Small Scale Queen Rearing: Part 3

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Having done your grafting, check, one week later, how many queen cells have been completed and how many mating hives you will need to prepare. Earlier, while planning, you would have decided which mating hives to use. Standard four- of five-frame nucleus hives use the same frames as full hives and may produce better mated queens, but they are expensive and require more bees to stock them. Mini-hives are cheaper and require fewer bees, but their management is demanding. If your apiary space is limited, a dedicated large brood chamber hive, subdivided by bee-tight division boards into several compartments, is a good compromise. Each compartment has its own entrance, facing in a different direction. Frames can be four normal Nationals, or four or five, half-length, full-depth frames of other sizes. Each stock generates sufficient warmth for successful transfer of sperm in the newly mated queen into her spermatheca and the small colonies can keep each other warm in spells of cold weather. A second batch of queens will successfully over-winter in the multiple compartment hive even in the harshest of winters. Ten days after grafting, distribute the queen cells into your mating hives.

Unmarked queen. Photo courtesy of The Food and Environment Research Agency (Fera), Crown Copyright and supplied by the National Bee Unit at Fera.

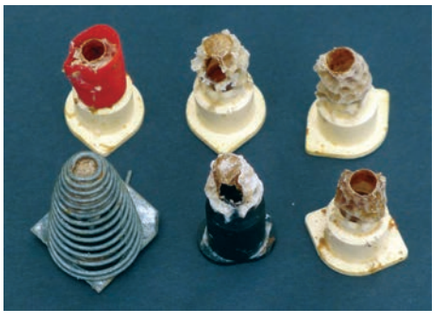
Mating hives set-up

Mini-nuc hives: Bees like to abscond from mini-hives, so they need to be confined in mini-hives for a period of two or three days. Professionals introduce virgins, hatched in incubators, into mini-hives which were set-up with bees confined within them previously. I successfully introduce queen cells and confine bees afterwards. For stocking up the mating hives, bees can be 'harvested' from upper brood chambers of several support colonies, providing they are strong and healthy. The impact is minimal and it will help control swarming. Bees are shaken off brood frames into a washing bowl or bucket and moistened with fine water spray, preventing them from flying. Make a dedicated square-sided scoop of 300ml volume from a carton, or similar for measuring the required volume of bees.

For the easier set-up, first fill the food compartment of each hive with bee candy. If you do not have it, use dry white crystal sugar, slightly moistened with a fine water spray. Unless you stocked up your mini-hive with bees which nurtured the queen cells, protect the flanks of the queen cells with proprietary queen cell protectors, or with an electrician's insulating tape or similar, leaving only the tip exposed. Place your protected queen cell between two mini-frames fitted with 25mm starter strip foundation, leaving the third frame out for now. Pour in 300ml of 'wetted' bees, replace the last frame and close the hive, including the integral entrance, making sure that the ventilation panels are not obscured.

Using bee candy makes it easier. After filling the food compartment, put in the ripe protected queen cell between the frames, leaving all three mini-frames in. Close the plastic crown board, replace the roof, turn the mini-hive upside down, slide out the

ventilated floor and tip in a scoop-full of bees between the frames. Slide back the floor, close the entrance and turn the hive the right way up again. After completion of the set-up of each mini-hive, place the mini-hives in a cool, dark place, at the bottom of a shady hedge or in a cool cellar for three days. After this period of confinement you can move the hives to their final location and open their entrances. Five days after



Six queen cells. Photo by Rudy Repka.

the mini-hives have been set-up, you can check if your queens have emerged successfully. A perfectly round hole at the tip shows this. An oval hole in the flank of the queen cell indicates that your bees killed the grafted queen. Three weeks after the set-up, you should see drawn combs filled with eggs and young brood. If not, cull the queen and shake out the bees.

Multi-compartmental mating hive: The set-up is similar to mini-hives, except that 500ml to 1,000ml of bees are needed for each compartment, depending on its size. Feeding is usually with sugar syrup.

Full-size frames, individual nucleus mating hives: For each mating hive set-up, 'harvest' two frames of older, preferably capped brood and one frame of food with all bees attached from your support colonies, ensuring the queen is not removed. Fill the remaining space in the nuclei with any frames available. Place your ripe, protected queen cell between the frames of brood, tip in a further 300ml of young bees from the same colony which donated the frames and close the hive. Close its entrance with a piece of wire mesh, confine the set-up hives in a cool, dark, shady place for three days, before moving them to their final location, then you can open their entrances.

If you are prepared to sacrifice the cell-building (nursing) colony for stocking up your mating hives, this method is reliable and the simplest of all methods.

Set the required number of mating hives in a ring around the nursing colony, with entrances facing towards the centre. Find the colony's queen and put her with

Mating nucleus hives, arranged in a circle in the apiary. The parent colony was initially located in the centre of the circle. Photo by Rudy Repka.

the frame she is on, with a frame of food and with all bees attached, into another nucleus hive elsewhere in your apiary and close it, including, temporarily, its entrance, for two days. Place a frame of food and two frames of brood from your nursing colony into each of the mating hives in the ring, until you have distributed all the frames. Distribute all viable queen cells to the mating hives in the circle. If your nuclei are short of any frames, take them from your other supporting colonies, but ensure that neither bees nor the queen are attached. Knock out all the remaining bees from the parent hive and remove it from the site. All you need now is good weather.

Note: because you are using the same bees which nursed the queen cells, there is no need to protect the cells, nor confine the bees.