National Bee Unit

FAQ 31

Prepared in association with
Bee Disease Insurance Ltd.

The Food and Environment Research Agency

Disinfection

Honeybees are subjected to many diseases: bacterial, fungal, viral, etc., and because they are social insects, they are at risk of epidemics. It is essential that beekeepers not only recognize the signs of disease, but also know how to reduce their impact in colonies, apiaries and the locality. This sheet is intended to provide advice on cleaning and disinfection of beekeeping equipment. Your local bee inspector will help and advise in respect of hives and colonies that have been infected with a notifiable disease; i.e. American foul-brood & European foul-brood. For plastics see NBU FAQ 32 'Plastic Hives'.

Fera and the National Bee Unit will accept no responsibility for any injury or damage whatsoever caused.

1. How should I clean off equipment?

First remove any adhering wax comb or propolis lumps by scraping using a paint scraper, hive tool or other suitable instrument, so that the bits of wax and propolis fall onto some newspaper or cardboard. This should subsequently be burnt. Plastic equipment or components should then be scrubbed off in a washing soda solution as explained in item 2 below. Open-ended 'correx' plastic sheet is difficult to clean inside so it is best sealed off prior to use. This does not apply to harbourage traps, which can be destroyed if necessary.

2. How can I clean propolis off equipment?

A washing soda and water solution effectively dissolves propolis. It needs to be fairly strong; about 1 kilogram to 5 liters of water. A dash of washing up liquid in the solution also helps. You will need to wear suitable protective clothing, protect your eyes and wear protective gloves such as those used for washing up.

3. How about smokers and hive tools?

Smokers and hive tools should be scrubbed clean using a washing soda water solution as in item 2. The hive tool should be scorched off using a blowlamp. DO NOT heat it to the extent that you damage the metal hardening. Cleaning the hive tool between inspections in a washing soda solution reduces the risk of spreading disease between colonies.

4. How about gloves?

Leather gloves are difficult to clean and best avoided. If you must use them, wear a pair of thin disposable gloves over them. Leather gloves can be washed in soapy water and proprietary glove soaps are available. However they tend to become hard. It is better to use washing up or thin disposable gloves. These can be swilled clean between examining colonies, thus reducing the risk of spreading infection. They can be renewed on a frequent basis.

P.T.O.

National Bee Unit
Food and Environment Research Agency
Sand Hutton, York. YO41 1LZ
Telephone 01 904 462 510 e mail nbu@fera.gsi.gov.uk NBU Web site: www.nationalbeeunit.com

July 2010

5. How about footwear?

If using wellington boots these can be scrubbed in a washing soda solution as at item 2. Other footwear should be cleaned of mud, propolis and honey splashes and wiped off in a suitable manner.

6. What should I do with beekeeping overalls?

These should be washed regularly. A small quantity of washing soda crystals mixed with the detergent helps to remove propolis. Make sure all zips are done up to avoid damage.

7. How do I disinfect the hive and other components?

Wooden hives can be dealt with as follows:

First scrape the boxes as described in item 1. Be especially careful when cleaning the internal corners of the boxes and the frame runners. Consider removing frame runners and replacing them after disinfection. When done clean your scraper. Then disinfect in one of the following ways.

a) **Scorch with a blowlamp.** Make sure that any remaining propolis boils and that the timber darkens. There is no need to burn the timber. Be especially thorough in the corners.

b) **Boil in caustic soda** (Sodium hydroxide). This is not very practical for the average beekeeper due to the caustic nature of the solution and its subsequent disposal. It needs great care, caution and protective clothing. The method requires a bath of caustic soda solution, made up with 450 grams sodium hydroxide in 38 liters of water, which must then be brought to the boil. Wooden hive parts are then immersed in the solution for between 5 and 15 minutes, before being dipped in clean boiling water. After drying the parts will probably need re-nailing. YOU MUST wear suitable protective clothing and eye protection when using this system.

c) **Dip into molten paraffin wax.** This requires specialist equipment which the average beekeeper does not have. For further information see a suitable beekeeping textbook.

d) **Irradiate.** Probably the most effective method of disinfection. It needs to be carried out by a specialist plant. Equipment needs to be delivered in secure pallets so this method is only viable in bulk quantities. For further information contact a specialist company.

8. What do I do with Queen excluders?

They need to be dealt with according to type. Wire excluders can be scorched using a blowlamp but be careful if they are soldered not to melt the solder as sometimes it is very soft. A wire brush is very useful to remove bits of wax and propolis, especially if it is cold and wintery when propolis becomes brittle. Zinc slotted excluders can be scrubbed clean in a washing soda solution, However if foulbrood has been present they must be destroyed by burning. Plastic excluders must be cleaned off as already described and sterilized as in item 9.

9. What do I do with plastic parts?

Plastic parts need to be thoroughly cleaned as described at item 1 & 2. They can then be effectively sterilized by using disinfectants containing hypochlorite. Check the container label for details and take suitable precautions.

Sodium hypochlorite is present at a concentration of about 3% in domestic bleach. Research has shown that immersion for twenty minutes in a solution of 0.5% sodium hypochlorite kills American foulbrood spores and other bacteria. In this case you therefore need to make a solution of one part of household bleach to six parts of water. Before doing so check the label as you may need to adjust the ratio. It is essential that bacterial spores are in direct contact with the solution, so any items must be thoroughly clean.

10. How about plastic hives?

These are discussed in NBU FAQ 32 ‘Plastic Hives’

11. How should I destroy old, damaged and infected equipment?

Wooden equipment can be burnt in a pit about 45cm. deep and the pit must be covered in afterwards. Plastic equipment should not be burnt: see NBU FAQ 32 ‘Plastic Hives’.

National Bee Unit
Food and Environment Research Agency
Sand Hutton, York. YO41 1LZ
Telephone 01 904 462 510 e mail nbu@fera.gsi.gov.uk NBU Web site: www.nationalbeeunit.com
July 2010