Re-active swarm control

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Introduction

Re-active swarm control starts when pre-emptive swarm control ends:-

• That is when queen cells with contents are found in the hive
• No known (reliable) method by which the swarming process can be turned off
• Need to accept the inevitable
• Destroying queen cells only delays swarming and may make problem worse
• A wrong move now may destroy the colony
What the talk covers

Talk is in four parts covering colonies at different stages in the swarming process:

1. Those that have set up queen cells but have not yet swarmed
2. Those that have already issued a prime swarm
3. Those that have emerged queen cells and may have issued a cast swarm
4. Last ditch post-swarming management – ensuring do not end up with a queen-less colony

If colony has progressed past stage 1. you have taken your eye off the ball
How to investigate
First priority is to determine what stage in swarming has been reached
Details fully explained WAG/WBKA booklet ‘There are queen cells in my hive – what should I do?’
• Booklet contains a diagnostic tree with 12 steps
• Need to inspect colony to find what stage it is in
• For first 3 weeks evidence is on combs (‘The truth is out there’)
• Do ABSOLUTELY NOTHING until you know what’s going on
• Only then can you decide on appropriate method of re-active swarm control
PART 1

Colony has not yet swarmed
How do you know?

Evidence in order of reliability:-

• Queen seen
• Recently laid eggs (standing on end)
• No missing bees (colony the size you expect)
• Maturity of queen cells and recent weather
You have determined that the colony has NOT swarmed (yet)

If swarming is to be avoided there is only one option - to make an **ARTIFICIAL SWARM**

How urgent is this manipulation?
Maturity of queen cells?
- All unsealed?
- A mixture of unsealed and sealed?
- Or all sealed?
- If the latter (and the queen is still there) you have been lucky
- Time of day and weather conditions
Artificial swarming

Standard method separates flying bees and queen from brood and queen cells

• But using what method?
• Most books describe the Pagdon/Heddon Method – albeit with minor variations
• But does this method work?
• Most books gloss over the outcome but give the impression that no problem – it is supposed to work well
• Yates (Beekeeping Study Notes Modules 1-4) claims it is virtually 100% reliable!
Our experience

• Have tried Pagdon/Heddon method (and variations) many times over the years and doubt it has been more than 50% successful

• What went wrong?

• Initially thought it was our fault – doing something wrong?

• Or our bees peculiar?

• Finally came to conclusion method at fault
Pagden/Heddon Method of Artificial Swarming

Before – hive on brood and a half with 2 supers

Artificial swarm – new deep box with 1 frame of sealed brood and queen

Parent colony – with all the brood and queen cells on a new stand
How is it supposed to work

- **Artificial swarm** (in original hive position) – bees are supposed to think they have swarmed
- Because they are supposed to be in same condition as if they had swarmed it is claimed they will settle down (NOT swarm) and re-build colony

- **Parent colony** (in new position) loses flying bees so unable to swarm
- Will settle down and raise new queen – but some disagreement on need to thin queen cells
Artificial swarm - does it work like this?

- **Artificial swarm** is nothing like a **natural swarm** – a totally different age-class structure
- Artificial swarm dominated by older bees
- Natural swarm dominated by younger bees - up 70% less than 10 days old – fit for purpose!
- Artificial swarm often retains urge to swarm and will often do so at first opportunity
- **This is the root of the problem**
Parent colony – NEVER a problem

- Parent colony loses flying bees – return to artificial swarm in original hive position
- Flying bees include the **swarm organizer bees**
- Parent colony loses swarming impulse and goes into emergency re-queening mode
- Means **NO thinning** of queen cells required
- Colony will select new queen from available ‘talent’
- Only hurdle is getting new queen mated and laying
- Over 90% success rate
Our history

• Started out using artificial swarming as shown in diagram
• Discovered the Snelgrove’s book and made some boards
• Board originally designed for pre-emptive splitting of colonies
• Snelgrove also used it for (vertical) artificial swarming by Pagdon Method
• We followed suit but same poor result as before
Testimony of other beekeepers

• Have talked to a number of beekeepers who regularly use this type of artificial swarming
• **ALL** of them (when closely interrogated) admit to having poor results
• If you or someone you know gets better results I want to know
• The proliferation of methods (using the same basic principle) gives the game away (see Snelgrove or Donald Simms)
• Why try and mend it if ain’t broke!
Next development

- Delved more deeply into Snelgrove’s book (not an easy task)
- Discovered Snelgrove’s Method II
- Experimented with that
- It seemed to give better results but it had an inherent problem
- Stopped using it and returned to the conventional method
Snelgrove Method II

- Snelgrove hit upon this method fortuitously
- He did a conventional artificial swarm but accidentally left the queen in the parent colony (along with brood and queen cells)
- At next inspection realised his mistake but found queen cells had been torn down and queen had resumed laying
- He returned the queen to the artificial swarm which settled down and did not swarm
- Meanwhile parent colony made emergency queen cells and re-queened itself without swarming
- Looked like the ideal method
Snelgrove II – Initial manipulation

- Colony on brood and a half + 2 supers set up to swarm
- Complete brood nest along with QC’s and queen moved to top of hive on split board

Legend:
- Red: Brood
- Yellow: Stores
- Black: Empty comb

Flying bees
Snelgrove II – Second manipulation 9-10 days later

Queen cells at top of hive torn down, queen resumed laying

Queen returned to bottom of hive along with 2 frames of brood, new emergency QC’s started in top colony
Snelgrove warned of problem

- ‘Sometimes’ bees in artificial swarm find queen has moved upstairs
- Move up to join her
- Result - colony on board swarms
- Remedy – move colony of on split board to another part of apiary
- We found it happened a bit more often than sometimes!!
- This is what you see when it happens
Snelgrove II (original version) – artificial swarm finds where the queen has gone

Bees fly back to old entrance, walk up hive wall and into entrance on split board

Re-united with the queen the parent colony will now swarm
What next?

• This was unsatisfactory, especially in out-apiary
• Also when queen returned to artificial swarm some did not settle down – they could still decide to swarm
• Was this any better than Pagdon?
• Then we had new idea
• What would happen if we gave the artificial swarm some brood?
• What if they could start emergency queen cells?
• Would this stop them looking for the queen?
Snelgrove II (modified) – Initial manipulation

Colony on brood and a half + 2 supers set up to swarm

Complete brood nest along with QC’s and queen moved to top of hive on split board BUT 2 frames of brood with artificial swarm
Snelgrove II (modified) –
Second manipulation
9-10 days later

Queen cells at top torn of hive
torn down, queen resumed laying,
emergency QC’s in artificial
swarm

Queen returned to bottom of hive,
emergency QC’s destroyed, new
emergency QC’s started in top colony
A eureka moment!

- Artificial swarm no longer looked for queen
- Made emergency queen cells
- After 9-10 days queen returned to artificial swarm
- Emergency queen cells destroyed (by beekeeper) or moved to top colony
- Artificial swarm seems accept return of laying queen even though they should expect a virgin
- Artificial swarm resumes normal activity and makes NO attempt to swarm
Snelgrove Method III

• Suspect Snelgrove did not find (his version of) Method II completely satisfactory
• Went on to develop Method III
• Haven’t tried this one but will one day
• Interesting but probably irrelevant
• Another variation (using a split board) has recently come to our attention
• Will trial this year and report
• Clearly has some pros and cons but does it work reliably?
Advantages of Snelgrove Method II (modified)

• It works reliably!
• Don’t have to find queen for initial manipulation
• Have to find her for second manipulation but much easier
• **BUT your do have to get timing right**
• Leave much beyond 9-10 days and can get virgin queen emerging in artificial swarm
• Not a disaster but requires a quick change of plans
Why does the modification to Method II work so well?

• It does what it was designed to do – stops bees in artificial swarm find the queen
  (Probably would not happen if split board not used)
• Most important effect is seems to be that it switches artificial swarm from swarming to emergency re-queening mode
  *Please note this is pure speculation*
PART 2
(All downhill from here)

Colony has issued a prime swarm but NO
virgin queen have yet emerged
Only one thing you can do!

- Very simple you **must thin the queen cells to prevent cast swarming**
- Must search diligently and locate **all** queen cells – failure is not an option
- Brush bees off combs to make sure
- Look for hidden cells in corners and down side-bars
How to select the right queen cells?

• The largest queen cell?
• One queen cell or two?
• Sealed or unsealed?

Things you must do:-
• Ensure chosen queen cell undamaged
• Preferably in protected position towards middle of brood nest
• Mark frame with drawing pin or marker pen
Thinning queen cells

• In this context an essential but most undesirable activity
• Post prime swarm (and to prevent cast swarm) is the ONLY circumstance in which you need to thin queen cells - play god
• What do we know about the contents of a queen cell?
• Bees always have a choice of cells and exercise that choice their way
• The bees know best
An important warning!

- If eggs or young larvae present at time of artificial swarm, a colony can (and often will) make some additional emergency queen cells
- Will quite happily swarm with occupant of your carefully selected queen cell and use an emergency queen cell to re-queen colony
- Check colony about 5 days later to check no emergency queen cells present
- Destroy if there are
PART 3
(Now things are getting pretty desperate)

Prime swarm has long-gone and there is at least one queen cell from which the occupant has emerged.
What do you do now?

The 64 thousand dollar question is: –

• Is there a virgin queen on the lose in the colony or has it already a cast swarmed?
• You may have some idea from number of bees
• If you decide there has been a cast swarm is there currently a virgin in the colony?
• How can you tell?
• Unless you are lucky enough to see her you can’t tell
There is any easy solution to this dilemma

• Act as mid-wife and help some virgins emerge for the remaining queen cells
• Gently use the tip of your hive tool (or better still a scalpel) to open the tip of some queen cells and allow queen to walk out
• There is often a ‘tear here’ line round the tip
• Allow as many virgins out into hive as you fancy
• Then carefully destroy all remaining queen cells
• Leave them to sort it out!!
PART 4

(You have been a very derelict beekeeper if you have got to this situation – but who hasn’t been there?)

There are no queen cells left to emerge, no eggs and probably no brood at all
Another 64 thousand dollar question

Is the colony just awaiting a new queen come into lay:-

• Can you see a queen?
• What’s the colony behaviour like – calm or frantic?
• Are they good laying arcs – cell prepared for laying?
Confirmation

• Only seeing the queen provides a definite answer – even then she may never lay properly
• Ultimate test for presence of a queen is use a test frame
• Introduce a brood frame from another colony that has eggs and young larvae on it
• If there a queen is present nothing will happen
• If there is no queen the colony will start emergency queen cells
• Inspect about 5 days later
Still further down the road

If it is clear the colony has had no brood for some time the only solution it introduce a frame with sealed queen cells from other hive

Do not trust a colony populated by OAP’s to make an emergency queen
Added bonus section

Finally, a couple of sneaky moves
What do you do if a colony sets up swarm late in the season?

We are talking just before or during the main flow in late June or July

What’s the use of making an artificial swarm?

Want to keep a many bees on one place (a single hive) to collect as much honey as possible
Put the queen in PURDAH

Remove the queen from the colony that has started queen cells and put her either:

1) In a nuc box
2) Or on split board on top of the hive

She should be given is a small number of nurse bees and some brood to keep her ticking over

Works best if queen cells unsealed

If sealed advisable to thin them
Sneaky Move 1 – putting the queen in Purdah

Queen in Purdah in shallow box with 3 frames of brood and nurse bees

Brood and half with late season queen cells. Can be left if unsealed but thinned if sealed

Super
Super
Super
What do you do if the colony has actually issued a swarm?

• Hiving the swarm will not contribute to the honey crop
• Really want to put it (or most of it) back where it came from
• And this is what you can do using Snelgrove board
Sneaky Move 2 – hiving the swarm on a Snelgrove board and returning most of workers into main colony

Queen excluder on top of board initially to prevent swarm absconding

Swarm hived in new deep box on top of Snelgrove board

Bees flying through one entrance for 2 days then entrances swapped to divert bees in bottom of hive

Queen cells must be thinned to one as shown
THE END

Where did that danged swarm go?