



National Bee Unit

Apiary Hygiene and Quarantine

January 2022

Attention to good apiary hygiene practices and the use of quarantine for both bees and equipment can have a significant impact on reducing infection levels and recurrence of disease. They should be practised routinely by all beekeepers.

Bees are a food producing animal so all beekeepers should maintain simple hygiene practices to prevent contamination of honey and the spread of disease between colonies. The following paragraphs contain some key points to consider that will improve your beekeeping practices.

Apiary hygiene

To reduce the spread of disease between colonies, hives should be positioned with entrances pointing in different directions to reduce drifting. Avoid placing hives in straight lines and having too many colonies in one place.

Measures should be taken to control robbing. Entrances should be reduced at critical times, for example after the main honey flow or whilst feeding. Particular attention should be given to small colonies that may not be able to defend a larger entrance. Any dead colonies should be sealed and removed from the apiary, these can then be cleaned up. Please refer to the National Bee (NBU) Fact Sheet 'Hive Cleaning and Sterilisation' which can be found on Beebase.

Hive tools

Wash your hive tool, smoker and gloves (see below) between colony examinations in a strong washing soda solution. Use the ratio of 1kg of washing soda to 4.5 litres of water. Adding a drop of washing up liquid to the solution assists with cleaning, as does the use of a stainless-steel pan scourer. Although bees make use of propolis' anti-bacterial properties, these are limited, and propolis can easily become a way for pathogens to spread to other colonies, especially during inspections. At the above concentrations washing soda dissolves propolis, and a thorough clean of equipment in this way is an easy and cheap way of reducing the risk of disease transmission.

Gloves

If you wear gloves to examine bees avoid those made of leather as they are difficult to keep clean. They can also become tough and make it difficult to pick up frames with ease, often leading to the jolting of frames and squashing of bees.

A better alternative is to use washing up gloves or disposable nitrile gloves. They can be cleaned in washing soda solution between colony examinations along with your hive tool. They can also be changed between apiaries, so act as a good tool for barrier management. They give better 'feel' and make jarring of the bees less of a problem, so the bees are less stressed.

Smoker

These are difficult to clean, however the barrel is not a problem as it gets hot enough to kill disease pathogens. The bellows can be scrubbed using a washing soda solution, again between apiaries as a minimum. The bellows can also be covered using disposable shower/boot covers to assist in biosecurity.

Bee suit

Although the risk of disease spread by a dirty bee suit is low, they should be washed regularly particularly if honey is spilt onto the suit. It also removes the pheromone left after a bee has stung the material, thus reducing the risk of encouraging stings on your next visit.

Always follow the washing instructions attached to the garment. To protect the veil, it should be folded into the body of the suit and then zipped in, if it is the fencing type. To assist with cleaning, washing soda can be added to the wash or used to soak the suit beforehand.

Replacing old combs

Old brood combs carry pathogen loads, increasing with age and use. Exchanging old comb for new foundation has a significant impact on reducing disease incidence.

Super comb also carries a pathogen load, although not to the same degree. As a result, they should be exchanged regularly but not necessarily at the same frequency as brood comb, unless they have contained brood or there is a significant disease problem. Another benefit is that new super comb often holds more honey than old comb. Even if they have never been used for brood rearing, old comb can lose storage capacity through being damaged during extraction, or by becoming clogged with pollen or crystallized honey.

Details of exchanging combs can be found in textbooks and in the (NBU) Fact Sheet 'Replacing Old Brood Comb' which can be found on Beebase.

Hive boxes and hive parts

Brood boxes and supers should be cleaned regularly. Propolis and wax should be scraped off the surfaces.

Wooden boxes can be sterilised by lightly scorching the interior with a blowtorch.

Polystyrene boxes and plastic hive parts can be sterilised by submerging them in a 0.5% sodium hypochlorite (found in household bleach) solution for twenty minutes after they have been scraped and scrubbed to remove as much surface debris as possible. Some beekeepers use washing soda solution to clean boxes and hive parts as a strong solution helps to dissolve propolis.

Please refer to the NBU Fact Sheet 'Hive Cleaning and Sterilisation' which can be found on Beebase.

Contamination of honey

Honey supers should never be placed directly on the ground, but instead should be rested on an upturned roof or on a suitable stand. This is due to the risk of contamination of the honey from botulinum spores from the soil.

When using medicines or treatments in bee colonies, only use approved products. Again, to avoid contamination, the instructions on the label should always be followed.

Generally, treatments should not be applied if supers are on the colony. Please refer to the NBU Fact Sheet 'Bee Medicines' which can be found on Beebase.

Quarantine practices

Equipment

When disease is a problem or the apiary is at high risk, then keeping equipment such as queen excluders, supers, brood boxes and frames/combs etc for the sole use of a colony has significant benefits. It is a good tool for barrier management as it helps prevent the spread of disease and introduction to other colonies.

Brood comb

Restrict movement. Moving brood combs between colonies carries a high risk of spreading disease. It is a major cause of disease increase when the beekeeper fails to recognize the signs of disease, which can be particularly difficult when at its early stages. Many beekeepers move frames of eggs to confirm if a colony is queen right. If this is done, it is best to maintain a written record, or only exchange brood with the adjacent hive. Exchanging comb between apiary sites holds a high risk of spreading disease from one area to another.

Super comb

Restrict movement. Super comb carries a risk of spreading disease. Ideally comb should be specifically used on one colony only. It is easy to mark a super and the top-bars of the frames with the colony number using a marker pen (like those used in queen marking). This ensures that the beekeeper can maintain colony quarantine for supers. A less effective system is to ensure that supers and combs are restricted to use in one apiary, known as 'apiary quarantine'. It has been shown both in the UK and abroad that these measures significantly reduce the occurrence and spread of disease.

Quarantine Apiaries

Swarms from an unknown source should be taken to a separate 'quarantine' apiary and hived on foundation in clean equipment. After 24 hours they can be fed, if necessary, using sterilised feeders. They should then be allowed to progress through two brood cycles, i.e. six weeks. Check the brood to ensure no signs of disease are present, before introducing the colony to an established apiary.

National Bee Unit

APHA, Room 11G03, York Biotech Campus,
Sand Hutton, York YO41 1LZ

Telephone: 03003030094 email: nbu@apha.gov.uk

Web site: www.nationalbeeunit.com

January 2022

© Crown copyright 2022

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v.3. To view this licence visit www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ or email PSI@nationalarchives.gsi.gov.uk