

Treatment Free beekeeping
(Reducing varroa without miticides)

Information sheet 6

Queen Frame Trapping

- Queen Frame Trapping is a chemical free method of reducing varroa with a claimed efficacy of 95%. It can be used to reduce mites in the summer (July/August), ahead of the important winter bees being laid from August onwards
- The Queen Frame Trap envelopes a brood comb where the Queen is laying. Nurse bees enter the cage to look after the brood. Varroa, attempting to reproduce, enter the open brood cells within the caged comb, and, when the cells become capped over, the frame is removed along with the mites.



- The bees continue to forage and store honey. As no chemical treatments are being used, the timing of honey extraction can fit around the needs of the beekeeper and any late nectar flow can be captured.
- Just to recap on the brood cycle for worker bees;-

3 days as an egg

6 days as open larvae (when mites enter to breed)

12 days as sealed brood ("Mite Frame") before hatching

So the beekeeper has a 12 day window to remove the sealed "Mite Frame" .

Method

- Requires a frame of drawn comb (although foundation can work) and drawing pins to mark the frames
 - Add a small hole through the comb so that the Queen can pass and lay on both sides.
1. Find the queen and place ("feather") her onto the empty drawn comb inside the trap. Then close up the trap and place in the broodnest. As the Frame Trap is larger than a brood frame, the dummy board or end frame will need to be removed. Weekly inspections are straight forward from now on.
 2. After 7-9 days, remove the trapped frame, mark with a drawing pin and leave it to be sealed in the brood nest next to the Queen cage

Re-load the Frame Trap with an empty brood frame and the Queen.

Check other brood frames and remove any queen cells (nb; this should be the last time the bees could make any Queen cells from young larvae)
 3. After 18 / 19 days, both frames should be full of sealed brood and trapped varroa mites, as this was the only brood available to the mites for breeding.

NB; the 1st frame will be 3 days from hatching and the 2nd frame 7 days
 4. Remove both frames (ideally, replace with drawn comb). These can be rendered down for wax or the cells uncapped and the contents hosed out to become a source of drawn comb.
 5. After the frame trapping period is over, release the Queen back to a colony with a significantly lower mite count at a time when winter bees are beginning to be laid (mid August – October)

Over what period should the Queen frame trap be used?

The above example uses 2 Queen frame trapping periods; this should suffice for a nuc or colony which had recently benefited from varroa reduction (eg Shook Swarm). For a large colony, which had no swarm or other interruptions in the brood cycle, the summer varroa load will be high and benefit from a further cycle of trapping brood and mites. Note: Assuming that there were eggs laid before the Queen was caged for the first time, to capture the mites breeding in them, the Frame Trapping should last beyond the normal brood cycle of 21 days more maximum capture of mites. In effect, Queen Frame trapping is a series of "bait combs" (see TF Info Sheet 5).

When to start?

For a large hive, where 3 Queen Frame trapping periods are employed, mid July is a good starting point. This will leave ample time for the Queen to start laying winter bees from August onwards.

Why might Queen cells be made?

This might occur due to the Queen substance not being so strong in all parts of the hive. Take these down on the first inspection (or use them to make an increase) and from then on, there wont be young enough larvae to make any new Queen cells.

Why does honey gathering increase?

Bees are released from their brood duties to forage. Together with less brood to feed and keep warm, more of the incoming nectar is stored as surplus. So add supers!!

Why is brood being sacrificed?

July, August and September sees the peak months for varroa infestation. Infected bees make little contribution to the colony and can lead to its collapse. Tackling the issue before the varroa can dominate is the logic. Historically, varroa numbers would be significantly higher when chemical treatments took place in August or September, after the honey extraction.

Sadly, until bees adapt to living with varroa, which is our long term goal, there will always be a "tax" on the colony in dealing with mites, whether using bio-technical methods or chemical treatments

Is this stressful to the Queen or colony?

Dealing with varroa and the viruses they vector is stressful to the colony, which is why beekeepers try to reduce varroa numbers. Treatment Free techniques (and chemical treatments) probably cause some stress to the colony, but less than the impact of leaving large numbers of varroa mites.