American Foulbrood
AFB Particulars

- *Paenibacillus (=Bacillus) larvae*
- Gram-positive spore forming bacteria
- Spores viable 35+ years (60?)
  - Killed by boiling for 11 minutes
- AFB Slow to rapid progression
  - Months to 2 years to colony death
Of little consequence for spreading are:

- Feral colonies
- Hive tools, smokers, gloves
- Drifting bees
- Foundation
- Queens
- Soil around the hive
A lot of practical answers in a very old publication....

https://archive.org/details/americanfoulbroo809whit
Visual symptoms of AFB

- Punctured, sunken, oily cappings
- Odor
- Protruding tongue
- Larval scales (few to thousands)
- Larval stringing
Control Recommendations

- Be able to recognize AFB
- Destroy infected equipment and bees
- Keep inter-yard mixing to a minimum
- Monitor frame transfers
- Prevent robbing – including honey supers
- Keep your operation squeaky clean
- Antibiotics (sometimes)
Terramycin or Tylosin is applied to frame edges.

Note grease patty for tracheal mite control.
Google Search: *Antibiotic Treatment for American Foulbrood*


http://goo.gl/5mki9T
Some Non-chemical Procedures (If Legal)

- Hygienic queen stock
  - Not Readily available

- Shaking diseased bees
  - Works only if stock has some resistance
  - Labor intensive
  - Neighboring beekeepers
  - Future insecurity
  - Scorching hive equipment
Other equipment-salvaging techniques

- Steam sterilization
  - Soil autoclaves
- Irradiation processes
  - Gamma radiation
- Fumigation procedures
  - Ethylene oxide
- Boiling lye solutions
Nice woodenware can be infected
Though harsh, destroying diseased hives still works very well for AFB control. Sorry.
Sometimes, woodenware can be saved....
Most of the time, you are the problem.
The Mechanics of AFB

- 2-day old larvae swallow 1-10 spores
- Vegetative stages move to blood
- Vegetative stages passed in feces
- 2500 million spores per dead larva
  - 2,500,000,000 spores/larva
- No AFB “season”
- Disease suppressed by nurse/house bees
- Some colonies recover for an indefinite time
- Best recovery during pollen/nectar flows
Remarkably, AFB’s infection rate is low.

- Most spores removed by adult bees
- Only the youngest larvae susceptible
- Various levels of natural resistance
Frequently, the AFB outbreak came from the afflicted colony

Not from robbing or equipment transfer
Colonies can have it, but not show it

- 26% of adult bees (in one study) were AFB spore carriers
- 4% of Australian research colonies were carrying AFB spores, but had never shown symptoms.
- Several hundred diseased larvae allow the disease to become uncontrollable.
AFB deserves your respect

But it is not a mystery disease.
Thanks for listening

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