

# Simple Queen Rearing

By Nick Withers

This is aimed at the less interventionist kind of beekeeper, perhaps the 'garden' beekeeper with say, 1-3 colonies.

Why do it? You will want to ensure you have young queens in your hives to give maximum vigour and minimum swarming. You will have to use one of the colonies to raise the queens without rendering it useless for honey production. You will probably only want to raise 1-3 queens or a few more for friends if you wish.

The method must ensure a good quality queen is raised but to be simple the queen cells will be emergency cells raised from larvae selected by the worker bees. As described there is no need to find the old queen.

For success you must know (or look up) the timetable for the development of a queen bee.

## Development of a Queen Bee

	Day	Stage	
egg laid	1	egg	best queens are reared as queen cells from eggs or very young larvae
	2	egg	
	3	egg	
	4	larva	
	5	larva	
	6	larva	
	7	larva	
cell sealed	8	larva	
	9	pre-pupa	pupae are very delicate and fit loosely in queen cells. Combs should not be shaken or roughly handled during this time.
	10	pre-pupa	
	11	pupa	
red eye	12	pupa	
yellow thorax	13	pupa	
yellow abdomen	14	pupa	
pupal moult	15	pupa	
queen emerges	16	adult	

From the above it is:

- 15 – 16 days overall
- 12 – 13 days from the oldest egg
- 8 – 9 days from the oldest larva that can become a queen
  
- 7 days: brood can no longer be raised into a queen
- 7 days: unsealed queen cells will not emerge in this time

There are three parts to the operation:

Preparation – getting the cell raising colony in the right condition to raise the queens.

Cell raising – raising the cells you want

Completion – making nuclei, installing the cells and re-uniting the colony.

Choose a suitable time to start, say during a good spell of weather in June. The colonies should be strong enough to have a couple of supers and a minimum of 8 BS frames of brood. If you feel the hives are not well developed enough or the weather is bad there is no harm in delaying a while.

There are three methods described here: queenless cell raising, which is the easiest understood, a method where the queen stays in the hive (based on Vince Cook's method) and a truly minimalist method, originally attributed to John Cox and passed to me by Brian Palmer.

### **Equipment List. (Methods A & B)**

- Stage 1.
  - a) 1 empty brood box.
  - b) Enough combs or frames with foundation to fill the brood box (include 1 or 2 food combs if possible).
  - c) 1 queen excluder.
  
- Stage 2. 1 empty drawn comb.
  
- Stage 3
  - a) 1 floor with entrance block.
  - b) Crown board and roof.
  - c) Feeder and empty super.
  - d) Supply of syrup.
  - e) The comb of eggs from the breeder.
  
- Stage 4. More syrup as required.
  
- Stage 5.
  - a) Nucleus boxes as required.
  - b) Newspaper (for uniting).
  - c) A knife.

## Method A Queenless Cell Raising

What to do	Comments
<p>First, select the hive you wish to raise the cells in (the cell raiser) and the one you wish to breed from (the breeder).</p>	
<p>Stage 1. (total 0 days).</p> <ol style="list-style-type: none"> <li>1. Open the cell raiser down to the brood box.</li> <li>2. Shake bees off combs into bottom box 1 by 1 and place them in a 2<sup>nd</sup> empty box.</li> <li>3. If you see the queen, keep her in the brood box and transfer the remaining combs without shaking.</li> <li>4. As you go through select a comb of open brood and a comb of sealed brood to leave in the brood box with the queen.</li> <li>5. Fill the box with comb or foundation. Try to include 1 or 2 food combs.</li> <li>6. Put on queen excluder.</li> <li>7. Put on 2<sup>nd</sup> brood box with the shaken combs.</li> <li>8. Put on a second excluder (if you have one).</li> <li>9. Put on supers and close up.</li> </ol>	<p>You now have the queen plus two combs of brood in the bottom box and the remaining brood in the second box above an excluder. This brood will be largely sealed in 7 days and too old to start queen cells.</p> <p>The purpose of this preparation is to ensure that queen cells are only raised from the frame of eggs you select and place in the hive.</p>
<p>Stage 2. 4 days later (optional).</p> <ol style="list-style-type: none"> <li>1. Open the breeder colony down to the brood box.</li> <li>2. Remove a comb without brood.</li> <li>3. Insert an empty drawn comb in the middle.</li> <li>4. Close up.</li> </ol>	
<p>Stage 3. 3 days later (total 7 days).</p> <ol style="list-style-type: none"> <li>1. Fetch the comb from the breeder, now with eggs. Alternatively fetch an ordinary comb with eggs.</li> <li>2. Open the cell raiser down to the box with the queen.</li> <li>3. Move this and the floor to one side, add a comb of emerging brood from the upper box, and put on a crown-board and roof.</li> <li>4. Put a new floor on the original site and place the upper brood box on it.</li> <li>5. Go through this box of sealed brood and destroy any queen cells you find. Leave a gap in the middle.</li> <li>6. Place the comb from the breeder in the gap.</li> <li>7. Replace the excluder and supers.</li> <li>8. If there is no honey flow, put on a feeder with thin syrup.</li> <li>9. Close up.</li> </ol>	<p>The cell raiser is now queenless and will raise queen cells on the only viable brood, the comb with eggs.</p>
<p>Stage 4. 4 days later (total 11 days) (necessary if an ordinary brood comb with some older brood is brought from the breeder)</p> <ol style="list-style-type: none"> <li>1. In the cell raiser check the breeder comb for queen cells. Destroy any that are <u>already sealed</u>.</li> <li>2. Check there are enough bees in the hive to one side.</li> </ol>	

## Method A Queenless Cell Raising

What to do	Comments
<p>Stage 5. 7 days later (total 18 days)</p> <ol style="list-style-type: none"><li>1. Have ready 1 – 3 nucleus boxes that take full sized brood combs. Give each one a food comb if possible.</li><li>2. Open the cell raiser down to the brood box.</li><li>3. Transfer combs with bees to the nucleus boxes. Leave a gap in one for the breeder comb. Divide the remaining sealed brood preferentially toward the other nuclei.</li><li>4. Cut out queen cells for the nuclei other than the one that will have the breeder comb. Install by pressing into the comb near and above some brood. Take care replacing the comb. Give more than 1 cell per nucleus if available.</li><li>5. Carefully place the breeder comb in the remaining nucleus.</li><li>6. If the nuclei are to be kept on the same site, shake in more bees and close up. Keep them closed in a cool dark place for 3 days before setting out after dark. Give occasional sprays of water.</li><li>7. Otherwise, do <u>not</u> add extra bees but close the nuclei up and take them to another site more than 2 miles away.</li><li>8. Move the box with the queen back to the original site and unite the brood box and supers to it. Next day sort the brood combs back into one box.</li></ol>	<p>The queens will emerge in the next few days and in reasonable weather will mate about a week later. They will start laying eggs a few days after that.</p>
<p>After care of nuclei:</p> <ul style="list-style-type: none"><li>Check after 1 week for queen emergence.</li><li>Check after 3 weeks that the queen is laying.</li><li>Check regularly that they have enough food and that they are not getting too crowded.</li></ul>	

## Method B Queenright Cell Raising

What to do	Comments
<p>First, select the hive you wish to raise the cells in (the cell raiser) and the one you wish to breed from (the breeder).</p>	
<p>Stage 1. (total 0 days).</p> <ol style="list-style-type: none"> <li>1. Open the cell raiser down to the brood box.</li> <li>2. Shake bees off combs into bottom box 1 by 1 and place them in a 2<sup>nd</sup> empty box.</li> <li>3. If you see the queen, keep her in the brood box and transfer the remaining combs without shaking.</li> <li>4. As you go through select a comb of open brood and a comb of sealed brood to leave in the brood box with the queen.</li> <li>5. Fill the box with comb or foundation. Try to include 1 or 2 food combs.</li> <li>6. Put on queen excluder.</li> <li>7. Put on 2<sup>nd</sup> brood box with the shaken combs.</li> <li>8. Put on a second excluder (if you have one).</li> <li>9. Put on supers and close up.</li> </ol>	<p>You now have the queen plus two combs of brood in the bottom box and the remaining brood in the second box above an excluder. This brood will be largely sealed in 7 days and too old to start queen cells.</p> <p>The purpose of this preparation is to ensure that queen cells are only raised from the frame of eggs you select and place in the hive.</p>
<p>Stage 2. 4 days later (optional).</p> <ol style="list-style-type: none"> <li>1. Open the breeder colony down to the brood box.</li> <li>2. Remove a comb without brood.</li> <li>3. Insert an empty drawn comb in the middle.</li> <li>4. Close up.</li> </ol>	
<p>Stage 3. 3 days later (total 7 days).</p> <ol style="list-style-type: none"> <li>1. Fetch the comb from the breeder, now with eggs. Alternatively fetch an ordinary comb with eggs.</li> <li>2. Open the cell raiser down to the box with the queen.</li> <li>3. Move this and the floor to one side, add a comb of emerging brood from the upper box, and put on a crown-board and roof.</li> <li>4. Put a new floor on the original site and place the upper brood box on it.</li> <li>5. Go through this box of sealed brood and destroy any queen cells you find. Leave a gap in the middle.</li> <li>6. Place the comb from the breeder in the gap.</li> <li>7. Replace the excluder and supers.</li> <li>8. If there is no honey flow, put on a feeder with thin syrup.</li> <li>9. Close up.</li> </ol>	<p>The cell raiser is now queenless and will start queen cells on the only viable brood, the comb with eggs.</p> <p>The Vince Cook method places the second brood box with the queen on top of the hive above the feeder, giving a front entrance to this box by using a swarm board or modified crown board. This keeps everything on one site and can be recommended if the right equipment is available.</p> <p>Some will not like to feed when supers are on the hive. If there are concerns the supers can be cleared and removed until the end of the exercise.</p>
<p>Stage 4. 3 days (72* hours) later (total 10 days)</p> <ol style="list-style-type: none"> <li>1. Open the cell raiser, remove the supers and check that queen cells have been started on the breeder comb.</li> </ol>	<p>Once queen cells have been started in a queenless colony they can be finished in a queenright colony provided the</p>

## Method B Queenright Cell Raising

What to do	Comments
<ol style="list-style-type: none"> <li>2. Move this box and floor to one side and move the box with the queen back into position.</li> <li>3. Remove the roof and crown board and put on an excluder.</li> <li>4. Place the box with the queen cells above the excluder, making a double brood chamber divided by the excluder. Put on a second excluder and the supers.</li> <li>5. Put back the feeder and add syrup as required.</li> <li>6. Close up.</li> </ol>	<p>queen does not have access to them. They need plenty of nurse bees to feed them so putting them in a super will not do. Dividing the broodnest with an excluder works well. The Vince Cook method requires only 24 hours queenlessness to start the cells because he starts with grafted larvae. This method starts with eggs, hence the longer time allowed to get the cells started before returning the queen.</p>
<p>Stage 5. 8 days later (total 18 days)</p> <ol style="list-style-type: none"> <li>1. Have ready 1 – 3 nucleus boxes that take full sized brood combs. Give each one a food comb if possible.</li> <li>2. Open the cell raiser down to the top brood box.</li> <li>3. Transfer combs with bees to the nucleus boxes. Leave a gap in one for the breeder comb. Divide the remaining sealed brood preferentially toward the other nuclei.</li> <li>4. Cut out queen cells for the nuclei other than the one that will have the breeder comb. Install by pressing into the comb near and above some brood. Take care replacing the comb. Give more than 1 cell per nucleus if available.</li> <li>5. Carefully place the breeder comb in the remaining nucleus.</li> <li>6. If the nuclei are to be kept on the same site, shake in more bees and close up. Keep them closed in a cool dark place for 3 days before setting out after dark. Give occasional sprays of water.</li> <li>7. Otherwise, do <u>not</u> add extra bees but close the nuclei up and take them to another site more than 2 miles away.</li> <li>8. Sort the remaining brood combs in the cell raiser back into one box.</li> </ol>	<p>The queens will emerge in the next few days and in reasonable weather will mate about a week later. They will start laying eggs a few days after that.</p>
<p>After care of nuclei:</p> <ul style="list-style-type: none"> <li>Check after 1 week for queen emergence.</li> <li>Check after 3 weeks that the queen is laying.</li> <li>Check regularly that they have enough food and that they are not getting too crowded.</li> </ul>	

## Method C Raising One Queen in a Nucleus

What to do	Comments
<p>First, select the hive you wish to take the nucleus from (the donor) and the one you wish to breed from (the breeder).</p>	
<p>Stage 1. (total 0 days).</p> <ol style="list-style-type: none"> <li>1. Open the donor colony down to the brood box.</li> <li>2. Shake bees off combs into bottom box 1 by 1 and select 4 combs for the nucleus, 2 with plenty of stores, 1 with open brood and 1 with sealed brood. Select and shake a couple more combs with brood. Place them all, spaced out slightly, in a 2<sup>nd</sup> empty box.</li> <li>3. If you see the queen, keep her in the brood box and select the remaining combs without shaking.</li> <li>4. Put on queen excluder.</li> <li>5. Put on 2<sup>nd</sup> brood box with the shaken combs.</li> <li>6. Put on a second excluder (if you have one).</li> <li>7. Put on supers and close up.</li> <li>8. After about 2 hours worker bees will have covered the combs in the 2<sup>nd</sup> box. Open the hive and transfer the selected combs to a 5 frame nuc. box. Put an empty drawn comb in the middle.</li> <li>9. If the nucleus is to be kept on the same site, shake in bees from the 2 extra brood combs and close up. Keep it closed in a cool dark place for 3 days before setting out after dark. Give occasional sprays of water.</li> <li>10. Otherwise, do <u>not</u> add extra bees but close the nucleus up and take it to another site more than 2 miles away.</li> <li>11. Replace the extra combs in the donor hive, add combs or foundation as needed and close up.</li> </ol>	<p>You now have a queenless nucleus with two combs of brood, 2 food combs and an empty comb to eventually hold the queen cells. In 7 days the open brood will be largely sealed and although there will be queen cells it will be too old to start any more. The sealed brood may have started to emerge.</p> <p>The purpose of this preparation is to ensure that queen cells are only raised from the eggs you select and place in the nucleus.</p>
<p>Stage 2. 4 days later (optional).</p> <ol style="list-style-type: none"> <li>1. Open the breeder colony down to the brood box.</li> <li>2. Remove a comb without brood.</li> <li>3. Insert an empty drawn comb in the middle.</li> <li>4. Close up.</li> </ol>	
<p>Stage 3. 3 days later (total 7 days).</p> <ol style="list-style-type: none"> <li>1. Fetch the comb from the breeder, now with eggs. Alternatively fetch an ordinary comb with eggs.</li> <li>2. Open the nucleus and destroy all queen cells.</li> <li>3. Take out the empty comb and cut a hole about 1 inch square in the middle.</li> <li>4. Cut a matching piece out of the comb with eggs and insert it in the hole in the empty comb.</li> <li>5. Replace this comb, now with 1 square inch of eggs, in the nucleus and close up.</li> <li>6. If there is no honey flow, put on a feeder with thin syrup.</li> <li>7. Leave the nucleus undisturbed until you wish to check out the new queen.</li> </ol>	<p>The queenless nucleus will raise queen cells on the only viable brood, the square inch of comb with eggs. This ensures that despite it being a nucleus, the breeder has a surplus of nurse bees to raise the queen.</p>

## Method C Raising One Queen in a Nucleus

What to do	Comments
<p>After care of the nucleus:</p> <ul style="list-style-type: none"><li>Check after 2-3 weeks for queen emergence.</li><li>Check after 4-5 weeks that the queen is laying.</li><li>Check regularly that it has enough food and that they are not getting too crowded.</li></ul>	