

## How to control sac brood disease of honey bees

**SAC BROOD** is a contagious disease which causes major damage to the bee-keeping industry. It is caused by a virus which attacks the larvae of the brood, causing their death. Sac brood attack reduces the number of larvae, thus later on reducing the population adult bees. Sac brood attack does not wipe out the colony but weakens it, making it susceptible to other pest attacks.

### Symptoms of an attack

The first symptoms of an attack is a change in the color of the larvae in open or closed cells of the comb. For closed cells, the presence of a small hole indicates an attack by the virus (Fig. 1).

At an early stage of the attack, the diseased larva changes from its normal pearly white color to a grayish white. The larvae gradually darkens, turning from greyish to yellowish, with a black head. As the larva dries up, it becomes dark brown. The larvae in the cell shrink when they are attacked (Fig. 2 and Fig. 3).

At a later stage of the attack, some of the larva develop into a sac-like form containing liquid (Fig. 4). This is the reason why this disease is called 'sac brood'.

As the dead larva decomposes, the outer skin becomes hard. The dead larvae can be removed more easily from their cells than live larvae.

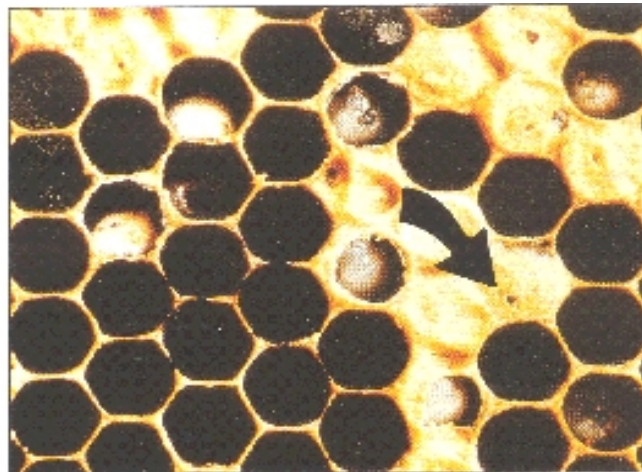


Fig. 1. The presence of a small hole indicates of an infected cell



Fig. 2. The larvae in the cell shrink after they have been attacked by sac brood disease

## Eradicating the virus

Check the hive for sac brood once every two weeks. If sac brood is present, take the following actions.

- ❑ If the attack affects than 20% of the comb, remove the comb and burn it, or melt it in a Solar Wax Extractor.
- ❑ If more than 20% of the brood is infected, all adult bees must be destroyed with a household aerosol pesticide spray. To ensure all bees are dead, close the hive and spray it again after 24 hours.
- ❑ Separate the comb wax from its frame, and burn or melt the wax.
- ❑ The hive's frame should be fumigated with formalin. This can be done by putting the frame in a plastic bag together with a small cotton roll soaked with 40% formalin. Close the end of the plastic bag and leave it for 24 hours
- ❑ Isolate the hive box and sanitize it before reuse. Either fumigate it with formalin, or submerge it in 2% Clorox or Dettol solution.

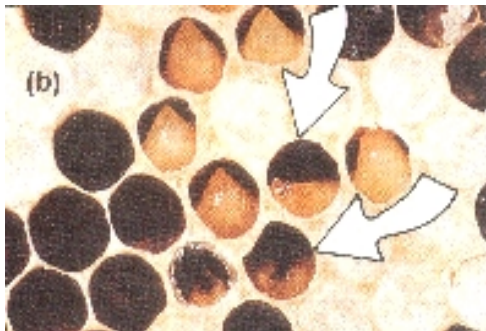


Fig. 3. Infected larvae in their cells

## Managing an infected colony

In a situation where 5-20% of the brood is infected, the colony can be helped to recover replacing the queen.

This may be either:

- ❑ Self recovery, where the colony produces a new queen.
- ❑ To old queen is removed from the hive, and a new, healthy and fertilized queen is introduced, 21 days later.
- ❑ Once the new queen is introduced, sugar syrup should be added to speed up the development of the bee population.

In a situation where less than 5% of the brood in a hive is infected, two colonies from two hives can be combined together. Sugar syrup as an additional food should be given to help the colony to recover rapidly.



Fig. 4. Some infected larvae are transformed into a sac-like form containing liquid.