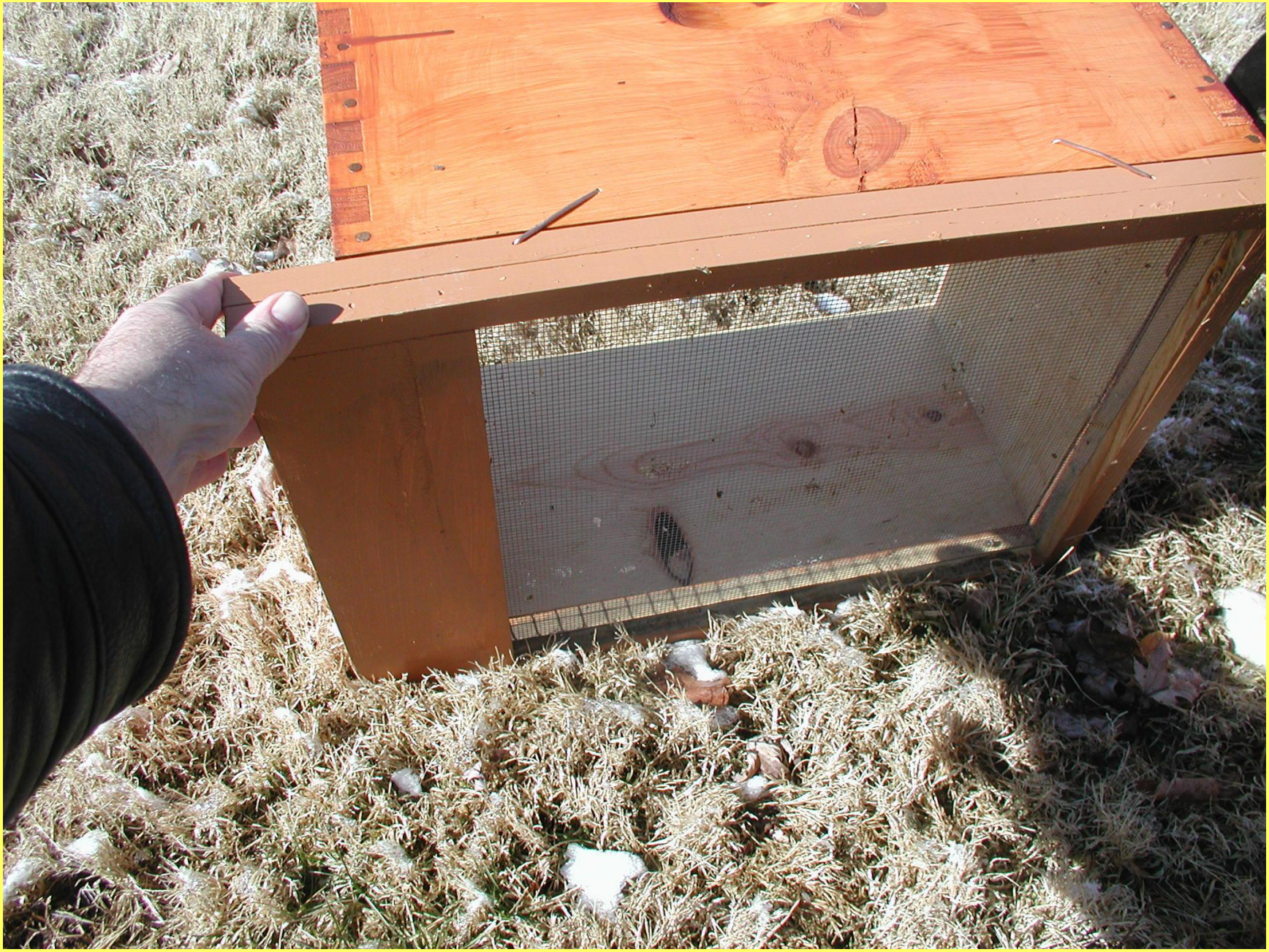
- The queen is the custodian of the colony's genetics
- Genetics: VSH, Hygienic behavior
- Raise your own queens from survivors, locally adapted to your management
- Requeen w/young queens from proven stock (every year?)
- Aim for robust hives with lots of bees.
- Bees are able to resist most pathogens when they are vigorous, unstressed and well-nourished.

Integrated Pest Management

- Monitor and treat when necessary
- Understand “thresholds” (low levels of bugs tolerated)
- Chemical intervention when warranted
- No prophylactic and routine treatments, breed resistance in problems (penicillin).
- Avoid chemical build up, residues in the hive, especially with approved chemicals
- Avoid the chemical addiction, treadmill

IPM = **integrated** management

- Mechanical = screen bottom boards
- Genetic = VSH, hygienic behavior
- Cultural = rotate out old, black comb
- Full sun, variety of floral sources
- Adequate ventilation during winter
- Feeding pollen substitute patties
- Adding essential oils to sugar syrup
- Reduce other stresses (mice, skunks)
- Prevention, work with the bees



Treatments

- Dietary supplement vs. Pesticide
- Approved treatments
- Abuses of approved treatments
- Non-approved treatments
- Organic does not equal safe, non-toxic
- Chemical, synthetic, “hard” treatments
- Natural, “soft” treatments
- Homemade, kitchen sink concoctions
- Anecdotal vs. scientific results

Treatment Free (?)

- Radical approach
- Nothing unnatural added to hive, not even sugar syrup
- Live and let live, survival of the fittest
- Treatments of any kind coddle the bees and encourage the propagation of weak strains which only further foster our chemical addiction.

IPM: When to treat

- The only time to consider treatments is when there are no honey supers on the colony.
- If IPM warrants a treatment during the nectar flow, remove the supers and treat.
- Some treatments require a time frame, during and after treatment. READ THE DIRECTIONS!!
- Do not, under any circumstances, harvest honey that may be contaminated

Resource

“Natural Beekeeping” by Ross Conrad

Chelsea Green Publishing

2007 copyright

$35

Available from all beekeeping suppliers or on Amazon.com (some used).

Also, check supply catalogs for product information and application

Honey Bees Worst Threat

- The Beekeeper:
  - –Procrastination
  - –Ignorance
  - –Laziness
  - –Fear and lack of experience


ítos
Cheese

CCD

- Colony Collapse Disorder
- Multiple causes, yet unknown
- No treatment as cause remains a mystery
- Specific symptoms
  - Rapid decline of healthy colony
  - No significant adult bee population left behind, maybe a few and queen
  - Brood in comb, like the colony just “vanished”
  - Other colonies won’t rob out abandoned hive

CCD

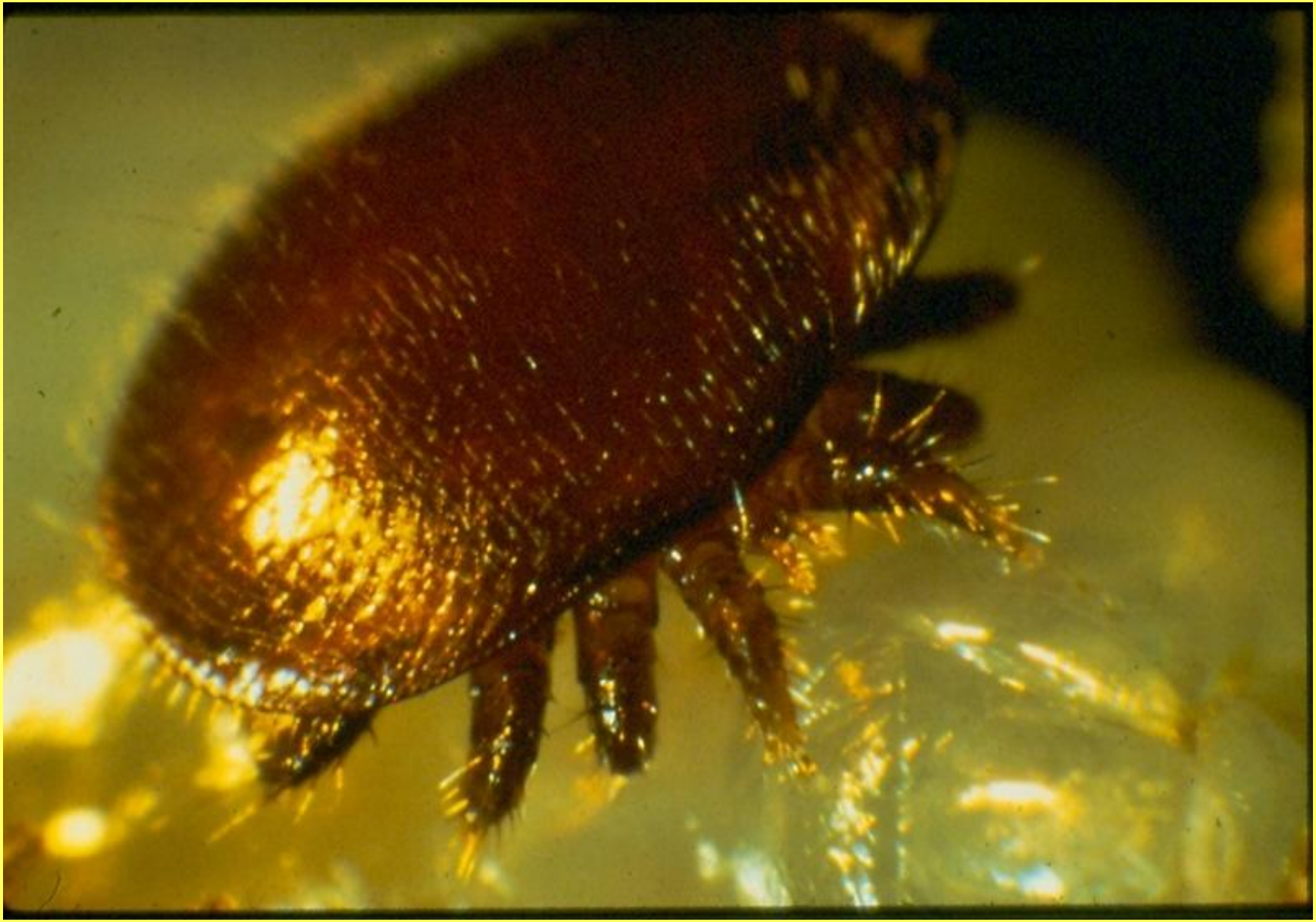
- Seems to be a triangled problem
  - Nutritional deficiencies (GMO pollen, mono)
  - Viruses (spread by mites)
  - Environmental stress
    - pesticides, inside and outside the hive, some administered by the beekeeper, some applied to soil/water by the farmer (systemic)
- Not to be confused with P.P.B.

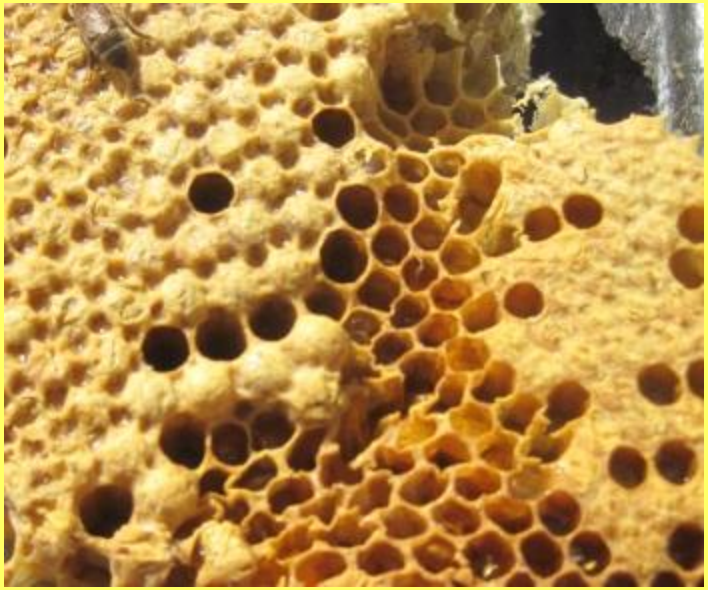
Winter Dead Outs

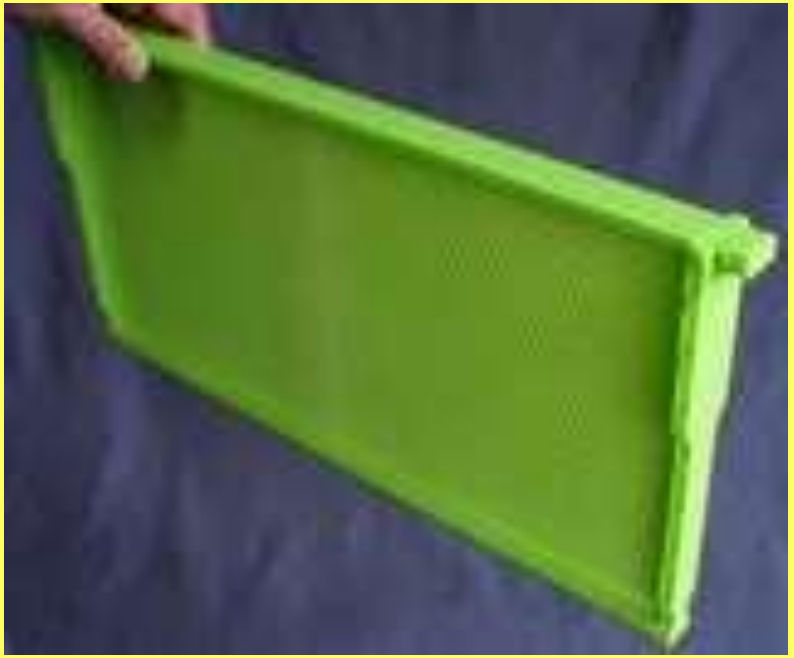
- Bees go into winter looking good, come out dead
- Starvation – insufficient honey stores
- Stress – from mites, viruses, disease
- Inadequate ventilation, humidity
- Too many old bees (young queens lay more eggs later into the fall, more younger bees produced, increases survivability)

Parasitic Varroa Mites

- Without a doubt, the #1 problem to beekeeping.
- Like a tick, lives on the outside of the bee and sucks their “blood”
- Spreads viruses, inflicts stress
- Reproduces/breeds in the pupa stage
- Prefers to mate in capped drone brood (longer gestation creates more offspring)







Detection of mites

- Sugar roll – powdered sugar
- Ether roll – starter fluid from auto store

(percentage of mites per number of adult bees)

- Sticky boards under screen bottom board

(Stronger hives, with more brood, will raise more varroa mites)

- Tear open capped drone brood
- Observe deformed wings on bees

Approaches to Varroa Mite

- Chemical
  - Apistan (fluvalvinate)
  - Check-mite+ (coumophos)
  - Taktic, Miticur (amitraz) –not approved

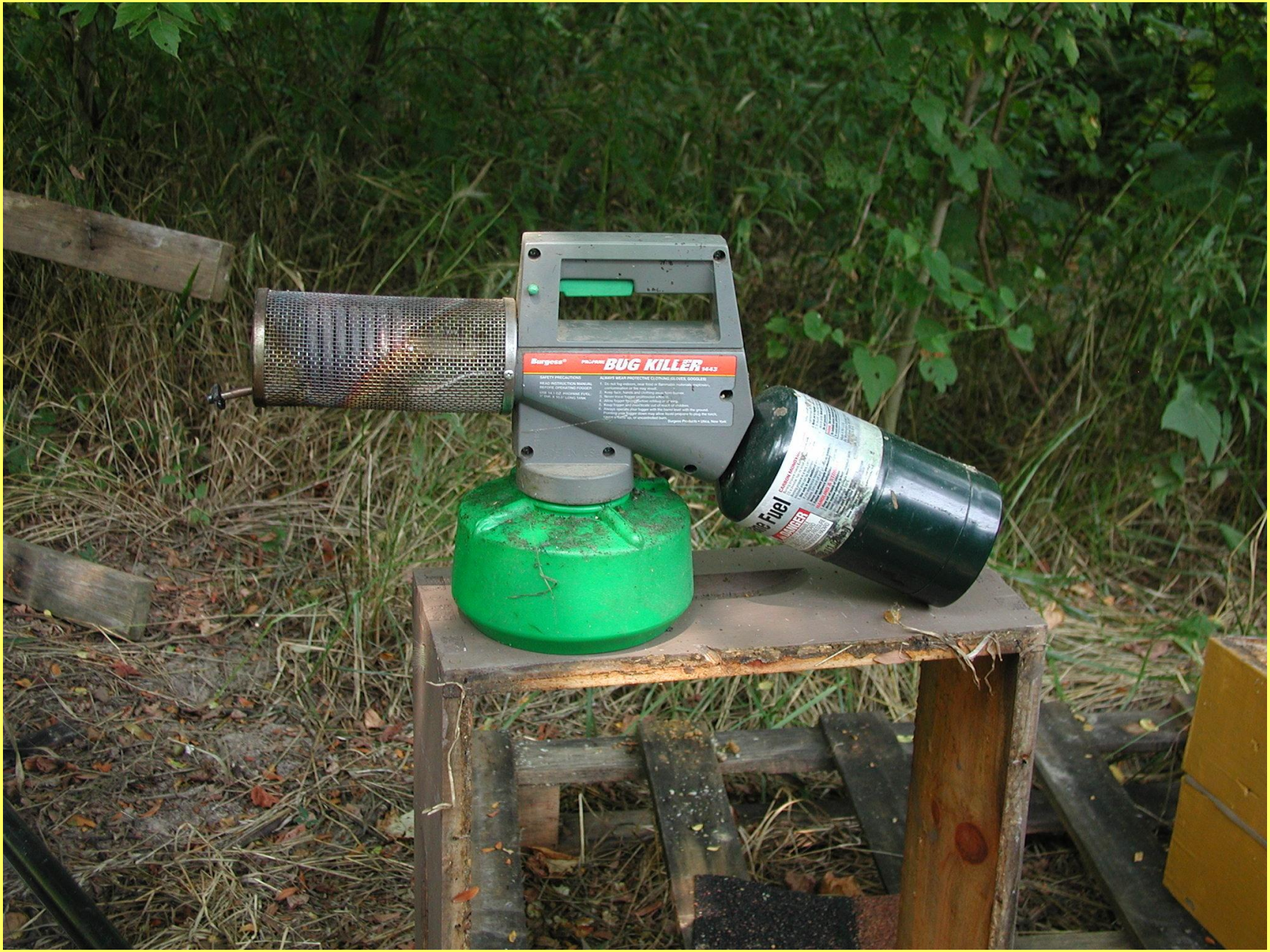
  - Problems of resistance in the mites
  - Problems of sub-lethal residues in wax comb
  - Problems that impact queen fertility

Approaches to Varroa Mites

- Passive
  - Full sun
  - Hygienic queens
  - Screen Bottom Boards
- Active
  - Drone Trapping (green foundation)
  - Smoke – sumac seed heads
  - Powdered sugar – “Dowda” method

Approaches to Varroa Mites

- Interactive
  - Feeding essential oils in syrup
    - (Honey-B-Healthy)
  - Thymol products
    - Apiguard and Api Life – VAR
  - Food Grade Mineral Oil


Burgess
BUG KILLER
9443
SAFETY PRECAUTIONS
ALWAYS WEAR PROTECTIVE CLOTHING,GLOVES, GOGGLES
Fuel

Organic Acids

- Formic Acid – works well, but temperature sensitive. Also under reformulation. Hazardous to humans. Fumigant.
- Oxalic Acid – mixed with sugar syrup and dribbled between the top bars in the winter. Technically not approved in USA.

Small Cell Foundation

- “Unnatural” cell size of 5.4mm imposed on bees: bigger bees = more honey
- “Natural” size of 4.9mm
- May need a “step-down” stage of 5.1mm
- Controversial, but not to true believers
- Favorite of the “No Treatment” crowd
- Option is to go with foundation-less frames and let the bees draw out their own size.

Mid-Summer Splits

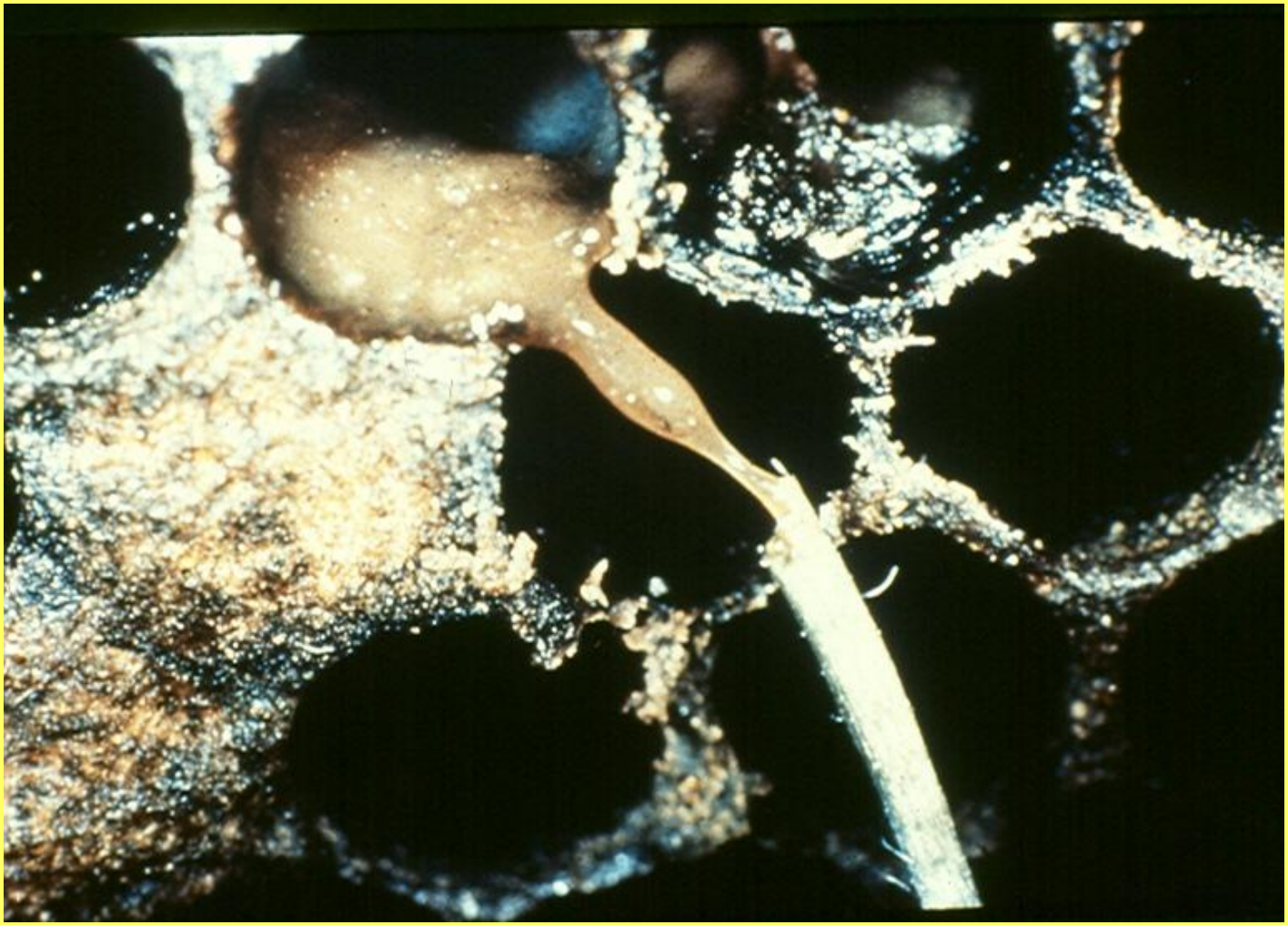
- Mite population escalates in mid-July
- Mites reproduce in capped brood
- Making a split in the summer, requeening with a queen cell, creates a “void” or “gap” in the egg production, and later, the capped brood.
- In some cases, the “brood break” is sufficient to slow down the mite population
- Younger queen, mated in the summer, lays more eggs into the fall, more young bees go into the winter.

Tracheal Mites

- Not so much a problem anymore – genetics have reduced the problem
- Grease Patties applied after honey harvest
- 2 parts sugar, 1 part solid vegetable oil (Crisco) mixed, spooned between blue shop towels. Add Honey-B-Healthy and a little honey to make palatable.
- Menthol (food grade) packets

Brood Diseases

- American Foul Brood - bacteria
- European Foul Brood - bacteria
- Chalk Brood - fungus
- Sac Brood - virus
- Stone Brood - fungus
- Dead give-away: odd smells, discolored larvae, dead pupae with perforated cappings that may also be “sunken.”



Treatments

- Antibiotics will suppress bacteria, but not cure the disease.
- Best to shake all the bees unto new foundation, feed, and burn the old frames
- **Reduce stress**, increase ventilation, elevate nutritional plane.
- Bees usually recover, but you may want to requeen with superior genetic resistance
- Rotate out old comb, replace with new foundation (2 frames per box each year)

Dysentery – winter disease

- Cold, damp hive and high-moisture content of their food (like feeding sugar syrup too late in the fall).
- Hive and entrance is soiled with feces
- No real cure, but warm weather, fresh pollen, and “cleansing flights” helps
- Linked with Nosema

Nosema

- Probably #2 on the list of maladies
- Caused by a protozoa that invades digestive tract. Makes bees weak, short-lived. Nurse bees cannot make brood food and brood starves reducing population.
- Spread in feces, long confinement
- Biggest problem in early spring

Nosema Treatment

- Fumagillin or Fumidil-B in sugar syrup
- Nosevit (natural)
- 1 gram of thymol per 1 gallon of syrup
  (crystals must be dissolved in whiskey/vodka)
- Supplemental pollen patties may help

Small Hive Beete

Wax Moths

- Strong hives, reduce boxes in August
- (Harvest your honey before frost)
- Protect comb in storage
- Paradichlorobenzene (PDB) approved
- Naptha not approved
- Certan, Bt, Xen Teri spray on, store

Mice

- Not a huge problem, but a winter pest
- Eat comb, make nests in corner of hive
- Largely ignored by bees (?)
- Mouse guards on all entrances
- ½” wire mesh works real well