Bristol Beekeepers

Bristol Branch of Avon Beekeepers Association

A registered charity established to advance the science of Apiculture and to promote and foster the education of the public therein.

Registered charity number 271717

Bristol Beekeepers Intermediate Training: Queen Rearing May 19th.

There are several stages to Queen rearing which we will go through:

1. **Select the "Breeder" queen** you are going to use: This should be the best colony in the apiary. Definitely a gentle queen – the colony reluctant to sting, with no history of disease, good productivity, good overwintering history etc. I plan to use an extremely gentle Buckfast queen as our breeder.

2. **Decide on a particular queen rearing methodology:** There are many, dependant on how many queens you want, or how much handling of queen cells you want to do. For this training we are going to use 2 methods, first the Miller Method, and second a Grafting technique. For the latter, we will use the N.B. Cupkit equipment, but not the queen cage technique.

The Miller method requires a frame with foundation cut into a series of triangles, to be put into the brood chamber of the chosen breeder queen 7 days in advance. The bees will draw the foundation and the queen will start laying eggs in it, and hopefully we will have brood of exactly the right stage towards the outer edges of the triangles. The cells we choose for queens will be trimmed back to be partially open to the bottom, encouraging the bees to raise a queen from them.

Grafting requires the cell cups to be prepared and mounted in a queen rearing frame with the bases mounted. Larvae of the right age may be lifted from a frame from the donor colony with a variety of grafting tools. These are a personal choice, and for simplicity, I suggest using a DIY tool made from a Kebab skewer, cut at an angle, to give a small flat "spoon", and a second one which can help push the larva off the spoon into the cell.

3. **Prepare a "Starter" Colony:** One colony can be used as both Starter and Builder, (see 4 below). The Starter colony has to have no queen, plenty of flying bees and

a good number of young bees, and minimal brood of queen rearing age. The grafts / Miller frame are placed in the Starter colony, and the Emergency queen rearing instinct will make the bees start queen cells in the majority of the cells offered. The cells are left for a maximum of 48 Hrs, before moved to a Builder (Finisher) colony. In practice, the brood frames with bees and queen are split off from the colony with a Snelgrove Board, into a top box, and the remainder of the colony becomes the starter in the bottom box.

4. **Prepare the Builder Colony.** To build and finish the queen cells, we need lots of young bees with brood, so the queen in the top box is found, and moved to the bottom box, and all the started queen cells are moved into the top box adjacent to plenty of pollen especially. The Snelgrove board is replaced by a queen excluder, so the income of pollen etc can feed the brood rearing. The Queen cells, now started, should all be brought to the point of sealing, and the colony is now queen right, and has effectively had a Demaree procedure, so should not swarm.

   Starter and Builder colonies can be separate, especially if large numbers of queens are being reared, but we will use one colony and convert from the one phase to the other. This is a process used by the NBU.

5. **Larvae Selection:** With the Miller frame, after 7 days we should see a pattern of the older larvae in the centre of the V sections and the younger towards the edge, with eggs outside them, then empty cells. We trim the comb back to the point that larvae of the right age are on the edge, reduce the numbers to a manageable quantity, and open the bottom "side" of the cell, so that it can be built to hang down like a queen cell. The frame is placed in the Starter colony.

   For Grafting, we select the very smallest larvae with a good bed of royal jelly, carefully lift the larva and jelly, and transfer it into a pre waxed cup from the cupkit system. 10 of these are prepared on a frame. This is now put into the starter colony.

   After 48 Hrs, these are moved to the finisher colony. TIMING IS CRITICAL. These are now at **day 4-5** of the queen's 16 day incubation period. After 7 days from the grafting, the queen cells will be sealed. (**Day 10-11**) At this point in time, we put the cell protector "Hair Curler" on. With these, we can wait until the queen emerges, or we can use the "ripe" queen cell to introduce to a colony in the next 3 days. With the Miller frame queen cells, they have to be either carefully cut out and put into hair curlers, or introduced to a prepared colony with some suitable protection.

6. **Mating Nucleus Colony preparation:** The next step is to prepare a nuc for each queen to mate from. This may be a 4 frame well balanced queenless nuc, or a "Micro" mating colony, such as the Apidea. This will be the subject of another full day's session, (2nd June) when we will set up mating nuc's of different sizes and shapes. If you want to have one of the queens reared yourself, you will need to prepare a nuc yourself.

   The virgin queen or ripe queen cell is introduced to the nuc, and left alone for at least 2 weeks for the queen to mate. After 2 weeks, inspect to see eggs / larvae. If none present leave another week or two – weather dependent. If 4 weeks have passed and the queen has not started to lay, the process has failed.