

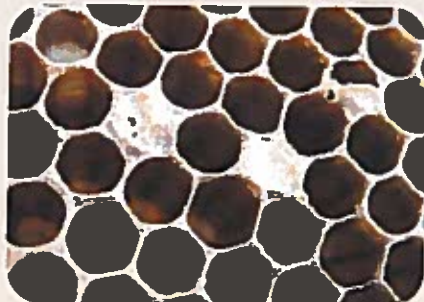
# AMERICAN FOULBROOD

Infosheet

July 2015

## SYMPTOMS OF AFB:

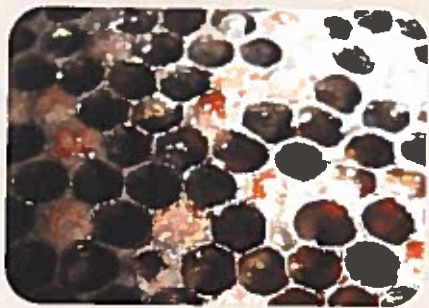
- Spotty brood pattern
- Sunken, perforated brood cappings



- Dark, greasy wax cappings



- Discoloured larvae
- Dead larvae at bottom of cells with a goeey, mucus-like consistency



- Hard black scale that adheres to the wall of the wax cell
- Fishy/rotten smell

**American foulbrood (AFB) is the most serious honey bee brood disease, caused by spore-forming bacteria, *Paenibacillus larvae*. This disease is highly contagious and virulent, and once contracted will kill a honey bee colony.**

There is **no cure for AFB**. Beekeepers can only take steps to prevent an infection from becoming established in a beekeeping operation.

## BIOLOGY AND IMPACT

AFB spores are often picked up by worker bees from infected honey bee colonies or contaminated equipment. Spores, carried on the mouthparts of worker bees, are fed to developing larvae less than 2 days old via brood food. Infected honey bee brood die after the brood cell is capped and decomposes into a goeey mass, referred to as “AFB scale”. This scale settles to the bottom of the cell where it dries out, becoming black in color and adheres to the wall of the wax cell. Each scale may contain up to 2.5 billion spores. Spores are passed onto other worker bees when they remove the diseased scale, continuing the spread of AFB within the colony.

Honey bee colonies weakened by AFB may be targeted by nearby colonies whose bees rob the honey stores of the weakened colony. The honey contaminated with AFB spores is transported to healthy honey bee colonies. AFB can spread to honey bee colonies up to an 8 km radius around an infected colony (typically 3.2 km). AFB can spread anywhere infected colonies are located and whenever contaminated equipment is exchanged, no matter what the distance.

## BIOSECURITY PRACTICES

To prevent the spread of AFB, beekeepers should:

- Sterilize beekeeping equipment on a regular basis. This includes hive tools, gloves and smoker.

**Hive tools** should be scraped to remove wax and propolis and heated to a high temperature (using- small propane torch or smoker) between beeyards.

**Smokers** should be scraped to remove excess propolis and wax, and scrubbed with soapy water containing household bleach (250 millilitres per five litres of water).

**Gloves**, especially the leather variety, should not be used as they are easily contaminated with difficult to remove spores. If gloves are a necessity, use disposable or easily washed gloves (e.g. dishwashing gloves).

## BIOSECURITY PRACTICES *(continued)*

- Ensure purchased pollen has been irradiated to kill AFB spores and never feed honey from outside sources to honey bee colonies.
- Take extra precaution when dealing with swarms, which could be contaminated with AFB spores. Captured swarms should be placed in a hive with a new foundation, be treated with antibiotics and the colony should be maintained in an isolated beeyard until antibiotic treatment is complete and the colony is healthy.
- Manage colonies to reduce robbing behaviour, especially during a nectar dearth.
- Manage deadouts immediately as they are often sources of AFB infections. Material from dead colonies should be stored at a secure and 'bee tight' location after being thoroughly inspected for AFB.
- Ensure all honey bees or used equipment for purchase have a signed Queen and Nuc Permit issued from the provincial apiarist or a Selling Permit issued from an apiary inspector. The *Bees Act* requires a beekeeper to have these permits to demonstrate the material for sale has been inspected and determined healthy.
- Be aware of beekeeping activity in your area by joining your local beekeepers association.



**AFB can easily infect beekeeping equipment.**



**Ropey test showing rotten honey bee larvae.**

## MANAGEMENT PRACTICES

Although there is no cure for AFB, beekeepers should consider using Oxytetracycline (a prophylactic antibiotics) to inhibit the rapid multiplication of AFB within a colony. Antibiotics have no impact on AFB spores; therefore once a colony is infected with high spore levels it is too late.

If AFB is suspected in a honey bee colony:

- Inform the provincial apiarist or a local bee inspector immediately. A list of inspectors is available online at [http://www.omafra.gov.on.ca/english/food/inspection/bees/info\\_beeinspectors.htm](http://www.omafra.gov.on.ca/english/food/inspection/bees/info_beeinspectors.htm)
- Do not try to salvage an infected colony, this behaviour will prolong the infection and risk infecting other colonies. All hives found with AFB will be ordered to be destroyed.
- Other colonies in the infected beeyard may be ordered to be treated with preventative antibiotics dependent on the season and field conditions.
- The yard with AFB will be placed under an AFB Quarantine Order for 2 years. During this quarantine, no colonies or beekeeping equipment may leave the site. Honey supers may still be harvested, however they should be isolated from supers from non-infected yards.

For destruction protocol see: <http://www.omafra.gov.on.ca/english/food/inspection/bees/destructionprotocol.htm>

### For more information:

**Telephone:** 1-877-424-1300

**Email:** [apiary@ontario.ca](mailto:apiary@ontario.ca)

**[www.ontario.ca/beekeeping](http://www.ontario.ca/beekeeping)**

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