Animal & Plant Health Agency

National Bee Unit

Shook swarm

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Shook swarms involve transferring adult bees onto fresh foundation in a clean hive and then destroying the old comb and any associated brood. Shook swarms are both an effective means of controlling pests and diseases and can be used to replace old combs. This fact sheet describes how to perform a shook swarm.

Why shook swarms are used

In the UK, shook swarms are used to treat colonies suffering from low levels of the brood disease, European foulbrood (EFB), replacing the use of antibiotics which are less effective[1]. However, in the UK, EFB is a statutory notifiable disease and if EFB is suspected in a colony, beekeepers are legally obliged to inform the NBU. Shook swarms for the treatment of EFB are performed only by, or alongside, an Appointed Bee Inspector (ABI). **The protocol described below is for shook swarms where EFB is not present.**

It has been shown that a shook swarm is effective to reduce levels of *Varroa*[2], and can be used to treat colonies suffering from heavy chalkbrood infection[3]. It is also well worth performing a shook swarm if the colony has a lot of old and dirty brood frames.

When shook swarms can be carried out

The best time to carry out a shook swarm is between mid-March and mid-July, depending on the locality. The colony needs a substantial population of young bees at the right age to make wax; the majority of wax building bees are between 10 and 20 days old[4]. It is usually too cool for bees to effectively draw new comb before March and the loss of brood can be detrimental so early in the year. If a shook swarm is being used as a routine management tool, then it is best to avoid the period when eggs are laid that will develop into bees that will forage on the main honey flow. This will depend on the beekeeper's geographical region and experience of local main crops.

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[1] Waite, R.J., Brown, M.A., Thompson, H.M. and Bew, M.H. (2003) Controlling European foulbrood with the shook swarm method and oxytetracycline in the UK. Apidologie, 34 (6). DOI: doi.org/10.1051/apido:2003052

[2] Mortensen, A.N., Jochym, M., Dearden, P.K. and Sainsbury, J.P. (2023) Old strategies as modern solutions, shook swarming reduced *Varroa destructor* infestation rates of managed honey bee, *Apis mellifera*, colonies. Journal of Apicultural Research, 1-7. DOI: doi.org/10.1080/00218839.2023.2243044

[3] Betts, A. (1935) The diseases of bees: their signs, causes and treatment. Published by The Apis Club, UK.

[4] Goodman, L. (2003) Form and function in the honey bee. Chapter 8: Glands. Jointly published by The International Bee Research Association and Northern Bee Books.

Preparation

Before getting started, you will need the following materials:

- A replacement brood chamber filled with clean frames of fresh foundation, floor and entrance block, crown board and roof
- A framed queen excluder
- A rapid feeder with capacity for at least 4.5 litres of feed
- Foam strips or other material for blocking entrances
- Strong plastic bags or paper bags large enough to place combs/frames and parcel or gaffer tape to seal them
- A queen cage (optional)

You will need to:

- Prepare 4 litres of strong sugar syrup by dissolving 1 kg of granulated white sugar per 500 ml of warm water
- Ensure all equipment is clean before use

Method for shook swarming

Shook swarming is not recommended for small colonies of less than 6 frames of bees. If shaking a small colony is necessary, then transfer them into a nucleus box.

Step 1. Move the hive that you intend to shake a short distance away from its original site

Figure 1: Assemble a clean hive where the hive you intend to shook swarm was sited; move the original hive a short distance

Figure 2: Ensure the queen excluder is beneath the brood box before shaking the bees in; this prevents the bees from absconding with the queen

Step 2. Place the clean floor on the original hive site. Put the queen excluder *over the floor* and then place the clean brood box containing frames of foundation on top of the queen excluder. Use an entrance block to support the queen excluder if it sags at the hive entrance on the original hive site

Step 3. Remove the centre four frames from the new brood box and put them to one side. The flying bees from the old hive will return to this clean brood chamber

Step 4. Open the hive you intend to shake, removing the supers and queen excluder (if present). Place them inside the upturned roof. Examine the old brood chamber and find the queen

Note: If you are not comfortable with finding the queen, then ensure you carefully shake the bees into the new colony and carefully check every piece of kit before reassembling it. When shaking frames, they should not be literally shaken but rather the bees are knocked off by a quick downward motion of the frame; being careful to avoid knocking the frame against the hive or other frames (see below)

Step 5. Once the queen has been found, place her between the frames of foundation in the new box, or in a queen cage so that she can be released into the new chamber when you have finished shaking the bees

Step 6. Shake all the bees from the old combs into the new chamber. This is done by holding a frame of bees about one third of the way into the gap left between the frames of foundation in the clean chamber. The frame is then moved quickly downward and suddenly stopped. Try to avoid knocking the comb against the chamber. The bees will fall off the comb into the new box and any remaining on the comb can be brushed off

Step 7. Shake and brush bees on the old equipment into the new chamber. If there are any supers, shake the bees from them into the brood box

Figure 3: Tightly grip the lugs of the frame and lower it gently into the space between the frames. Give the frame a sharp downward shake into the brood chamber

Step 8. When all the bees have been shaken into the new brood chamber, replace the frames of foundation that were removed to create space. Rest them into the gap and they will slowly sink down as the bees disperse upwards from the floor onto them. Take the queen out of the cage and place her into the brood box if she has been caged during the process.

Figure 4: Once the bees have been shaken into the new brood box, the remaining frames of foundation can be carefully placed inside the box

Step 9. Put the crown board in place

Step 10. Feed the colony with a 'heavy' sugar syrup. Any supers can be placed above the feeder until the feeder is no longer needed; then it can be placed above the queen excluder as normal

Step 11. Inspect the colony after a week to check for brood. When brood is present, the queen is unlikely to abscond, remove the queen excluder and clean it appropriately. If there is no brood present, check again in another week. Only remove the queen excluder when you can see eggs and larvae

Step 12. Maintain feeding until all combs are drawn out. At this point, the end combs may need to be turned around or moved one frame into the chamber. This is because bees find it hard to cluster and create wax on frames adjacent to the side of the brood box

Aftercare

After a colony has been shook swarmed, it will need to be checked regularly to ensure the colony recovers its strength. For more detailed information on how to care for a colony after a shook swarm, please see our fact sheet on 'Care of colonies after a shook swarm'.

Figure 5: After a shook swarm, the colony will benefit from having clean frames and freshly drawn-out wax. The colonies in these photos are 16 days post shook swarm

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