Queen Rearing Method as used by Steve Rose

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This is a method I developed from a system employed by Jim West of Nottinghamshire. He has successfully used a Van der Kerkhof hive for some decades and has used it to produce a nuc. based on emergency cells every couple of weeks throughout the summer. I realised that his 2-queen hive might have solved the problem of persuading non-prolific and non-swarmy bees to produce queen cells in respectable numbers so in the winter of 2010/11 I built 6 half size brood boxes to experiment with a similar 2-queen system.

2-queen hive built with 6 half sized National brood boxes

As can be seen from the picture the hive is made with 6 half-sized brood boxes below standard National supers. The bottom four boxes form two adjacent towers, each containing 10 brood frames and a queen. Each tower has its own entrance and half sized queen excluder on the top so that the queens can never come into contact with one another. Above the queen excluders are another 2 half size brood boxes running at 90 degrees to the lower ones, thus allowing the workers to mix freely. Above these are as many supers as are necessary.

The method I used for raising queens was to put a frame of young brood and another of pollen from below a queen excluder into one of the top brood boxes and amongst the honey and nectar that was already there. After a day, when the brood was covered in nurse bees, a thin sheet of plastic film, cut from an animal feed bag, was slipped beneath the top brood box containing the young brood and a grafting frame was put between the young brood and the pollen. This meant that the bees in there were cut off from much of the queen pheromone from below but the bees could still access the box freely by climbing over the top from the adjacent box. After another day the grafts were inserted and two days later the plastic film was removed to make the arrangement fully queenright again. Any time after the cells are sealed the whole procedure can probably be repeated in the

other box. With careful timing a set of cells can, in theory, be produced every week or so without significantly affecting honey production and without having to handle queenless bees. Furthermore the queen cells are probably produced by the supersedure impulse which, hopefully, will produce better queens.

I tried the system twice during the summer and got an average of 60% success rate. This might not sound high but is much better and more consistent than my earlier attempts with other queenright systems.

In the summer of 2012 I tried a similar system with a normal, single queen colony. As far as I know it's a novel system although the older I get the more I realise that nothing is ever completely new!

Single queen hive with half size cell starting boxes

To my delight it worked even better than the 2 queen system although I am not sure whether the improvement was due to the system or my improved grafting technique. During both summers of 2012 and 2013 I had two hives set up like this and managed to produce 16 or 17 queen cells every week. Both years the colonies eventually produced their own swarm cells although it was late in the season and oddly enough, both times each hive swarmed within a day of each other. I artificially swarmed them both and continued attempting to graft into them despite there being natural swarm cells in the bottom boxes. Acceptances continued for a while but soon petered out. I think the colonies swarmed late because I had been robbing them throughout the season to put brood in the top boxes.

Below is a summary of the system timetable used in 2013.

- Put queen excluders and 2 half brood boxes over a standard colony when the first supers would normally be fitted.
- Wait for bees to start to putting nectar in the half boxes and mature drones are available.
- day 1 - move one frame of open brood and one of pollen up into one of the top half boxes.

- day 2 - slip a queen cell frame between the brood and pollen frame in the half box and leave existing nectar bearing ones in the other two (outermost) positions. The national half boxes hold 5 frames each. Put a plastic film over the queen excluder and under the half box with the brood etc. Leave the other half box on its own queen excluder and accessible to the bees below. Above the two half boxes will be a crown board or supers.
- day 3 - charge the queen cell frame with young larvae by either grafting or any other method. (So far I have only tried the grafting method)
- day 4 or 5 - remove the plastic film (leaving the queen excluder in place) so that the queen pheromones have normal access to the box again.

Explanation

When the brood frame is moved up into one of the half boxes it attracts nurses from below. When the sheet is put under this box the queen pheromone is largely cut off but the bees can still enter from the top, either through the bee space under the crown board or via the super above. If a super is present I like to fit it the wrong way round so that its frames are at 90^{o} to the brood frames. I suspect this aids the bees' passage through the system. When the grafted larvae are introduced the bees accept them straight away and can use the nectar and pollen to produce royal jelly for them. After a day or two the queen cells are well underway and on removal of the plastic film the bees continue to nurture the new queens. I find that removing the film after two days is more reliable than removing it after one although very few, if any, are abandoned either way.

I usually start the process again 2 weeks from day one and use either of the half boxes, depending on where the best stores and most bees are. It might be possible to start the second box before the first batch have been completed but I have not yet tried it.