



The following description is based on material by Ian R Homer, Devon BKA, first published in BBKA News.

For many beekeepers (except perhaps, for commercial beekeepers), the most effective and simplest form of swarm control is to carry out an artificial swarm. Carried out properly it is nearly always effective at stopping swarming, allows the beekeeper to raise a new queen and, as a bonus, offers a highly effective way of carrying out varroa control.

All artificial swarm methods rely on separating the queen and some of the flying bees from the brood with the objective of making the bees believe that they have swarmed, but without the loss of bees which would have occurred if a real swarm had happened. One of the simplest methods of artificial swarming is the Pagden method.

### What is the Pagden method?

The basic idea is to put the queen into a new brood chamber on the original site; the original hive is moved to a new site and any flying bees will return to the old site and join the queen thus forming a 'swarm'. A new queen is then raised by the non-flying brood on the new site.

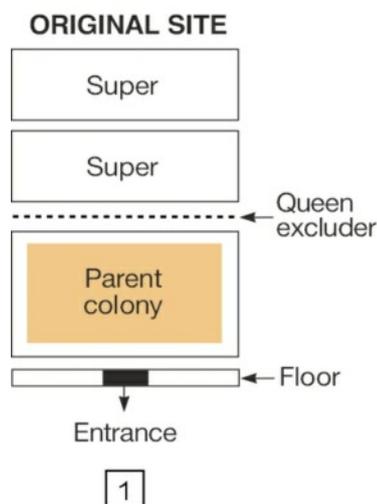
One word of warning though, it requires duplicate equipment and sufficient space in the apiary to move brood boxes around.

The right time to start these manipulations is once there is evidence of swarming preparations (the presence of queen cells which are charged rather than just queen cups).

Starting the procedure too early can result in emergency queen cells being raised and these will often result in poor quality queens who may fail to mate or may mate inadequately. Leaving it too late and a swarm will almost certainly have emerged before you can start the procedure.

### How do I use the Pagden method?

Diagram 1 shows the situation at the start of the procedure. The colony has a brood chamber, and two supers, and is at location 1.



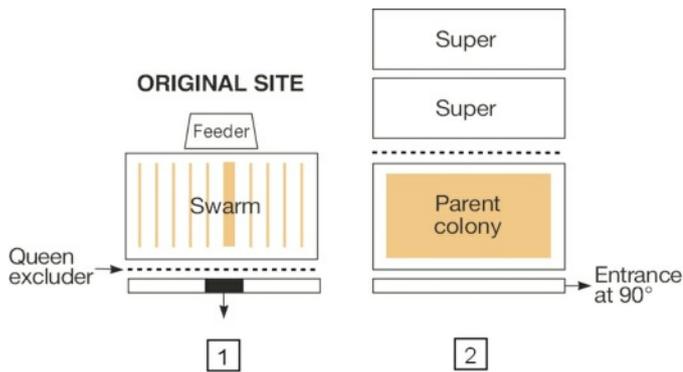
**Diagram 1** - Original colony in a single brood box at location 1. (**Note** - A Double Brood or Brood and a Half should be treated as one chamber.)

On a good flying day, the supers are removed and the colony is moved one or two metres to one side (and, ideally turned through 90°) to location 2. A new floor and brood box (containing a full set of undrawn frames) are placed at location 1 where the brood chamber was originally (see diagram 2); all of the flying bees will return to this original site. The original brood chamber is inspected to find the queen and she is then moved to the new brood box at location 1. (See RBKA Note 1, bottom of [page 3](#).)

Traditionally, the queen has been moved over on a frame of brood but, for hygiene reasons, we prefer not to move any frames over. If you choose to move the queen over on a frame, it is imperative that the frame contains no queen cells whatsoever.

We have found it useful to place a queen excluder under the new brood box until sufficient new comb is drawn for the queen to start laying (usually around three days) as this can discourage any tendency for the colony to abscond. Any supers which

were on the original site may be left with the original brood chamber or can be returned to the original site, in either case, above a queen excluder. (See RBKA Note 2 on page 3.) Whichever hive is not given the supers may need feeding; one school of thought says this should be the new brood box (on the original site) as the feed will help the colony draw the new comb while other opinion suggests that the supers should be on the new brood box as this is where the foraging bees are.



**Diagram 2 - Day 1.**

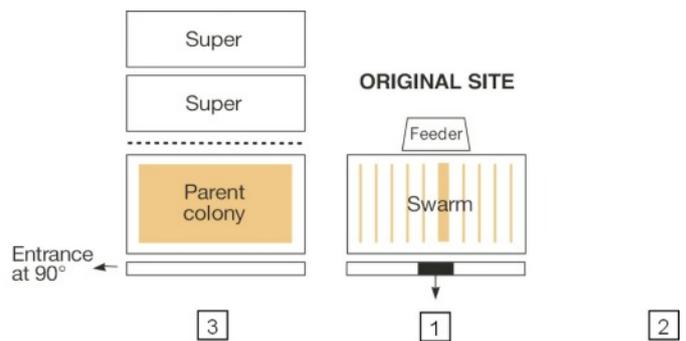
*Original brood chamber (parent colony) at new location 2 containing only unsealed queen cells, brood and non-flying bees. New brood box at original location 1 containing queen, one frames of brood, empty combs (preferably drawn), and flying bees. Any flying bees from the original brood chamber will return to the position of their original home, location 1.*

The original brood chamber (now at location 2) will have sufficient nurse bees to feed and nurture the frames of brood and will also contain a number of queen cells. All sealed queen cells should be removed (leaving only unsealed queen cells which can be reduced to two or three); this ensures that a new queen will not emerge for at least eight days. If you choose to transfer the queen on a frame, an additional frame, either drawn or with new foundation, should be added to the original brood chamber at the edge of the brood nest to replace the one that was transferred. Make sure that both hives are fully reassembled and leave them for a full week before taking any further action. Any bees which become foragers after these manipulations will naturally return to the original brood chamber in location 2, since they will never have flown from the original location 1.

## Is there anything else to do?

After seven days it is usual to move the original brood chamber from location 2 to a new position one or two metres the other side of the new brood box, location 3 as shown in diagram 3, and placed at 180° to its position when it was at location 2. There is some doubt as to whether this is part of the original Pagden method or an adaptation to it known as the Heddon method. This has the effect of 'bleeding off' further bees from returning to the original brood box and boosts the artificial swarm. It also reduces the risk of a cast emerging from the original chamber nest as further bees emerge. After this manipulation, foragers from the original brood chamber, on returning to location 2 and not finding their hive, will go to the nearest one — the new brood box at location 1. As a result of this second manipulation the original brood chamber will contain only young bees, brood and maturing queen cells and will not produce a cast because of the absence of flying bees. This absence of flying bees may make it necessary to feed this colony.

Queens will start to emerge within a day or so and on the emergence of the first, the remaining queen cells will generally be torn down. If several queens emerge within a short space of time, natural selection will ensure that the fittest survives.



**Diagram 3 - Day 8.**

*The original brood chamber (parent colony) is now moved to a new location 3. Bees which have become foragers in the last seven days will return to their 'old home' which was at location 2, then enter the new brood box in location 1 because this is nearest to their 'old home' location.*

## One step at a time

This procedure may sound more complicated than it really is; it is well within the capability of a competent beginner. The important thing to remember is to do one step at a time and stick rigidly to the timings.

## Then a decision

After a further period of eighteen to thirty days, the new queen in the original brood chamber should have mated and be laying eggs, and you end up with two operating hives instead of one. You now have to choose whether the artificial swarm was intended to increase your colonies or to raise a new, young queen. If it was the latter then it will be necessary to locate the old queen in new brood box at location 1, remove her and then unite the two colonies, using the newspaper method.

And the really great thing is that your new young queen will be very much less likely to swarm next year.

## Is the Pagden method used for any other reasons?

Yes, the method may be used as part of you IPM (Integrated Pest Management) to help with varroa control. Varroa control should not always mean using chemicals; creating artificial swarms provides an ideal opportunity to substantially reduce the varroa population in a colony without their use.

The creation of a broodless colony (the new brood box at location 1 on day one) creates a situation where the varroa mites have nowhere to go to feed or breed as they do both inside brood cells. We know that the use of undrawn foundation will mean that several days will elapse before the queen is able to lay any eggs, and probably at least ten days before there will be any brood ready to be sealed. All

of the varroa mites will therefore be on adult bees and will be becoming desperate to feed (and breed). The introduction of a frame of brood which is on the point of sealing will be a great attraction to these mites and most will quickly migrate into the introduced brood. After several days, once all of the brood is sealed, the frame can be removed and destroyed, thus destroying a very high percentage of the mites present in this brood box.

Cleansing the brood chamber of varroa can only be done once all of the brood in that colony has emerged (say 24 days after the initial manipulation). At this stage we will again have a colony which is broodless and containing varroa mites having nowhere to feed or breed. A new queen will have emerged in this brood chamber but, even if she has mated she will not yet be laying so the introduction of a couple of frames of brood on the point of being sealed from the new brood box will prove effective at cleansing the colony.

Again, it is important that these frames are removed and destroyed as soon as they are sealed or you will end up breeding mites rather than destroying them.

## Are there alternative methods to manage swarms?

Yes, there are a number of methods and variations on the methods, all of which involve separating the old queen, often with 1 frame of brood + the flying bees from the rest of the brood + queen cell/s + the house bees.

One commonly use alternative technique is the so-called 'Nucleus Method'. For details see [RBKA Beekeeping Information Sheet \(4\)](#).

## RBKA Notes

**Note 1** - It is sometimes recommended to shake some additional bees into the new brood box (the swarm) to provide wax builders and nurse bees.

**Note 2** - RBKA recommends putting the supers with the queen cells and brood above the original brood chamber, these bees will have lost foragers but will need food. Also the 'swarm' in the new brood box will also require feeding to encourage them to draw the foundation into comb.

**Note 3** - If you cannot find the queen see [RBKA Beekeeping Information Sheet \(3\)](#).