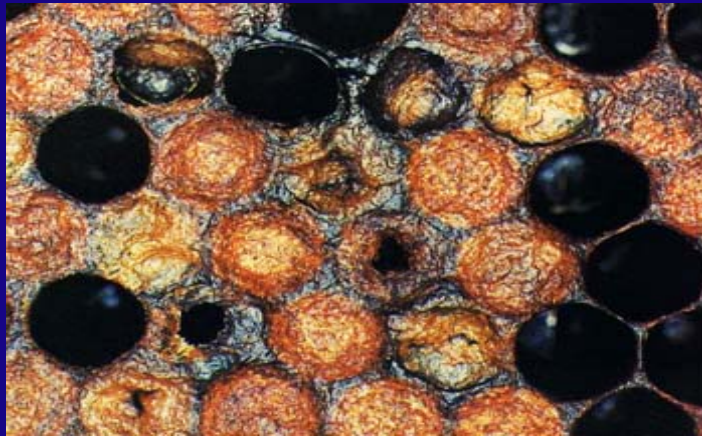


American Foulbrood vs European Foulbrood ID and Control

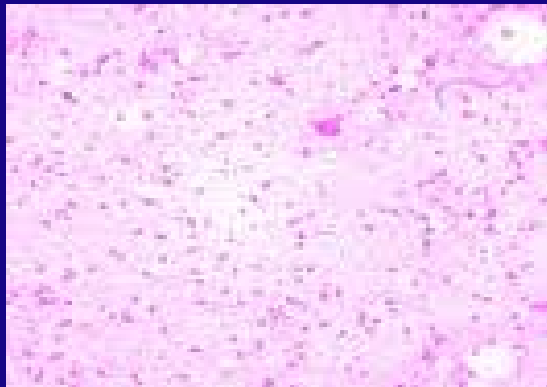


Michael D. Studer
Tennessee Department of Agriculture
Regulatory Services Division
State Apiarist

Causative agent

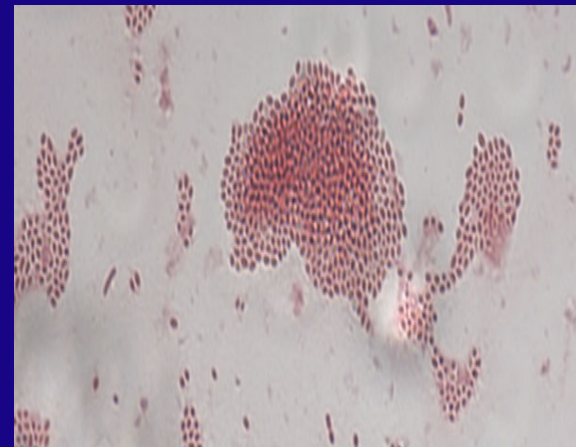
American Foulbrood

- *Bacteria*
- *Paenibacillus larvae*
- *Forms Spores Resistant to Heat and Desiccation*
- *Spores Viable for a Very Long Time*



European Foulbrood

- *Bacteria*
- *Melissococcus plutonius*
- *Does Not Form Spores*



Inspect Frames by Holding Them up with the Sun over Your Shoulder



Look for Anything that Doesn't Look Normal



Symptoms

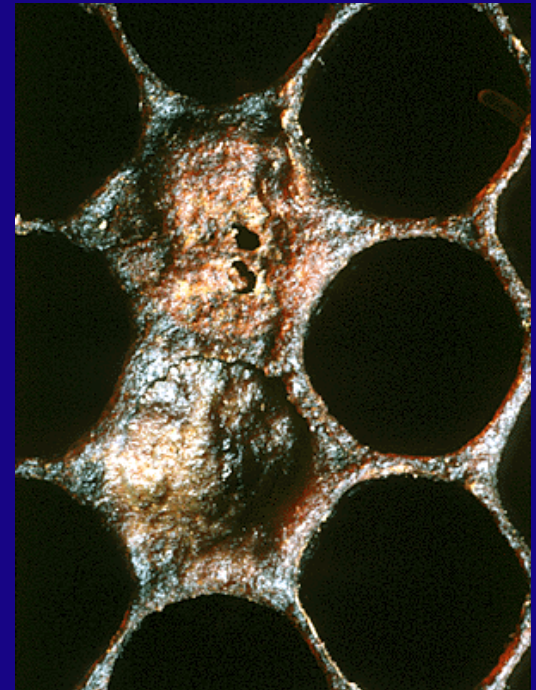
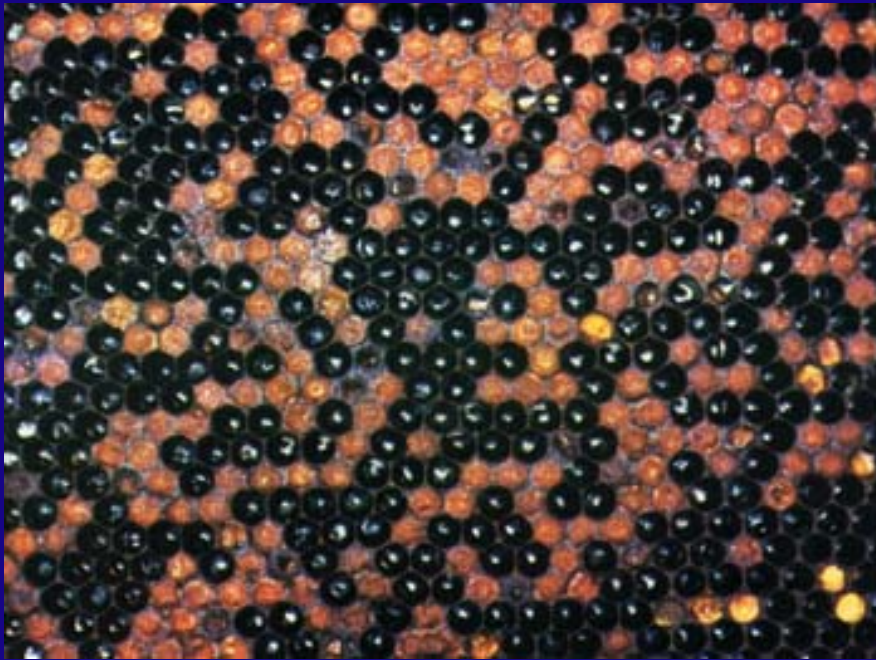
American Foulbrood

- Affects Capped Brood
- Ropey with a fine thread about 2.5 cm
- Odor -Sulfurous “chicken house”
- Brown to black brittle scale
- Pupae tongues may be present
- Dark oily cappings
- Perforated sunken cappings
- Color-Brown to black “coffee brown” larvae and pupae
- Spotty brood pattern

European Foulbrood

- Affects uncapped brood
- May be slightly ropey less than 1.5 cm
- Odor- Sour, fishy to none
- Black to brown rubbery scale
- Color-Off white, yellow, orange to dark brown with tracheal tubes often showing

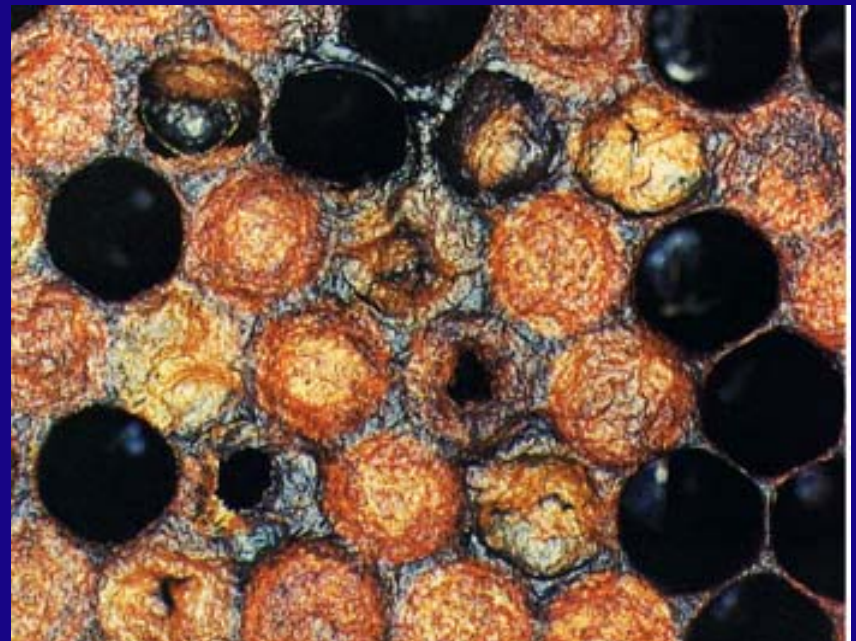
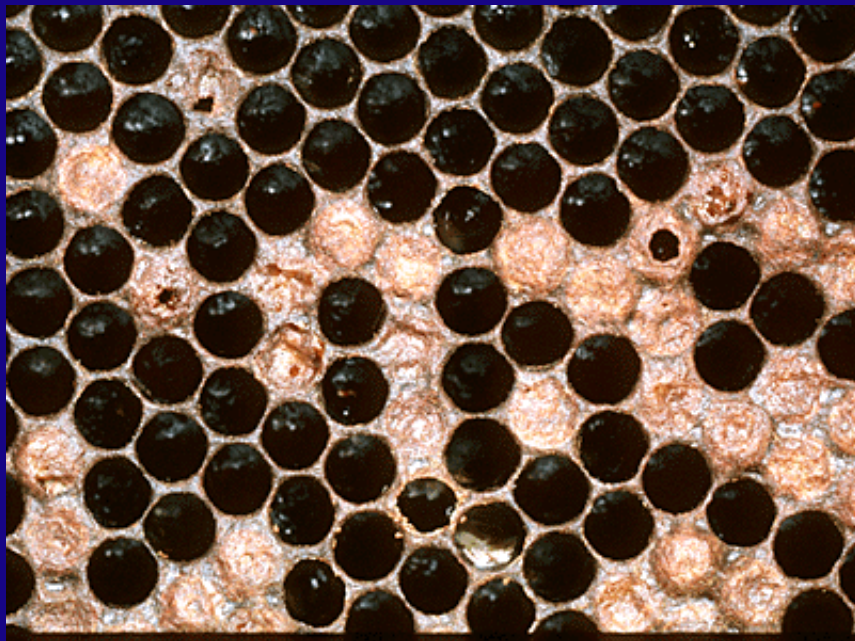
American Foulbrood



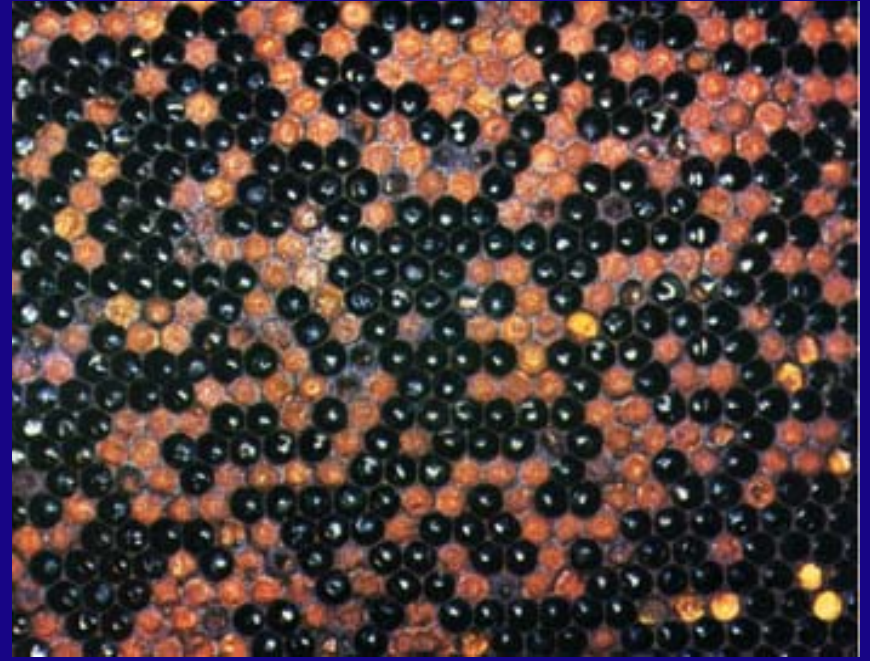
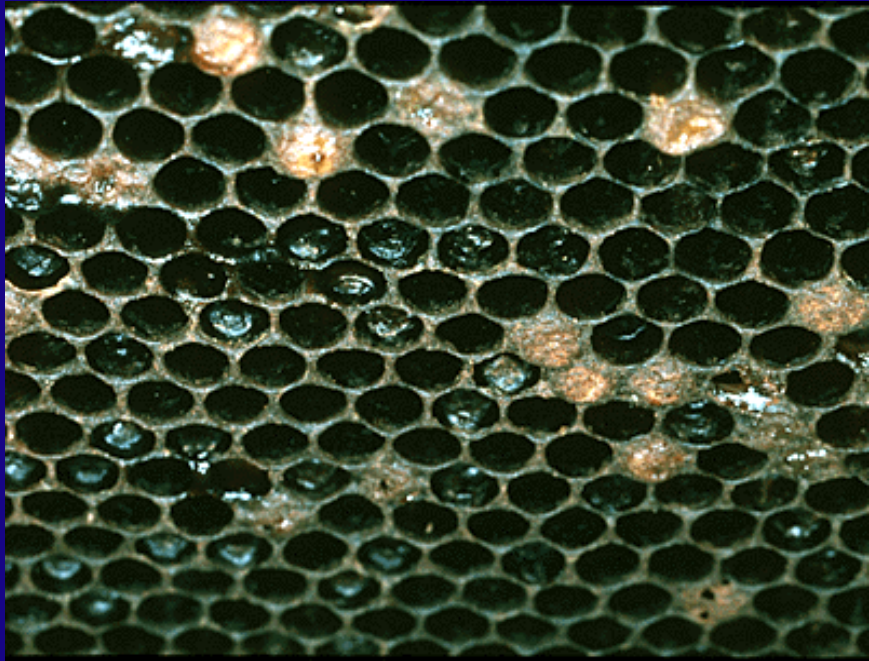
American Foulbrood



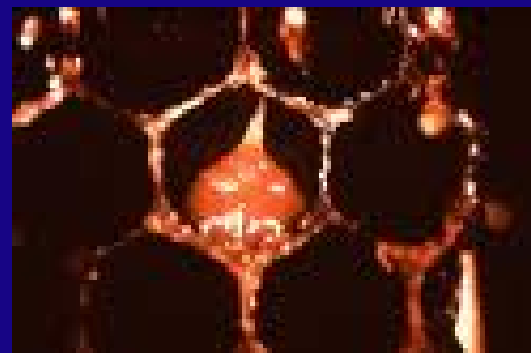
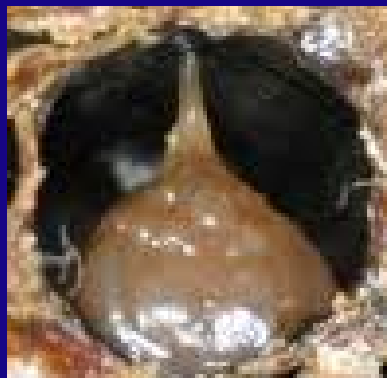
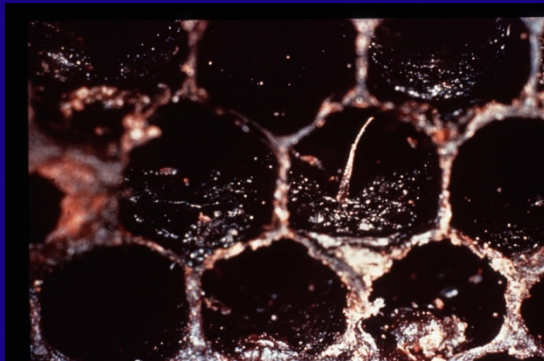
American Foulbrood



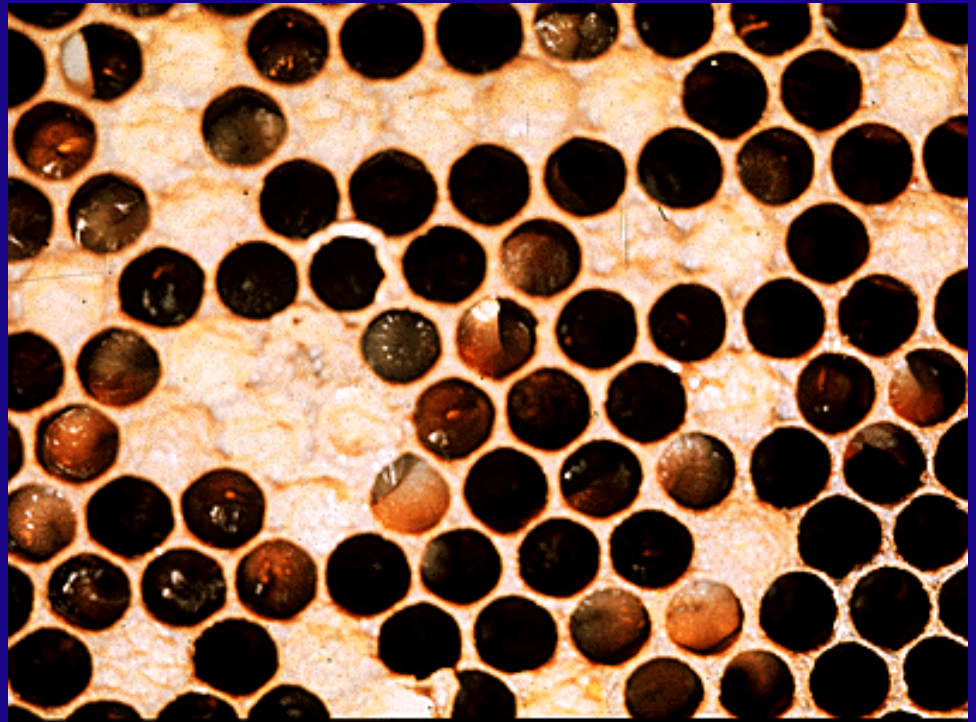
American Foulbrood



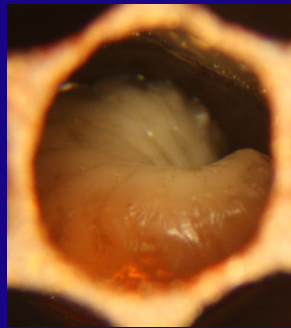
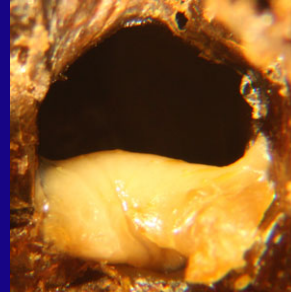
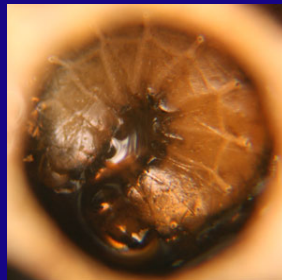
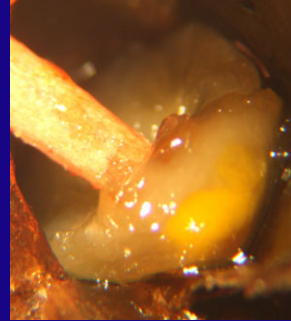
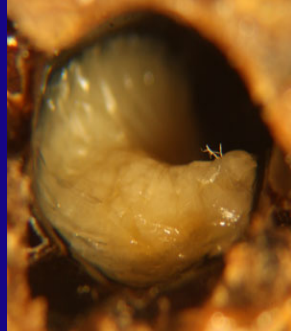
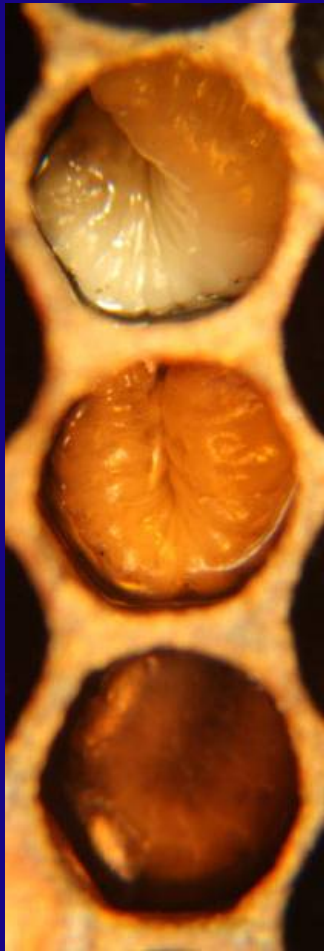
American Foulbrood



European Foulbrood



European Foulbrood



European Foulbrood



Preventative Treatments

American Foulbrood

- Oxytetracycline HCL
- Tylan

European Foulbrood

- Oxytetracycline HCL

Positive Diagnosis

American Foulbrood

- Field Diagnostic Test Kit
- Call State Apiarist
- Send Sample to State Lab
- Send Sample to USDA
Beltsville Bee Lab

European Foulbrood

- Field Diagnostic Test Kit
- Call State Apiarist
- Send Sample to State Lab
- Send Sample to USDA
Beltsville Bee Lab

Field Diagnostic Test Kit



Take a Sample



Put Sample into Buffer

Field Diagnostic Test Kit



Shake Vigorously
for 20 Seconds



Draw the Mixture
up into the Dropper



Place Two Drops of the
Solution in the receptacle
On the Test Strip

Field Diagnostic Test Kit



Wait Three Minutes



A Positive Test Will Show Two Blue Lines:
One Under the “T” and One Under the “C”

A Negative Test Will Show One Blue Line Under the “C”

Curative Treatments

American Foulbrood

- Burning the entire colony



European Foulbrood

- Oxytetracycline HCL
- Requeening
- Breaking the brood cycle

Sterilization of Equipment

- Fire - Extreme Heat – Hot enough to turn metal red (not just torching surface)
- Ethylene-oxide Fumigation
- Boiling Equipment in a solution of one pound of lye per ten gallons of water for 30 minutes
- Gamma Irradiation

Tennessee State Law Requires Anyone Knowing of a Colony Infected with American Foulbrood Immediately Report the Find to the State Apiarist

- Failure to report American Foulbrood will result in a \$500.00 civil penalty per violation.