

QUEEN REARING

Nicot Box and Cloake Board

- ▣ Most beekeepers have been, for some time, trying to deal with controlling the Varroa mite, small hive beetle, Nosema, and a host of other issues in the apiary, in addition to preventing swarms. CCD (collapsed colony disorder) has forced beekeepers to search for other ways to minimize the effectiveness on apiaries.

▣ Perhaps one of the most important actions a beekeeper may elect to take to keep hives healthy is to requeen hives every year. Some commercial beekeepers already perform this step, for reasons of honey production and pollination. They understand that a strong hive is necessary, in their business. Some believe it is equally important to prevent the weakening and ultimate loss of the hive. If we maintain a strong hive, in all probability we can improve the prospects of hive survival. Thus, Queen Rearing, by many of our beekeepers, becomes paramount.

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- ▣ There are many methods of Queen Rearing. Some of these are; the Doolittle Method, The Jenter (Nicot) Method, and The Hopkins Method. The main difference in these systems is the method used of getting larvae into “queen cups”. Some After investigating the various methods of raising queens, the Nicot Box & Cloake Board method was selected for my queen rearing activities.

The Doolittle Method (G.M. Doolittle) is to graft the appropriate aged larvae into some homemade wax cups. This requires a bit of dexterity and good eyesight, but is the most popular method used. Today plastic cups are often used in place of wax. The queen is sometimes confined to get the right aged larvae all in one place for easy selection. #5 hardware cloth works well for this as the workers can pass through it but the queen cannot. This is usually put on old dark brood comb to make the larvae easier to see and to make the cell bottom more sturdy for grafting. Once you have a good eye for the right age larvae this is less critical and one can do this by simply finding the right age larvae. On day 14 these are usually put in mating nucs.

▣ Three Days Before The Graft



▣ Create a Strong Queenless, Broodless, Starter Colony. (Cloake Board Method).

- ▣ Choose a strong colony to create the starter colony (top box). This colony does not need to be the same colony that was used as the queen mother. *The theory is to stimulate the swarming impulse by crowding the bees and feeding them well, and also to stimulate their emergency need to raise a queen because they are queenless. They have no brood, so they have almost nothing to do but to feed the young queen larvae we give them.* This method uses a strong 2-box colony as a cell starter colony, and temporarily uses a split board to make top box queenless.

- ▣ Rotate the bottom colony around, 180 degrees, so the main entrance is at the back. Close this back entrance and install the Cloake Board (with split board removed) so that it opens to the opposite side of the hive from the lower opening (which has been closed), which will force the bees to use the new upper entrance. The entrance to the top box should be facing the front of the hive. Field bees that leave the main rear entrance will return to the top box, further crowding and feeding the young worker bees. Leave the hive alone for a few hours so the bees adjust to their queenless, crowded hive. Install a top feeder with 1:1, sugar: water solution.

▣ Day Before The Graft

- ▣ **Install 110 brown cell cups in the box.** Secure the queen rearing box to a frame of empty comb or an empty frame. Attach the box to the underside of a top bar with wire, string, or inserted into a cut-out section of honeycomb. At this time, remove the young brood from the bottom box and place in the top box. They can be transferred to a nursery colony or placed in a weak hive.
- ▣ **Place the frame containing the Nicot box (without cover) into the brood nest of the hive that has been chosen to be the breeder queen.** This allows the bees to polish the cells and for the box to acquire the smell of the hive. The chosen colony should have bees that are gentle and good honey producers. Continue feeding the breeder colony with sugar syrup, with the hive top feeder) to stimulate egg laying and brood rearing. The syrup is made from approximately equal parts by volume of regular granulated cane sugar and warm water. **Place the split board into the Cloake Board and open the back entrance.**

Cell Box and Cell Holders on Frame





▣ Day One- The Graft.

- ▣ Locate the breeder queen in the lower box and confine her in the Nicot box. The queen excluder (front of the Nicot box) will confine her while allowing the worker bees to move freely. Continue feeding syrup. Open the colony with the least amount of disturbance, no smoke, and place the Nicot Box in the empty, center space of the upper box. Allow the frame of the queen cells to “float” down among the festooning nurse bees filling this space in the top box. The queen cells should remain in the starter colony for approximately 24 hours

▣ Day Two

- ▣ The day after the cells have been accepted, remove the slide in the Cloake Board to create a queen-right cell builder. Close the rear entrance. Inspect the bottoms of the brown cell cups for eggs. Now transfer the queen larva to cell bar frames and install in the Starter Colony. Do this work in the shade. Remove the back of the queen kit. Transfer cell cups containing larva into specially-made holes on the cell bar frames. Inspect each brown cell cup for larva as you transfer them to the cell bar. The larva is small, but if there is liquid at the bottom of the cell you can be confident that a larva is present. Place the cell bar frame(s) into the starter colony with pollen and honey on each side of the cells. If the queen cells are on two frames, place a frame containing pollen between the cell bar frames. A typical starter colony can start 90-120 cells, but only 60 or fewer cells should remain in the finisher colonies. Try to work quickly enough that the larva are not out of the hive for more than 15 or 20 minutes. Open the entrance to the lower box.

▣ Day 5

- ▣ **Transfer the Queen Cell Bars to a Queen-right Finishing Colony.** When the developing queen cells are capped, about four and a half days after the graft, these can be moved to a nursery incubator colony to mature. Simply, place these above a queen excluder surrounded by young brood. The finishing colony should be a strong 2-box colony. They need a large bee population with plenty of pollen. It may be the same hive that was used to create the starter colony. Move unsealed brood to the top box.
- ▣ Make space in the center of the brood nest for the cell bar frame(s). Arrange the space for the cell bars so that it is near other frames of unsealed larva and a frame of pollen. Feed the sugar syrup continuously during the next 5 days.
- ▣ No more than 60 cells should be placed in the finisher colony so the queens will be well-fed and large.

▣ Day 10 or 11

▣ Transfer Mature Queen Cells to Mating Colonies.

Queen cells should be first placed in queen protection cages prior to placing in the mating colonies. It is best to install the cell between frames of sealed and emerging brood. The procedure at this step varies depending on how you are using the queen cells. If dividing colonies: Prepare queenless nucleus colonies containing sealed and unsealed brood, honey and bees an hour or two before adding one queen cell to each colony. Reduce the entrance to prevent honey robbing by other colonies. It is best to divide colonies in the late afternoon, so that any robbing will stop when it gets dark. Re-Queening: Locate and kill the old queen. Install a queen cell after one hour. Cells may also be installed without killing the old queen by protecting the cell from the mature queen's tendency to destroy them. However, the old and new queen will fight until one dies and it is uncertain whether the new queen will be successful.)

- ▣ Day 16

- ▣ Queens will hatch sometime on the 16th day (but sometimes on the 15th!)

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- ▣ Day 22-24

- ▣ Queens will go on mating flights.

▣ Day 25-27

▣ Queens begin laying eggs.

▣ **Inspect for Eggs of Laying Queens.** Most young queens should have laid eggs for a few days. Look for eggs and possibly very young larva to determine successful mating. Some queens may have only laid a few eggs, so look carefully.

▣ Successfully mated queens in nucleus colonies may be given a frame of sealed brood from a strong colony to accelerate growth of the colony. Feeding sugar syrup will also accelerate colony development.

▣ If no eggs are seen, the queen likely failed to return from a mating flight. Colonies with failed queens should be used to strengthen queen-right colonies. When combining bees from different colonies, spray the bees lightly with sugar syrup or use a sheet of newspaper to separate the bees to reduce fighting.

Notes

It takes almost four weeks to raise a laying queen, so start early.

Start more queen cells than you need. If 30 mated queens are needed, start 50 or 60 cells because some cells will not be accepted by the bees and between 10% and 35% will mate successfully. Extra mature queen cells can be transported carefully and given to another beekeeper.