



Beekeeping Information Sheet (1)

Learning to Manage Swarming

This information sheet has been written by **Mike Hill**, drawing upon his own experience of beekeeping in general and instructing beekeepers in particular. The recommended approach to swarm management for beginners is to create a Nucleus; described on [page 3](#), and [fig 2](#).

Introduction

New beekeepers are presented with a variety of methods to manage swarming. At first sight these methods seem quite different from each other and often leave the novice bemused. This article attempts to show the similarities and differences in the various procedures and recommends a path which the novice can follow while gaining experience. The procedures referenced have all been proposed by beekeepers of merit and published in the beekeeping press.

Swarming is Colony Reproduction

When the colony judges it is strong enough, it prepares to divide ([fig 1](#)) and once the decision to reproduce has been made the colony is not easily deterred. The most obvious sign of these preparations is the production of charged queen cells. This presents the beekeeper with a problem. Approximately half of the bees are about to leave, reducing the colony's ability to produce honey and very often causing a nuisance to a neighbour. In order to prevent this happening it will be necessary to divide the colony so that neither half will be able to swarm.

Learning how to do this is an essential skill for successful beekeeping and is the purpose of this article.

One Step at a Time

When dealing with the problem many books consider how best to compromise all aspects of swarm control. e.g. queen raising, queen selection, honey production etc. Sometimes there is conflict between the various requirements and compromises must be made, which make the procedures more difficult.

It may be better for the beginner to take one step at a time, and to first master a swarm control procedure, because until they can keep all of their bees the other factors are almost irrelevant.

What Not to Do

Some books advocate removing queen cells as a way to prevent a colony swarming. Don't follow this 'siren' advice. Bees can make a new sealed queen cell in about four days if they are desperate / determined.

It may also be the case that the queen and swarm have already left and the queen cells destroyed are the colonies only hope.

Destroying queen cells must be the last step in any manipulation. Not the first.

Swarming or Supersede

There is one more consideration: Are the bees preparing to swarm or supersede?

Honey Bees produce new queens as part of the swarming process but also if they sense that the colony has a failing queen or she is absent for some reason.

In his book 'Practical Beekeeping' Clive de Bruyn writes,

"it is not always possible to determine with any certainty whether bees are making preparations to swarm or to supersede unless they are allowed to complete the process".

If supersedure is presumed and the bees are left alone, then, if swarming was intended the swarm will be lost (and also the honey crop).

If supersedure is intended and swarm control is applied, then the beekeeper will have had an hour or two of unnecessary work, but the bees will not be lost.

The beginner, (who probably only has one or two colonies and can't afford to lose any) is advised to assume swarming is the intention and to start swarm control immediately.

Three Parts

It is frequently said that the colony consists of three parts and that we need to remove any one of them to prevent a swarm issuing. The three parts are generally considered to be

- **The Flying bees**
- **The Brood**
- **The Queen**

There is nothing we can do to stop the flying bees returning home to the original hive site, which means we are restricted to either moving brood, or moving the queen.

Moving the Brood

If we move the brood away and leave the queen on the original site where she will be joined by the 'flying bees' we produce what is generally known as an 'Artificial Swarm'.

There are several procedures which achieve this, the most well known being the methods proposed by both *Pagden and Heddon* ([fig 6](#)), *Snelgrove* ([fig 7](#)), and *Demaree* ([fig 8](#)).

Each of these start by creating an artificial swarm and then go on to move the brood away using differing arrangements of the hive components.

Diagrams on [Page 8 \(figs 6-8\)](#) show how bees are distributed by the various procedures.

Experienced beekeepers can have success with these methods but it is often found that beginners struggle

In an article, on the use of a Snelgrove Board, Wally Shaw gives some clues as to why.

<http://www.wbka.com/wp-content/uploads/2013/06/The-Many-Uses-Of-A-Snelgrove-Board-by-Wally-Shaw.pdf>

He says, for example:

"Most beekeepers think that natural and artificial swarms are the same thing – they both consist of flying bees don't they? – but this perception could hardly be further from the truth.

- **An artificial swarm –**

by the way it is created by the beekeeper's manipulation, contains virtually all of the experienced flying bees (the foragers) from the original colony. However, it only contains a few younger nurse bees; those that were transferred with (and hatch out from) the single frame of brood and bees that it is usual to transfer to the box containing the artificial swarm.

- **A natural swarm –**

contrary to popular opinion, a natural swarm contains relatively few dedicated foragers (the oldest bees in a colony) but is rich in younger bees, many of which have little or no previous experience of flying. Studies have shown that up to 70% of worker bees under 10 days old depart with the prime swarm."

And from the Dadant book, *The Hive and the Honey Bee* (7th print, page 243):

"According to Butler (1940) and Meyer (1956) the age of the bees in a swarm is mostly from 4 to 23 days old."

It is dealing with these differences that makes these artificial swarm methods difficult for beginners.

The only other option is to Move the Queen

We could just cull the queen, so that the colony will not be able to swarm.

However this does nothing to reduce the 'swarming urge' (which is in effect the desire for the colony to reproduce), and not a lot to weaken the colony.

As soon as a new queen has been raised and mated we may be back at square one.

If conditions have changed it is possible that this may work, but there is no guarantee. Also the survival of the colony would then depend on a new queen being produced and mated and thus it seems we would be better off keeping the queen alive elsewhere as insurance.

Splitting the Colony - start by making a Nucleus

The simplest way to do this is to divide the colony into two parts, one part with the original queen which is moved to a new site, and the other with queen cells and bees to tend them which is left in the original location, as described in the diagram on Page 6, [fig 2](#).

The beginner should start by making a nucleus. The BBKA has produced a leaflet showing how to do this.

[BBKA - Swarm Control for Beginners - L003 \(via BBKA website\)](#)

Take care to reduce the original colony (often referred to as the parent) to one queen cell. The BBKA article suggests choosing a queen cell when all have been sealed. However, there is a possibility that the chosen cell will be a dud.

Instead, RBKA recommends that an open cell, (so that you can see it has a grub), is chosen at the time that the split is made. And then to check through the colony carefully seven or eight days later in case further queen cells have been produced after the split was made.

Take care not to shake the frame with the chosen queen cell

The nucleus will be small and unlikely to swarm and therefore you will have only the original colony to worry about. The original queen can be kept in the nucleus until it is certain that a suitable replacement has been generated.

The parent colony will not be able to swarm until the new queen is in lay and this will be after at least two weeks, maybe three. By this time almost all the brood will have emerged and the new queen will have plenty of room to lay and swarming is unlikely.

(If an open cell is present when the split was made it will be more than 8 days until a new queen emerges: a further 3 or 4 days before mating, and 3 or 4 more before laying begins - if the weather is good!)

However it is possible that subsequently the colony may build up sufficiently for the process to be repeated, so continued vigilance will be necessary.

(Many creatures will raise two broods in a good summer and a bee colony will do likewise.)

If a new viable queen is not produced the colony can be re-united with the nucleus complete with the old queen. Otherwise unless increase is desired, shortly before the main honey flow the colonies can be united under the chosen queen.

If the colony is a strong one, say 10 or more frames with brood, then the split can be made proportionately stronger say 4 or 5 frames of brood.

Some books refer to a making a nuc and splitting the colony as separate procedures. However the mechanism is the same and the only difference is in the number of frames moved.

Beware!

Some beekeepers do not distinguish between a **Nucleus** and an **Artificial Swarm** which can lead to much confusion.

Making Increase or Uniting

Beware of inadvertently making increase.

- Unless extra colonies are desired the two parts should be re-united.
- Uniting before the honey flow is likely to improve the crop.
- Uniting before winter will increase the chances of survival.

Otherwise next year you will need twice as much spare equipment!

Vertical Split

If space and/or equipment is short the split can be made on the same stand and under the same roof as the original. This procedure, which requires a fairly simple *Division Board* is described by Ken Basterfield in an article which has been published in both the BBKA News and BeeCraft.

Ideally to reduce the mixing up the flying bees during inspections of the lower box, the top half of the split colony should be kept intact. This may not be easy if working alone and you may be better to keep the split separate. See diagram on Page 6 [fig 3](#).

[\(link to: RBKA Beekeeping Information Sheet \(5\) - Swarm Control using a Vertical Split\)](#)

To apply this process to a WBC needs a more complicated Split Board and may be beyond the scope of a beginner.

Making Queens

In his book *'Sixty Years with the Bees'*, Donald Sims describes a method attributed to Wilson which uses the same principle to create queen cells.

Here suitable frames of brood are obtained, first making sure that queen is not on them and that they are covered in nurse bees.

These are installed on the original site where they are joined by the flying (*foraging*) bees. The remainder is 'taken away'; in this case above a division board with an entrance on each side.

[\(Link to: RBKA Beekeeping Information Sheet \(6\) - Wilson's System of Queen Rearing\)](#)

As with most things in beekeeping, there are variations on this theme. In an article in BeeCraft on managing a colony on brood & half, Adrian Waring describes a procedure, again using a split board, but he uses only two frames of brood in the queen raising portion and relies on the bees from the supers to do the nursing. The bulk of the brood and the queen are placed above a split board with the entrance facing backwards.

This is the same as the Wilson method (see above) for rearing queens except that Wilson uses a split board which has two entrances and later divides the box with the queen cells in order to produce two nucs with queens at the same time all under the one roof.

[\(Link to: RBKA Beekeeping Information Sheet \(7\) - Swarm Control with Brood and a Half\)](#)

Note both of these last two procedures concentrate on producing new queens and end up with reinstalling the old queen on the original site.

Shook Swarms

The term is generally used to describe the process of shaking all of the bees into a new box of foundation.

It is used as a means of transferring the bees to clean comb and is recommended as a means of dealing with European Foul Brood (EFB) and Nosema.

By shaking bees from only three or four frames (including the queen) an approximation to a swarm is produced. However to prevent the bees returning to the original colony the shaken 'swarm' will need to be moved to a different apiary.

Can't Find the Queen

If all attempts to find the queen have failed then the Wilson or Waring method should be used.

Note the method described on the FERA/APHA site for dealing with this problem sets out to create an artificial swarm hoping that the queen is present on the chosen frames of brood. In case she is not there a frame with eggs is included.

([Link to: NBU FAQ 18 - Swarm Control when you can't find the queen](#))

In this case the situation will be as described in the Waring procedure.

It may be better to ensure that the queen remains in the original box, by brushing all the bees off the frames to be moved.

Additionally there may be something more to be gained by getting these frames covered in nurse bees by placing them above a queen excluder over the original colony for a couple of hours in the same way that the Wilson method uses.

So How Should the Beginner Proceed?

Whichever method is used be aware of how the bees are being redistributed. How the boxes are to be rearranged will become clearer if you know where the bees have gone.

The diagrams (fig 1-8) on Pages [6](#), [7](#) & [8](#) show what happens.

- Although the artificial swarm is frequently recommended in the beekeeping journals the beginner is advised to leave this procedure and its many variations until more experience is gained.
- Start with moving the queen away by creating a **Nucleus** (page 6, [fig 2](#)). Note the BBKA Basic Assessment requires a method of swarm control to be described and making a nucleus is accepted. Many beekeepers find that this is the only procedure they need.
- If adequate woodworking skills are available to make the simplified Snelgrove board, then the split can be made 'under one roof and on the same stand' (page 8, [fig 7](#)). If this procedure is to be used, note what the author says about **Careful Inspections**. The method may not be suitable for those of 'smaller stature' or working alone.
- It is then a comparatively small step to **Wilson's method** for raising queens (page 7, [fig 4](#)).
- It should be possible with three hives for two of them to be managed for honey production with the quality of any queens which may be produced taking second place, and the third colony being used for queen rearing using Wilson's method with honey production taking the minor role.

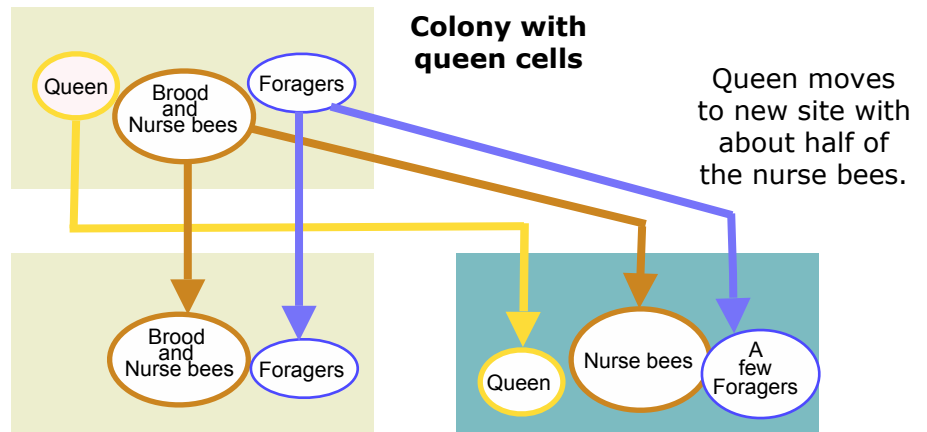
How the Bees are Redistributed

(A) Methods which **move the Queen** and **leave the Brood with the Foragers**

A Natural Swarm (fig 1)

A natural swarm contains mostly bees from 4 - 21 days old and some foragers who act as scout bees to guide the colony to the new site.

All of the brood and the remainder of the nurse bees.

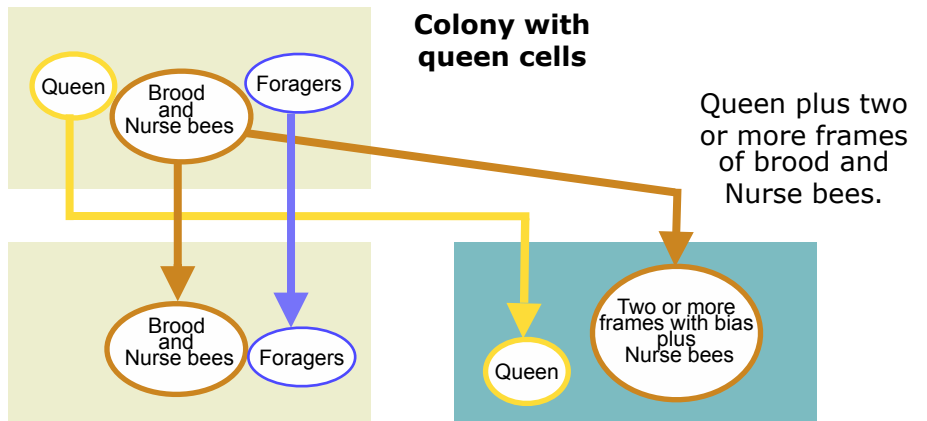


Nucleus or Split (fig 2)

The queen is moved to a new site.

The brood and nurse bees are divided between the boxes.

The foragers remain with the brood on the original site.



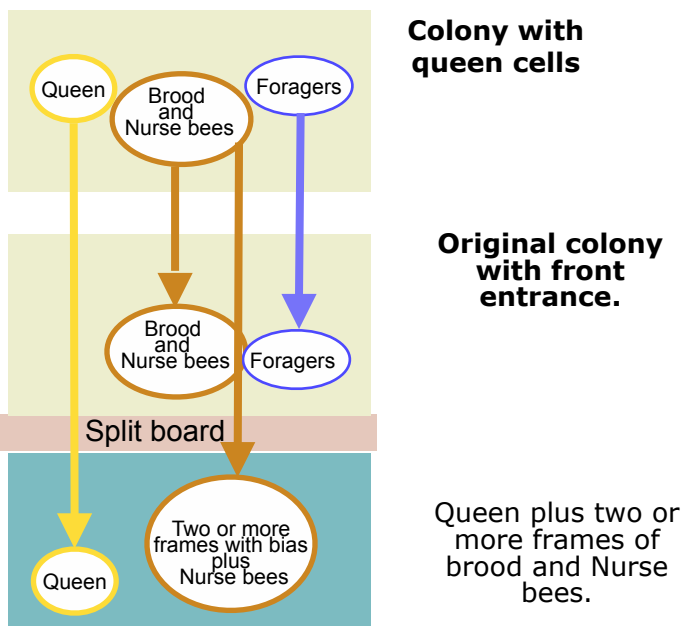
Vertical Split (fig 3)

The same procedure as the Split.

The foragers continue to use the front entrance and remain in the original box.

The brood and nurse bees are divided between the boxes.

The queen is put into a new box below the split board with a rear entrance.



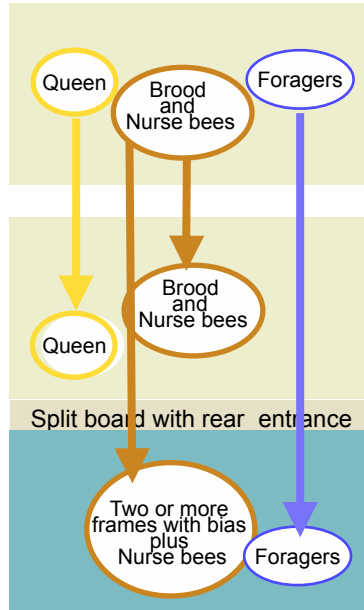
How the Bees are Redistributed

(A) Methods which **move the Queen** and **leave the Brood with the Foragers**

Waring and Wilson (fig 4)

The queen with most of the brood is above a split board with rear entrance. Wilson uses two entrances, one at each side and arranges for the box with queen cells to be divided.

Note the aim in this case is to generate a new queen and the boxes are reversed top for bottom before the new queen emerges.



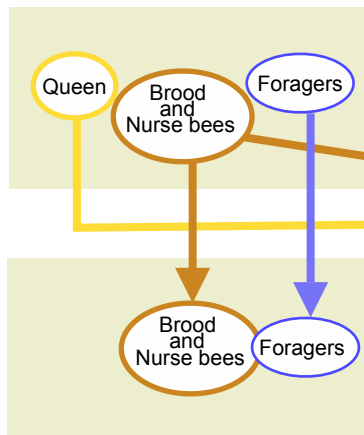
Colony without queen cells

Waring has one entrance at the back. Wilson has two: one each side.

Two frames of brood with eggs etc plus the supers are below the split board with a normal forward entrance.

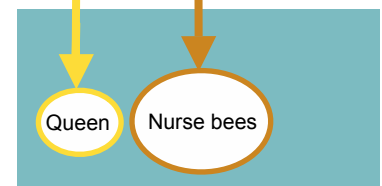
Note - Wilson has four frames of brood.

Shook Swarm (fig 5) when used for swarm control



Colony with queen cells

Queen is transferred to a new box and three or four combs of bees are shaken in.



If used for transfer to clean comb, all the bees are shaken and the new box can remain on the original site.

When used for swarm control the new box will need to be moved to a different apiary.

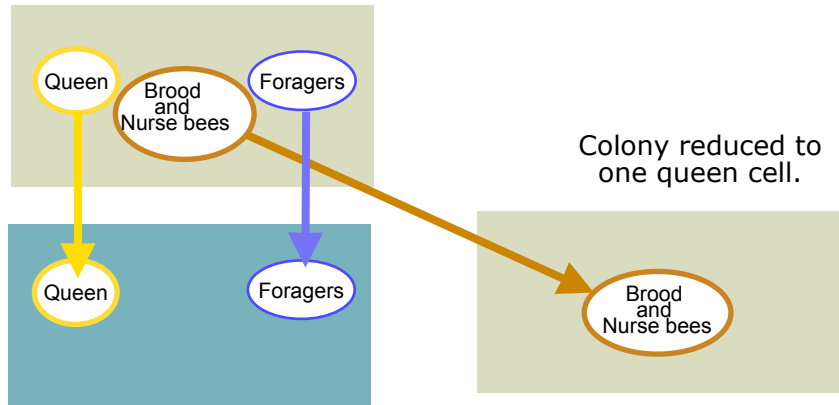
How the Bees are Redistributed

(B) Methods which **move the Brood** and **leave the Queen with the Foragers** (an Artificial Swarm) not recommended for beginners.

Pagden & Heddon (fig 6)

Moves brood and nurse bees in original box to a new site to one side.

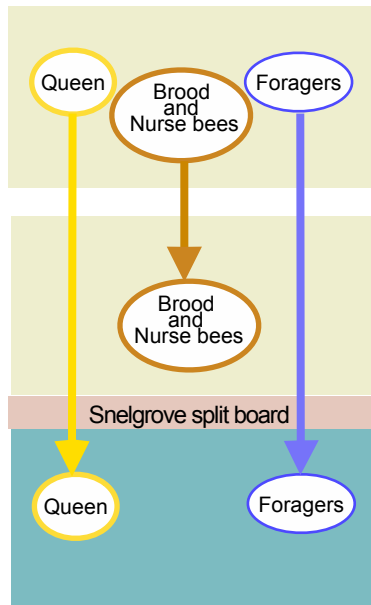
Queen is left on original site in a new box where she is joined by foragers.



Snelgrove (fig 7)

Moves brood and nurse bees in original box to a new site above the split board with a side entrance.

Queen is left on original site in a new box where she is joined by foragers.



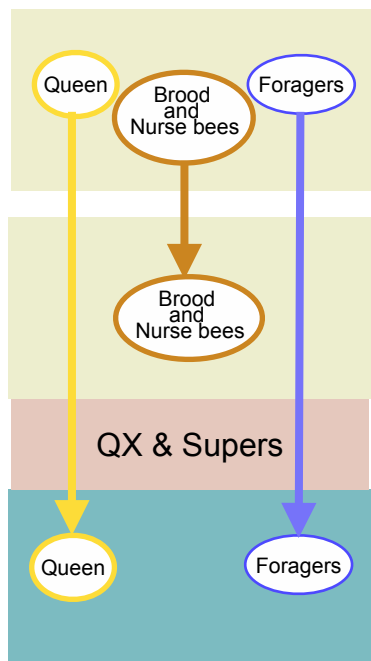
Colony without queen cells

Colony makes Supersedure.

Demaree (fig 8)

Moves brood and nurse bees above the queen excluder and supers.

Queen is left on original site in a new box where she is joined by foragers.



Colony with queen cells

Queen cells must be destroyed