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Changing Brood Comb

Bristol Beekeepers

Comb in the brood box can best be thought of as the liver of the colony. After a period of time a large number of pathogens will build up in the comb. If left unchecked, these pathogens can negatively impact on the colony's health. It is for this reason that the NBU recommend changing brood comb at least every three years; it is well known that comb change can massively reduce varroa and other pathogen buildup (nosema spores) too. In addition to health reasons, other causes for comb change include: moving to a different size brood box (e.g. 14x12 to Commercial, say) or replacing damaged comb.

Since comb in supers isn't used for brood rearing its buildup of pathogens will be significantly less than brood comb. However, there will come a point when its appearance degrades and it is longer suitable for honey storage. The techniques below are aimed at brood frames and are unnecessary for supers. Replacement of super frames is simply a process of removing empty frames and exchanging with fresh foundation.

There are 3 common practiced methods of brood comb change:

1. Single frame exchange,
2. Bailey Comb Change and
3. Shook Swarm.

Single Frame Exchange

Once the frames (no more than 3) have been identified, over a series of inspections they are progressively moved towards the edge of the brood box. Once there they may be exchanged for new frames. In order for the bees to draw out the frames, it may be necessary to move them towards the brood nest. Care should be exercise to ensure that the brood is not split.

This is a easy but slow, iterative method of comb exchange and, though useful for a small-scale beekeeper, it does not lend itself to a wholesale refresh of the brood box.

Bailey Comb Change¹

This method was developed by Lesley Bailey and is a reliable way of changing all the brood comb in a colony. Several additional items of equipment are required:

- a new, clean brood box,
- an additional queen excluder, ideally with an entrance above it
- a large feeder such as an Ashforth, Miller or rapid jumbo.
- heavy (2:1) syrup

This should be carried out early in the season, say April. The technique is as follows:

- the new foundation needs to be drawn, so place the brood box containing it above the old brood box
- place the feeder on top and fill with heavy syrup
- about a week later, find the queen and cage her
- place the Bailey board above the old box, under the new, with the entrance open and in the same orientation as the old entrance
- close the bottom, old entrance
- release the queen onto the new drawn comb
- fit the Crown Board and roof
- unless there is a heavy flow, ensure there is adequate syrup in the feeder
- after 24 days (period it will take for a drone to emerge from an egg) the bottom box, Bailey board and feeder are removed and the comb rendered.
- Fig 1 summarises this process

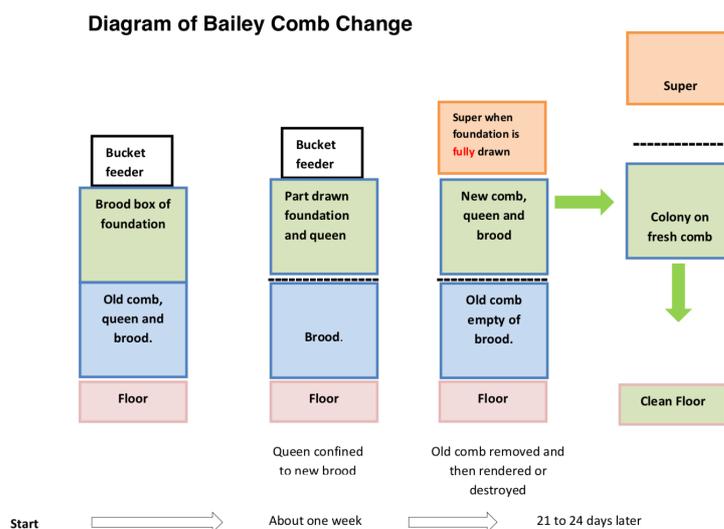


Fig 1: Bailey Comb Change

Shook Swarm²

Like the Bailey Comb Change method, Shook Swarm (or Shakedown, as the Americans call it) allows for all the brood comb to be changed at once. It is quicker and simpler than Bailey, but results in loss of all brood and is intense on the colony. Additionally it is a recognised method of treating a colony for European Foul Brood³, *Melissococcus plutonius*, too. The additional kit required is:

- clean brood box, filled with clean/new frames fitted with foundation
- large feeder
- heavy syrup (2:1)

It is worthwhile, too, to provide a clean floor during this manipulation. The technique is as follows:

- move the hive to one side
- place the clean floor, with a queen excluder on top and the new brood box on the old stand
- place an empty super on top
- find the queen and cage her
- remove 4 frames from the new box and set to one side
- shake each and every frame into the new brood box
- place the queen onto a new frame
- carefully insert the 4 frames
- remove the super and put a feeder in its place, filled with heavy syrup

A week later, check to make sure the comb is being drawn out and eggs are being laid. Remove the queen excluder from under the brood box and return it to its usual position. It may be necessary to continue feeding heavy syrup, and reversing outer frames, until they are drawn. At this point the feeder may then be removed and normal practices (i.e. supering etc.) may continue.

References

1. *Replacing Old Brood Comb*, National Bee Unit, Mar 17.
2. *Shook Swarm*, National Bee Unit, Mar 17.
3. *Foulbrood Disease of Honey Bees and other common brood disorders*, National Bee Unit, 2017.