

# Destroying American Foulbrood Colonies

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Under New Zealand legislation there are very clear requirements for dealing with colonies infected with American Foulbrood (AFB). Any colony with AFB, that has one or more larvae or pupae showing AFB disease symptoms, must be destroyed along with any equipment or bee products from the hive. This must be carried out within seven days of the disease being found. Hives that have had a sample of bees or honey, which have tested positive for American Foulbrood spores, are not classed as having AFB. Only those with visual symptoms of the disease are classed as having American Foulbrood. However, any hive that tests positive for AFB spores should be treated with caution, and watched carefully as it may develop disease symptoms at a later stage. AgriQuality must also be notified of the finding of an AFB hive within seven days.

The best way of destroying a hive is to block the entrance of the diseased hive and pour half a litre (1 litre for 3 and 4 super hives) of petrol across the top bars. This should be done in the morning or evening when the bees are not flying to reduce the chance of the returning bees drifting into other hives. However, despite the legislation, many AFB hives are not destroyed for weeks and sometimes months after they have been found because the beekeeper has not been able to find the time to come back to the hive in the evening. When inspecting hives belonging to commercial beekeepers we write AFB and the date on any AFB hives we find. I can think of at least two separate occasions with different beekeepers where we recorded that the hive still had AFB when we carried out a further AFB inspection a year later. However, if you are unlikely to be able to destroy an AFB hive at night/or morning within 7 days, it is better to destroy it when found even if there are still bees flying rather than leaving it for a long period of time during which it may be robbed out. As part of a research project we placed an AFB hive next to an uninfected hive. In the middle of the day when the maximum number of bees were foraging we removed the AFB hive so all the foraging bees flew into the uninfected colony. We repeated this with 25 hives without spreading the infection. It is always best to kill hives when the bees are not flying but if there is no other option they can be killed when bees are flying with minimal risk of spreading AFB.

Once the hive has been killed it should be sealed to prevent it being robbed out by other bees before it is burnt. To burn a hive, a hole of 1m diameter and at least 300 mm deep should be dug to collect any unburnt honey. Full instructions on how to burn hives can be found in the American Foulbrood Elimination Manual, 1999.

As petrol is being used, a good deal of care needs to be taken when burning hives. There have been a number of cases where people have burnt more than the intended hives. In one case, some hives were placed in a pit and the fire lit. More hives were then taken off the back of the truck to put in the hole and when the beekeeper turned to take the next group of hives off the truck he found they were already burning.

In another case where a large number of hives had to be burnt, a deep hole was dug and filled with petrol soaked hives. The level of the petrol fumes had just about reached the lip of the hole when the lighted taper was thrown in. The resulting explosion rattled the windows for kilometers around. The beekeeper, minus his eyebrows, had to then pick up all the burning AFB frames that had been blasted out of the hole.

In some cases it is not possible to burn hives within the seven days specified by legislation because of fire bans. In this case permission can be sought from the Management Agency to store dead infected hives in such a way that other honey bees are prevented from gaining access to them. The material can then be burnt when the fire ban is lifted.

Care does however need to be taken when storing infected hives. One beekeeper had ten AFB hives stored in his shed when one of his workers thought they would tidy up. The worker separated the floors and lids and added these to the appropriate stacks. He then added the AFB supers to the stacks of uninfected honey supers. It took two years of burning new AFB hives to sort that mistake out.

Beekeepers with a Disease Elimination Conformity Agreement negotiated with the Management Agency can, if their agreement specifies it, salvage and sterilize some hive parts. They can only be sterilized by a method approved by the Management Agency. Currently there are only three approved methods. These are:

1. Paraffin wax dipping
2. Irradiation
3. Dipping in sodium hypochlorite,

The use of these will be discussed in the next article.



**Plate 1. Burning AFB infected equipment**