

Apiary Hygiene



4. Treatment agents for equipment.

Washing Soda [NOT caustic soda]

Used for washing tools, gloves, wooden frames etc. It helps to remove wax, propolis, and honey and is a mild disinfectant. Washing soda crystals are widely available and cheap. Make up a solution by dissolving 0.5 Kg in a gallon of water. Use with care; it is mildly corrosive.

Sulphur Dioxide

It is produced by burning sulphur strips, (obtainable from beekeeping suppliers) and is used for treating wax moth in stored combs. Six supers containing the frames are stacked and 2 strips placed in a metal container which is suspended from the top of an additional empty box. The strips are lit and the roof put on quickly. The fumes are heavier than air and will fall through the stacked combs. Avoid inhaling the smoke. Sulphur dioxide is not fat soluble and so its use poses very little risk to wax and honey.

Certan

Certan is a safe biological treatment for wax moth obtainable from beekeeping suppliers. It is a spore suspension of *Bacillus thuringiensis* which infects and kills wax moth larvae. It is mixed according to the instructions and sprayed on both sides of the frames. After drying, the frames are then stored in supers or brood boxes. It is fairly expensive. It has to be kept dispersed while spraying otherwise it can block the sprayer.

Acetic Acid

Used for sterilization of comb and boxes. Obtainable from beekeeping suppliers at strength of 80%.

Make a stack of boxes and combs needing treatment. On top of each set of frames place an absorbent pad on a saucer or plastic tray and pour about a third of a cup of acetic acid onto the pad. Place a solid cover board on the top of the stack and seal all joints; packing tape is suitable. Let the fumigation proceed for about a week then air the combs thoroughly for another week.

Acetic acid is very corrosive. It will remove skin very quickly. Wear overalls, rubber gloves, eye protection and a breathing mask. Don't place the stack on a concrete or brick floor and remove metal ends.

Note

PDB (paradichlorobenzene) is **NOT** recommended and should not be used as the substance can accumulate in wax. Moth balls or any product containing naphthalene should NEVER be used as they are poisonous to bees.

*This leaflet is provided for general interest and information only.
No liability is accepted for any injury or loss arising out of the contents .*

© BBKA 2007 (4th edition), The British Beekeepers' Association,
The National Agricultural Centre, Stoneleigh, Warwickshire CV8 2LG

Aims

The purpose of good apiary hygiene is to prevent the spread of disease between honey bee colonies and so maintain healthy bees. Good hygiene can also help to ensure the production of unadulterated honey. Low levels of disease are not always recognised and their presence can stress bees, making them even more susceptible to other diseases. A wide variety of diseases can be avoided by adopting hygienic practices.

1. Disease transmission and its prevention.

The major agent in the spread of brood diseases is the beekeeper.

If any contaminated combs or hive equipment are transferred to a healthy colony it becomes infected.

Action

- Avoid moving frames between hives, this includes both brood and super frames.
- Replace supers after extracting back to same hive for cleaning
- Keep all equipment (hive tools, queen cages, brushes etc) as clean as possible, as explained in sections 2 & 4

Beekeepers could introduce pathogens or chemicals into the honey.

The risk is low but causing human disease has a high public profile.

Action

- When manipulating hives, avoid placing frames or supers on the ground or grass to minimise the chance of contaminating honey or wax.
- Wash your bee suit and boots regularly to remove pathogens and promote a clean image of beekeeping.
- Be scrupulous in following the instructions provided with veterinary products and use only those which have low risk of contaminating the products of the hive.

The bees also have a part to play.

Bees attracted by the scent of honey will rob out weak infected colonies and forage round dirty comb and equipment left lying around carrying the infection back to their own hive.

Action

- Don't leave old combs or wax lying around near hives, always collect it into a container that can be closed and remove it from the area of the hives keeping it sealed.
- Seal hives where colonies have died. Move well away from flying bees, dismantle and treat as in 3c, also burning the dead bees.

In certain circumstances bees alone can transport infection.

Although worker bees usually stay with their parent colony, drones do move from hive to hive. Drifting of infected workers can occur and carry infection to neighbouring colonies.

Action

- To minimise drifting hives should be arranged to enable the bees to find their own colony with ease. It helps to have coloured roofs and entrances facing in different directions
- They should be well spaced. (1.2 to 1.5 metres) suggested.

Bees from another apiary could bring in disease.

Swarms from an infected hive may carry infection and become diseased after they have been hived.

Bees from a colony infested with varroa have been known to abscond and take refuge in neighbouring hives.

Action

- Swarms of unknown provenance should be housed in an isolation apiary on new foundation and not fed for 48 hours so that all the honey they carry is used for wax production. They should be treated for varroa and need to be kept in isolation until the health of the brood can be properly assessed.
- Regular monitoring of the drop rate of varroa in all colonies will alert the beekeeper to a sudden infestation. He can then take appropriate steps according to the season.

These guidelines are intended to reduce the chance of disease spreading, they are not intended for controlling an outbreak of a serious, notifiable, disease such as AFB or EFB where guidance will be given by the Appointed Bee Inspector .

2. Inspection Routine.

- Take a bucket of washing soda solution to the Apiary to rinse tools and gloves between each hive. Use rubber or latex gloves as they can be washed easily. Replace regularly.
- Take a box with lid in which to put brace comb, propolis scrapings, queen cells etc and plastic sacks for frames that you need to seal off and remove from the site.

3. Cleaning and caring for equipment

Have a routine for separating used items needing cleaning from clean stock. Try to store all cleaned stock in a separate building.

- a. Clean all used equipment (supers, brood boxes etc) in between re-use. If solid floors are used or there is a solid sheet below the varroa mesh these should be changed and treated regularly. A blow torch is a convenient way of sterilising these wooden parts. Fumigation with Acetic acid or Sulphur dioxide is very effective if reuse is not urgent. (see section 4). Second hand equipment should be thoroughly sterilized before taking to the apiary and any second hand comb should be burned.
- b. The wax from older super comb can be cut out and recycled and the frames boiled in soapy washing soda solution to clean and disinfect them. (An electric boiler or old tea-urn is a valuable piece of equipment for the bee-keeper)
- c. The wax from old brood comb should be cut out and destroyed by burning, preferably in an incinerator. Take care when burning a large quantity of wax as it is highly inflammable. The frames can be boiled in soapy washing soda solution as above.
- d. Super frames with clean unbroken comb should be preserved. Good quality drawn comb is a valuable asset for the beekeeper and must be stored carefully to avoid damage by wax moth or mould.
- e. Supers with good comb usually winter well if stacked outside with a queen excluder on the bottom and another as a crown board below the roof. This allows air to circulate but keeps out the mice. It prevents mould and allows spiders to get in to control wax moth. The freezing winter temperatures kill off the wax moth too.
- f. Brood comb is more susceptible to wax moth although about 5 days in a freezer then sealing the boxes containing the combs to avoid further infestation should solve the problem. Acetic acid, Certan or Sulphur dioxide can be used to disinfect and control wax moth.(see section 4) This treatment may need to be repeated during the winter.