

Module 1



Week 3

Stages in Life Cycle



	queen	worker	drone
Egg	3d	3d	3d
Larva	5d	6d	7d
Cell Sealed	8d	9d	10d
Larva/Pupa/ProPupa	8d	12d	14d
Total days	16d	21d	24d
After emergence	3y		4m
Summer bee		6w	
Winter bee		6m	



Yearly Cycle

- late Summer – Q reduces and eventually stops laying, drones evicted
- winter – bees long lived
- spring – Q begins laying, colony builds up on spring honey flow to c 40k workers, 400 drones, swarms
- main honey flow in July – pollen and nectar stored for winter





Reasons for Swarming

- inadequate supply of 'queen substance'
- congestion causing breakdown in food transfer, depriving some workers of 'queen substance'
- lack of space for the queen to lay in or bees to ripen nectar
- aging, damaged or sub-standard queen



RESULTS IN QUEEN CELLS?



Moray Beekeepers Association





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Grub Inside Queen Cell



And Again



Sealed Queen Cells





Sequence of Events

1st Q cell is sealed and bees gorge on honey

prime swarm, with Q and c70% of colony's bees, mainly young bees, issues from the hive and settles nearby usually in a tree/bush

scout bees identify new home and convey information by dancing on the outside of clustered swarm

swarm flies to new home and immediately starts comb building / foraging

second swarm (casts) may issue when 1st virgin Q emerges

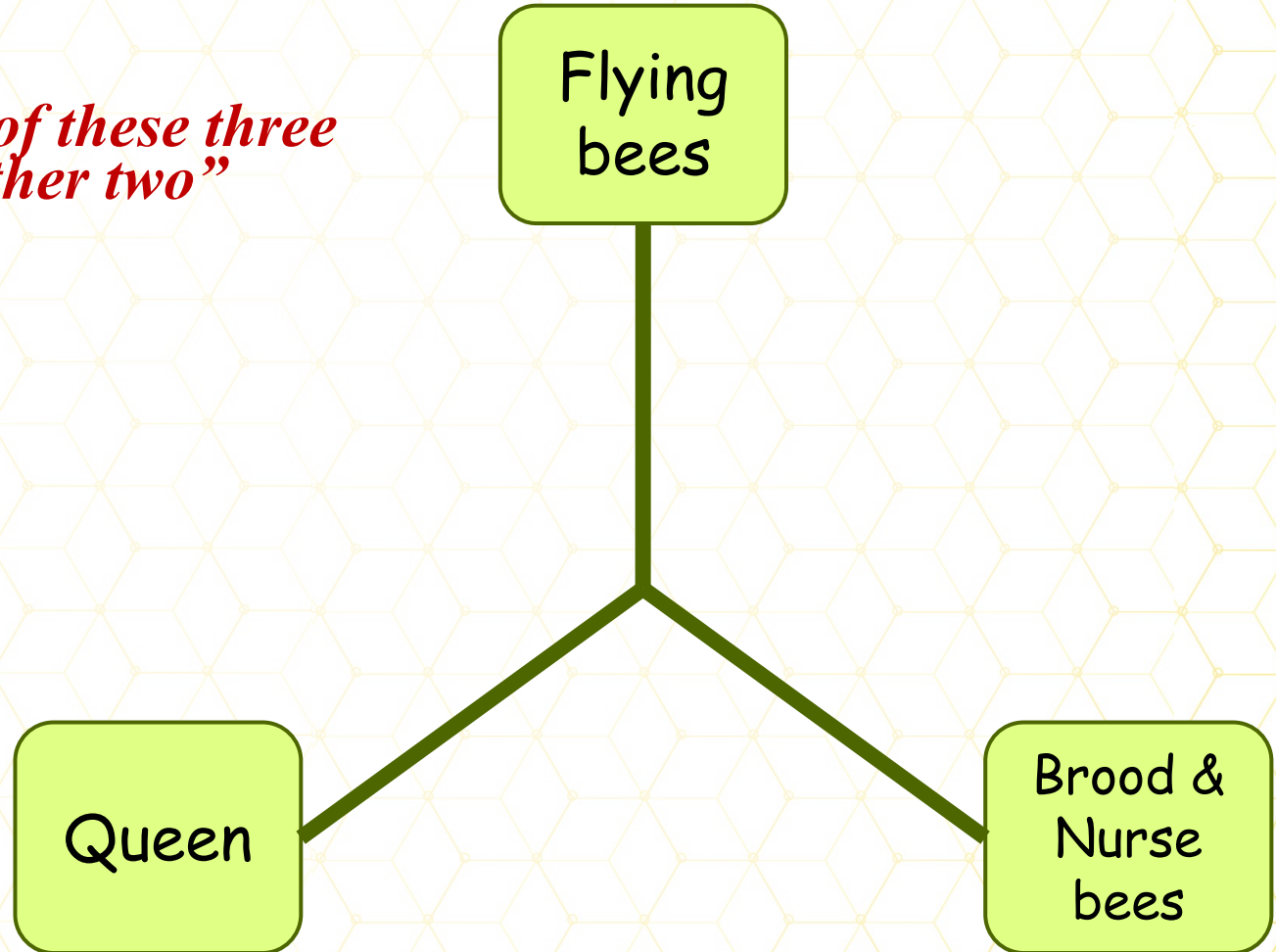
followed by further casts unless virgin kills other Q's



Traditional explanation of swarm controls



“Separate one of these three from the other two”



Swarm Control



Swarm control methods

Pagden Artificial Swarm

Nucleus Method

Modified Demaree

James Pagden



James Pagden(1814 - 1872) was a beekeeping equipment manufacturer and supplier, who operated from his home at Alfriston in Sussex, a village near Eastbourne. He was the author of a little booklet called "*£70 a year - How I make it by my bees*", that was around 36 pages, first published in 1868 and ran to 19 editions.

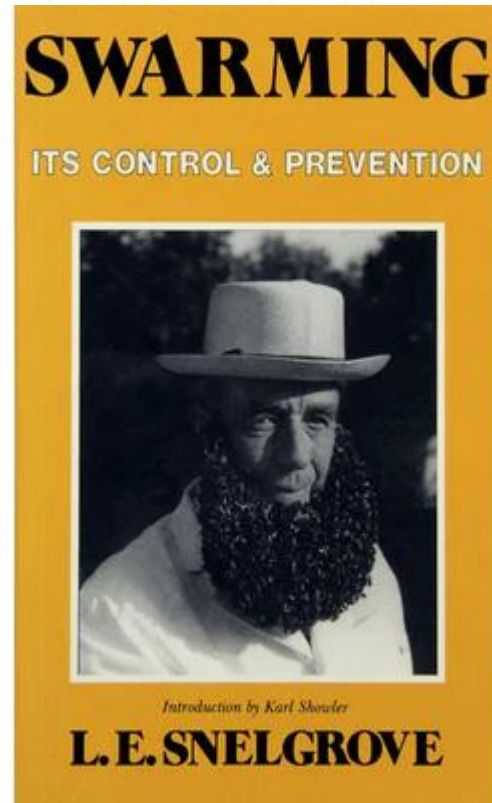
He was initially a skeppist and his method originally was for management of swarms that had already issued from his own skeps.

George Demaree



Many very experienced beekeepers in the UK advocate using the Demaree Method of swarm prevention for people with a small number of hives. George Demaree (1832–1915) from Kentucky first published his approach in an article in the American Bee Journal in 1892.

Louis Edward Snelgrove

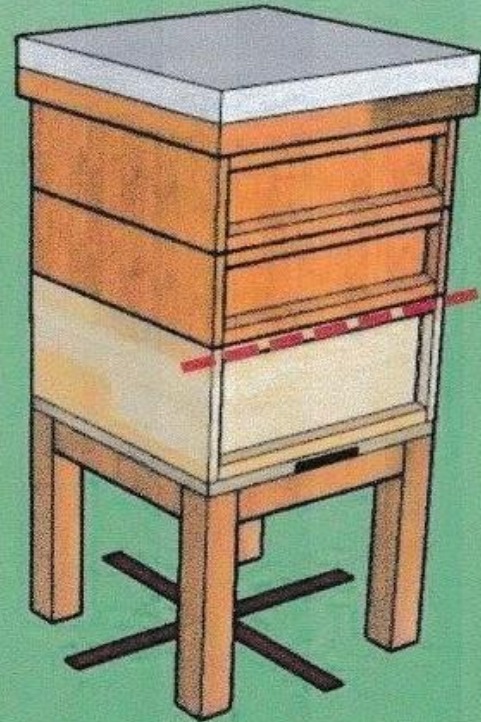


Louis Edward Snelgrove was born on 15 January 1879, in Sutton Veny, Wiltshire. He died on 21 November 1965, at the age of 86.

Artificial Swarm (Pagden)



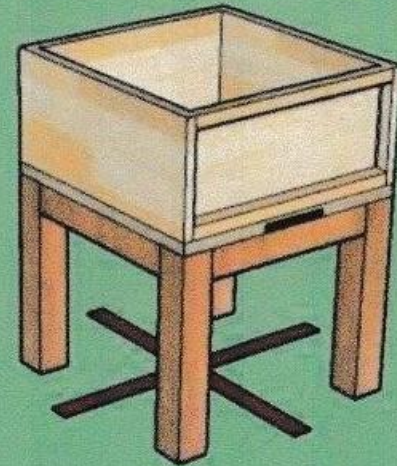
- Colony is preparing to swarm
- Unsealed Queen cells found
- Queen still present



Artificial Swarm - Preparation



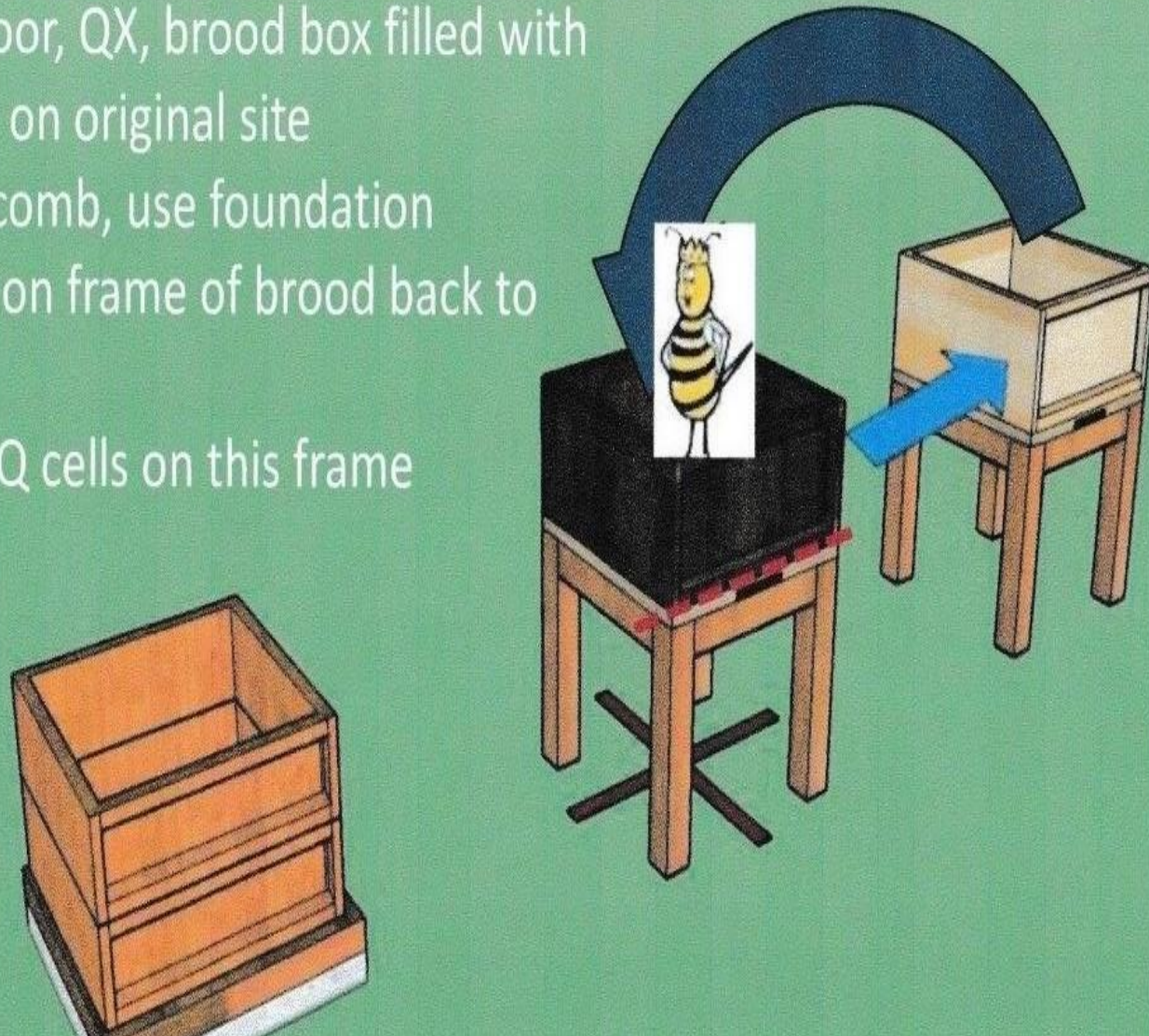
- Equipment needed
 - Brood Box
 - Floor
 - Stand
 - Crown board
 - Roof
 - Q Excluder
 - Frames of drawn comb
- Remove supers and place to side



Artificial Swarm – Moving Queen Cells



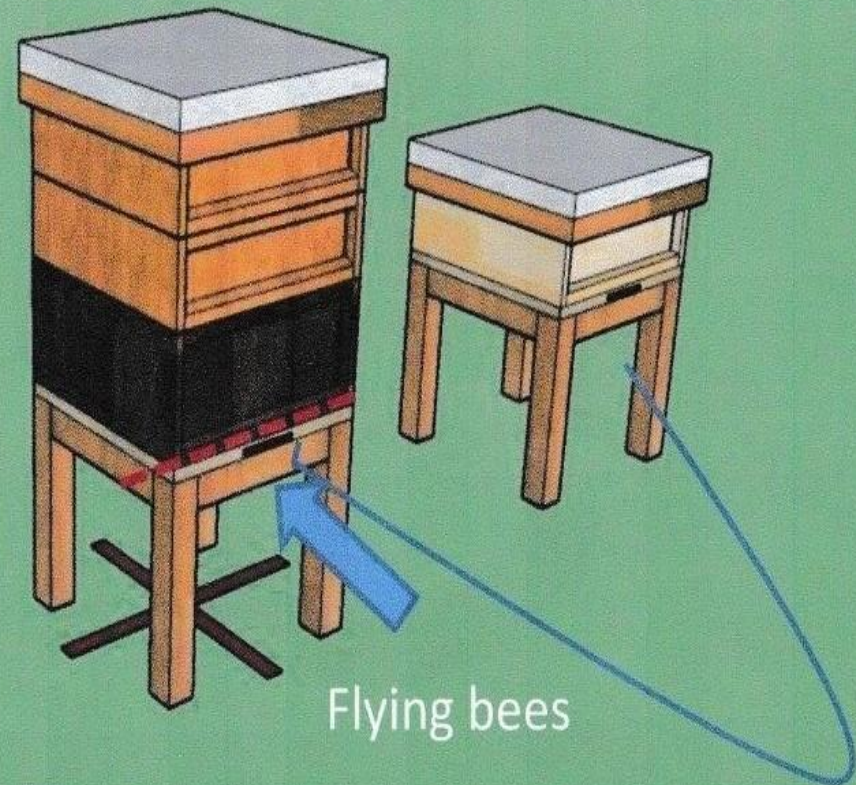
- Remove colony to side, c4 feet
- Place new floor, QX, brood box filled with drawn comb on original site
- If no drawn comb, use foundation
- Bring queen on frame of brood back to original site
- Destroy any Q cells on this frame



Artificial Swarm - Return of Foragers



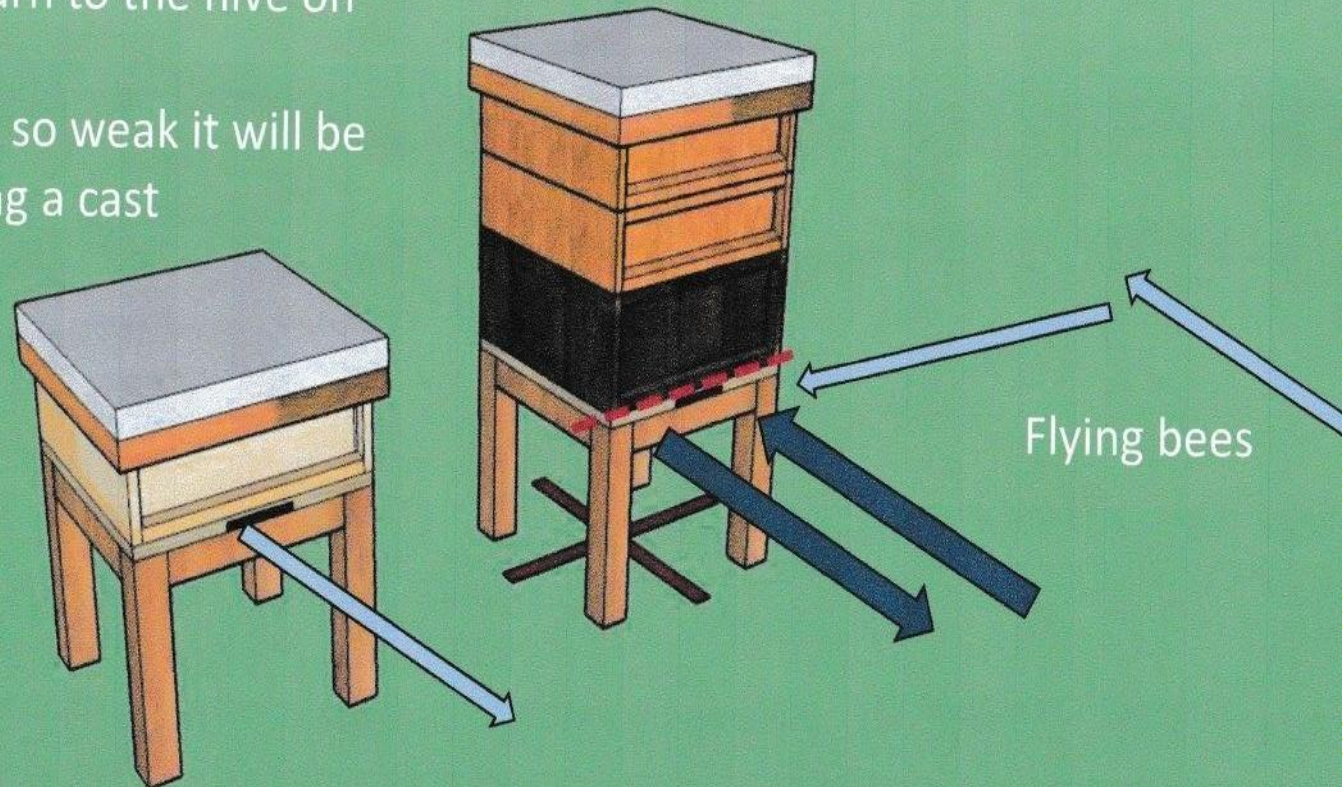
- QX insurance in case they still want to swarm (more likely if using foundation)
- Flying bees will rejoin Q on original site
- Nurse bees, brood and UQCs are in the moved colony
- May have to feed moved colony



Artificial Swarm – Heddon Variant



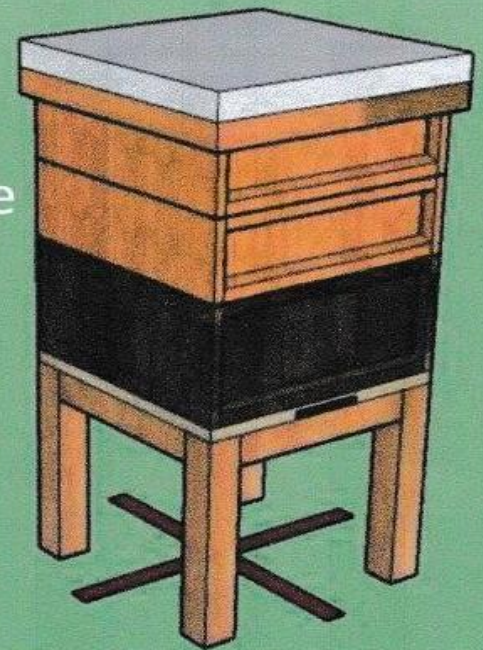
- After 7 days, move old brood box to the other side
- This de-populates the colony even more as the foragers will return to the hive on original site
- The moved colony is so weak it will be incapable of throwing a cast



Artificial Swarm - Heddon Variant



- New Q should fly, mate and begin laying
- Check after 2 or 3 weeks or when lots of pollen is going in
- QX can be removed from hive on original site when fresh brood is present
- Can unite or move 1 hive away for increase



Disadvantage of Artificial Swarm



- Twice as much equipment needed
- Have to be able to find the queen
- Need sufficient space in apiary
- Labour intensive
- Colony is not very “swarm like” – queen ends up with the older bees.

Nucleus Method of Swarm Control

Equipment Required

- nucleus hive or spare full size hive
- hive stand
- dummy frame
- frames of foundation
- feeder and sugar syrup



Nucleus Method of Swarm Control



- When unsealed q cells are found
- Remove q into nuc (entrance closed with sappy grass) on frame she is found on
- Add 1 more frame of brood and 2 of stores, plus frame of drawn comb – NO Q CELLS
- Shake 2 frames of house bees into nuc
- Leave 1 unsealed Q cell in brood box and mark the frame with drawing pin
- Destroy all others Q cells.



Nucleus Method of Swarm Control



- Locate nuc to a shady position
- **IMPORTANT** to go back into original colony **7 days** later and destroy ALL Q cells except the one you marked – now sealed!
- Shake the bees off so you don't miss any Q cells
- Be careful with your chosen Q cell (can shake upside down!)
- Bees now unable to make any more Q cells
- YOU are in control – not the bees!



Nucleus Method of Swarm Control



- May need to feed nuc after 2 or 3 days
- Nuc may still try and swarm so check!
- After 3 or 4 weeks check original hive for new Q
- Can unite nuc to parent colony with young Q for a really strong foraging force
- Or allow both to build up and overwinter



Nucs - Swarm Prevention/Control



- Removing 1, 2 , 3 or 4 frames from a colony can delay swarm preparations (Prevention)
- Removing the old queen with a frame or two from a colony preparing to swarm can prevent a swarm issuing (Control)

Standard 5 frame nuc recipe



2 F Brood (sealed) & bees

2 F Stores & bees

1 F Empty drawn comb

2 F Young bees shaken in

If staying in the same apiary



Advantages

- You haven't lost the workforce
- Once Q is laying no more swarm inspections A new queen brings vigour back to the colony
- Nucleus boxes are cheaper than a new complete hive
- Queen in nucleus = insurance if new queen lost or doesn't get mated properly
- Nucleus can be united back for the main nectar flow



Disadvantages



- Some beekeepers have difficulty finding a queen !
- Depletion in foraging force for a while
- Dequeened colony may be bad tempered
- Nuc may continue swarm preparations



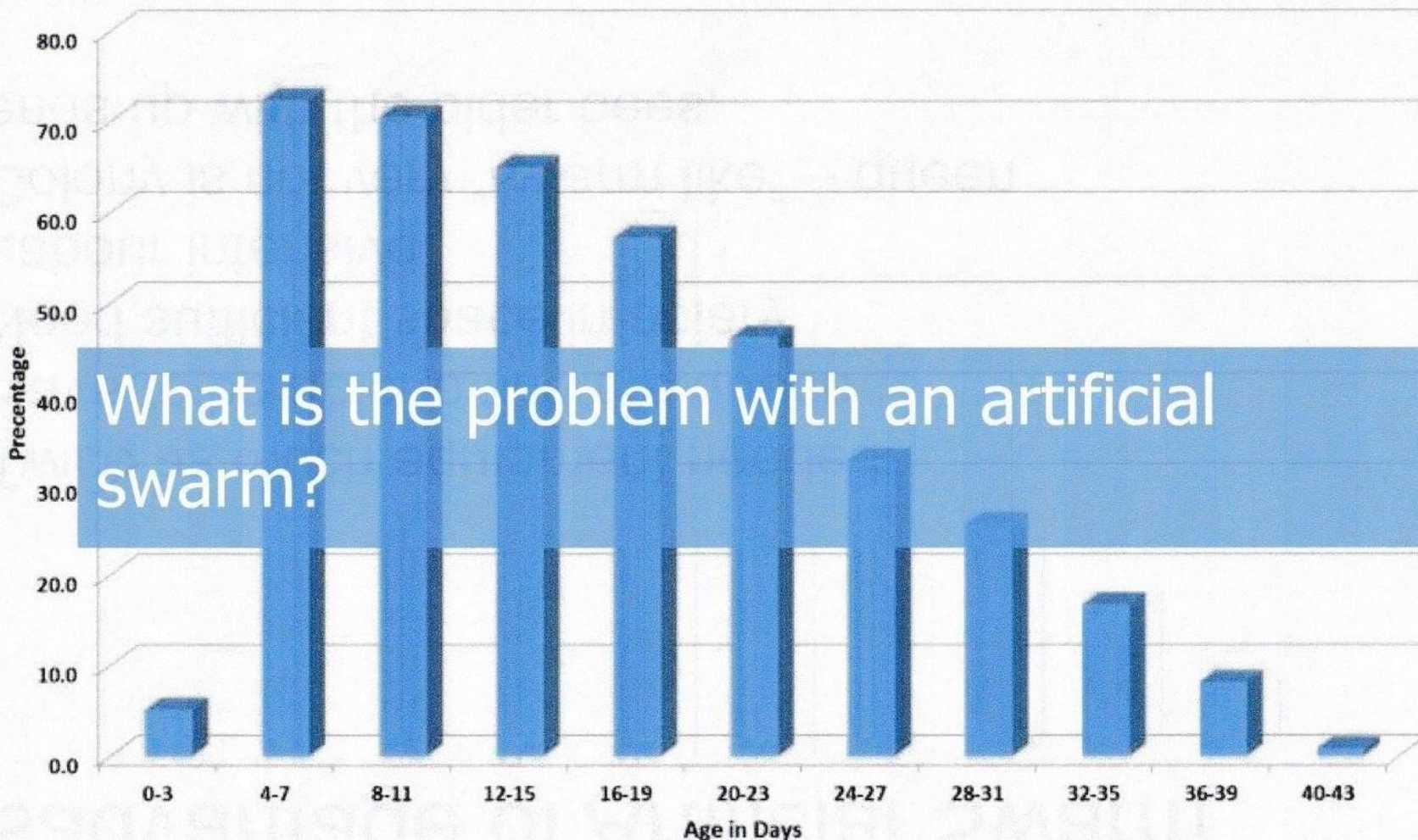
Procedure



- Parent Hive - remove Q and frame she is on into nucleus hive making sure you remove all Q cells on the frame
- Add another frame of brood and bees (no q cells)
- Back in hive – remove all Q cells except one that has a larva in, mark frame with drawing pin. Shake frames or use brush to remove bees from frames so you can examine them thoroughly
- Transfer 2 frames of stores and bees into nucleus hive and shake bees in from a further frame or two.
- Seal nuc entrance with sappy grass and place it on hive stand 3-4 feet to the side of the parent hive
- 7 days later go into parent hive and remove all Q cells leaving the 1 sealed Q cell on frame marked with drawing pin
- 3 weeks later the new Q should have emerged, mated and started laying



PERCENTAGE OF BEES OF EACH AGE THAT DEPART IN A SWARM








Demaree Method of Swarm Control

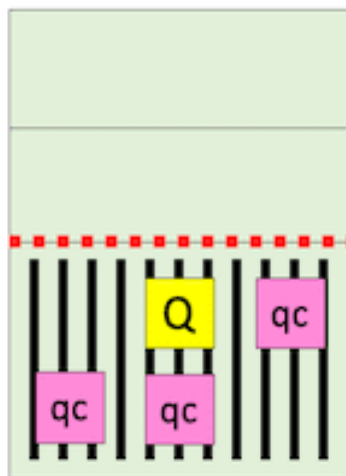


North Herts
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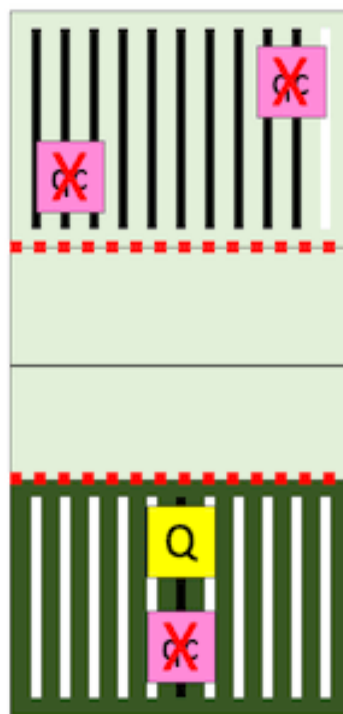
Swarm control using the
Demaree Method

Demaree swarm control

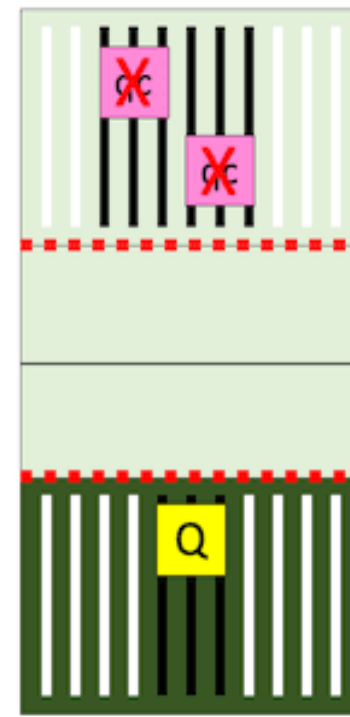
-  Original supers and brood box
-  New brood box
-  Queen excluder
-  Queen
-  Queen cell (X indicates destroyed)



Inspection



Hive rearrangement



One week later

Queen Marking



Push in or
crown of
thorns
marking
cage



Plunger
marking
cage



Queen
clip

Queen Marking



Glue



Coloured and numbered glue on discs

Water based paint



Water based marking pens



When not to mark and clip a queen



1. Before she has started laying
2. Late in the season. Leave it until spring

Marking and Clipping Queens



Nucleus Hives



Wooden
Nuc



Poly-
Nuc



Correx box

5
Frame
nuc





Split
Nuc



Apidea
Mating
Hive



Moray Beekeepers Association



Rainbow
Mating
Nuc

2
Frame
Nuc



Uses for Nucs



1. Swarm control– Nucleus method
2. Swarm prevention
3. Making increase
4. Selling bees
5. Buying bees
6. Queen rearing
7. Queen Mating. Standard Nuc or Mini nuc(mating hive)
8. To make good winter losses
9. Hiving a swarm or cast
10. An old, but good queen. can be kept going for some time in a nucleus.
11. Requeening. some advocate requeening with a nucleus
12. A frame with queen cells on can be transported easily between apiaries in a nucleus.
13. A Queen can be kept safe on a frame during manipulations
14. Over wintering a small colony

Management of Swarms and Nuclei



- Both are small colonies and need feeding
- A nuc from your healthy bees have a frame or two of stores. Feed once they've settled down.
- A swarm from outside your apiary leave at least 48 hours. They void their guts releasing pathogens they may carry.
- Prime swarms draw comb fast so hive on foundation in full size hive if available



- Nuclei should be rehived when on all but one frame in the box
- Use dummy boards to leave only 2 or 3 frames of foundation to draw at a time
- Continue feeding unless there is a heavy nectar flow or you decide to add supers

Swarming



a swarm of bees in May is worth a load of hay
a swarm of bees in June is worth a silver spoon
a swarm of bees in July is'nt worth a fly



Collecting a Swarm in a Skep



Collecting a Swarm in a Skep



Shaking a Swarm into the Hive



Traditional way of hiving a swarm



Robbing



- bees are inveterate robbers
- once started robbing is very difficult to stop
- hive can be robbed by bees or wasps
- can spread disease
- can result in fighting and demise of a weaker colony



Preventing Robbing



- don't spill syrup or leave brace comb lying around apiary
- Hive boxes close fitting, no knotholes, crownboard feeder holes closed and crownboards and roofs correctly fitted
- don't keep hives open longer than necessary
- feed all hives together and commence at dusk
- fit reduced entrance blocks to smaller colonies / nucs
- remove robbed hive to out apiary more than 3 miles away





Any Questions