**Diseases**

**American Foulbrood**

*Prevention & Control*

--- Remove and destroy all infected comb by burning it or placing it in a plastic bag in your garbage.
--- Scrape inside surfaces and remove all propolis, wax, and burr comb.
--- Remove and destroy all old or darkened comb.
--- Do not try to salvage hives of 3 or 4 combs of infected bees
--- DO NOT combine infected colonies with healthy colonies.
--- honey from AFB infected hives is safe for human consumption, but do not leave it where other bees can get to it.
--- Extracted frames may be returned to infected colonies while they are being treated for AFB
--- Prevention is the best control for AFB
--- All colonies are treated with Terramycin® (TM-25) (Oxytetracycline) usually as a powdered sugar dust mixture
--- You can also administer it as a syrup or sugar/shortening patty during periods of nectar dearth (before and after the honey flow).
--- TM-25 breaks down when in contact with moisture; so in syrup, it is viable only for about 3 days. In a dust it is good form a week and in patties it is good until the patty is used.
--- Remember---Do not medicate at least 2 weeks before adding honey supers.

**Syrup:** Recommended for swarms and packaged bees if fed within the hive. Use 2.5 tablespoons of TM-25 in one gallon of syrup.

**Dust:** 1 part TM-25 to 5 parts powdered sugar. Place two tablespoons of the mix on the ends of the frames in the brood nest. Repeat the treatment 3 times, a week apart.

**Patty:** Place the patty on top of the frames of the bottom brood super, in the center, and with brood above and below the patty.

  a. One part TM-25, 5 parts powdered sugar, and 5 parts Crisco or other vegetable shortening. Mix TM with powdered sugar first, then warm shortening to soften and add to TM/powdered sugar mix. Make patties by placing 1/4 pound of completed mix into a waxed paper sandwich bag or between two pieces of waxed paper.
  b. One 6.4oz. Package of TM-25 to two pounds powdered sugar and two pounds Crisco or other vegetable shortening.

Terramycin® (TM-25) is used to prevent & control AFB

**European Foulbrood**

*Prevention & Control*

Follow the same prevention techniques for AFB
--- For control, you must discard infected combs but no burning is required.

**Treat with TM-25**

**Syrup:** Recommended for swarms and packaged bees if fed within the hive. Use 2.5 tablespoons of TM-25 in one gallon of syrup.

**Dust:** 1 part TM-25 to 5 parts powdered sugar. Place two tablespoons of the mix on the ends of the frames in the brood nest. Repeat the treatment 3 times, a week apart.

**Patty:** Place the patty on top of the frames of the bottom brood super, in the center, and with brood above and below the patty.

  a. One part TM-25, 5 parts powdered sugar, and 5 parts Crisco or other vegetable shortening. Mix TM with powdered sugar first, then warm shortening to soften and add to TM/powdered sugar mix. Make patties by placing 1/4 pound of completed mix into a waxed paper sandwich bag or between two pieces of waxed paper.

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b. One 6.4oz. Package of TM-25 to two pounds powdered sugar and two pounds Crisco or other vegetable shortening.

Sac Brood
Virus: Sacbrood Virus
Too small to be seen with a microscope
Identification: Diseased larvae turn gray, than black or grayish brown
Sacbrood seldom becomes serious. Remove infected combs. No other control is necessary

Chalkbrood
The Chalkbrood fungus rarely infects more than 5% to 10% of the brood.
Infected brood dries down to a mummified condition and turns chalk white.
After the larvae dies, they turn black
Chalkbrood seldom becomes serious.
There is no chemical control agent for Chalkbrood

Chilled brood
Chilled brood occurs when some of the brood around the edges of isolated brood comb get chilled.
This usually occurs when the beekeeper moves frames so that the bees cannot feed and keep some of the brood warm.
It also occurs when there is a loss of nurse bees from other factors such as pesticide kills or when there is unusually cold weather during high brood rearing seasons.

Noosema
---Highly Contagious among bees
---It attacks the lining of the mid-gut of the adult bee
---Noosema reduces the vigor of bee and shortens their life

Symptoms
There are no easily observed symptoms.
In heavy infections, you might see some bees with swollen abdomens and dysentery
Note: Besides Nosema, Dysentery is also caused by other factors, mostly relating to the diet of the bees
The only sure diagnosis of Nosema is a microscopic examination of the gut of the suspected bee

Control
Fumadil-B
½ Gram per 6 Gallons of Syrup

Bee paralysis
Virus: Chronic Bee Paralysis Virus
Virus: Acute Bee Paralysis Virus
Too small to be seen with a microscope
No vaccine or medications are available, good clean combs and hygienic bees will help prevent paralysis
Identification: Deformed Wings
Chronic Bee Paralysis is sometimes called “Hairless Black Syndrome”
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Pests

Wax Moths
No treatment just prevention: Paradichlorobenzene Moth Crystals in stored equipment
Do not use Napthalene (Naptha) Moth Crystals

Small Hive Beetle
Adult beetles infest the hive and consume pollen, honey and lay eggs
Control: Permethrin (liquid) under the name of Y-Tex Gardstar 40% EC Livestock and Premise Insecticide Make sure you follow the directions

Yellow Jackets    Ants    Earwigs
Mice             Bears    Skunks

Parasites

Tracheal Mites
Control:
There is only one registered compounds available for the treatment of Tracheal Mites.
Menthol Crystals placed on the top bars of the hive are used as a fumigant through sublimation. Menthol vapor is heavier than air and flows down into the hive.
Control—Shop Towel Method http://www.wvu.edu/~agexten/varroa/treatmix.htm

Varroa Destructor

Control:
Registered Approved Miticides
Fluvalinate (trade name: Apistan®)—(Hivastan®)
Apistan® was used extensively in the 1990’s, however, many beekeepers have reported that it is ineffective for controlling Varroa, since the mites have become resistant to it.

Coumaphous Strips (Checkmate®+)
Coumaphous was also used by many beekeepers to control Varroa Mites, however, it caused many problems with queen viability and also left a long lasting residue in the wax.

Thymol Gel (trade name: ApiGuard®)
Thymol + Eucalyptus Oil + Menthol tablet (trade name: Api Life Var®)

These vary in effectiveness. As with all pesticides, read and follow label directions to the letter. Improper use will cause mites to become resistant. Use of unapproved miticides can result in contamination of honey and bee products.

Mite-Away II----Formic Acid Strips (No longer recommended)

Mite-Away Quick Strips (MAQS™)
2 strips between 2 Deep Brood Chambers or 2 strips on top of single Deep Brood Chamber
Only one application necessary to kill 95% within 7 days
Can be used during the honey flow
Reported to have some effect on Tracheal Mites also

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HopGuard™ Strips
2 strips per 5 Deep Frames
Maximum: 3 Treatments/year
Can be used during the honey flow
Hop Beta Acids-Potassium Salt

Amitraz (Apivar™ Strips)
Maximum of 2 treatments per year...spring and fall...42 days than remove
Do not use with honey supers. Must apply before and after honey supers

Integrated Pest Management (IPM)
—Non-Chemical Techniques

- Freezing Drone Comb—full frame drone comb method
- Cutting/Removing Drone Comb method
- Screened Bottom Boards
- Make a Split (Create a Broodless situation)

Notes:

Resources Online:

PSBA website:  www.pugetsoundbees.org
WSBA website:  www.wasba.org
National Honey Board:  www.nhb.org
Bee Informed:  http://beeinformed.org/
Honey Bee Suite - Rusty Burlew:  http://www.honeybeesuite.com/
Scientific Beekeeping - Randy Oliver:  http://scientificbeekeeping.com/

WSU Diagnostics lab:  http://entomology.wsu.edu/apis/diagnostic-lab/
USDA Bee Testing Laboratory Beltsville MD:  http://ars.usda.gov/Services/services.htm?modecode=12-45-33-00
Apiary Registration form:  http://agr.wa.gov/PlantsInsects/Apiary/docs/ApiaryRegistrationForm.pdf

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