

Swarm Management

Petersfield (Nov 2022)



We will cover...

- ❖ The Swarm Process
 - ❖ Basic Swarm Management Approaches
 - ❖ Advanced Techniques
 - ❖ *Some Tips and tricks along the way*
 - ❖ Questions
-
-

The Behaviour - Why Swarm?

- It is one of two REPRODUCTIVE behaviours of the colony
 - The colony DNA is also spread via drones
 - Requires INVESTMENT by and RISK to the colony
 - Powerful instinctive behaviour
-
-

Swarming Process – in stages

Normal
Condition

Swarm
Preparations

Post Swarm
Condition



Swarm Leaves

Trigger Event



What Triggers the Behaviour?

- Bees are REACTIVE to environmental conditions
 - Two theories:
 - Nurse bees run out of work
 - Colony runs out of working space
 - *(Note. Both are linked to CONGESTION within the nest)*
-
-

So...

- During stage 1 (i.e. before trigger) focus is on :

Space Management



Managing Space (Prevention)

❖ Why Space ?

- ❖ Lack of space → CONGESTION - widely regarded as the key environmental factor that triggers swarming behaviour

- ❖ Lack of PHYSICAL space

- Just run out of room

- ❖ Lack of WORKING space

- Poor allocation between brood and food
-
-

Managing Space (Prevention)

- ❖ Consider three aspects of space
 - ❖ Brood development
 - ❖ Honey/Nectar storage
 - ❖ Elbow room – Sufficient for the whole colony

Managing Space (Prevention)

❖ These are the easy two

❖ Brood development

❖ Honey/Nectar storage

❖ Elbow room – Sufficient for the whole colony

❖ Super ON quickly, Super OFF slowly



Managing Space (Prevention)

- ❖ This one is more complicated
 - ❖ Brood development
 - ❖ Honey/Nectar storage
 - ❖ Elbow room – Sufficient for the whole colony
-
-

Space Management – Early Season

Clean up the brood chamber

- ❖ Reduce old stores and pollen
 - ❖ **Early on - trickle feed WATER if stores unused**
 - ❖ **Later – take out congested frames**
- ❖ Replace old or damaged comb

Get first supers on ahead of the spring flow

TIP: Use drawn comb

TIP: Wash out Frames of Ivy or Syrup with rainwater

Importance of Drawn Comb

- ❖ Wax producers – 12-19 days old
 - ❖ Not available in early season → foundation is no good
 - ❖ Look after stored drawn comb through the winter (wax moth!)
 - ❖ In early spring remove unused frames of food and soak out syrup or ivy stores
-
-

Space Mgt – As Season Progresses

- ❖ Seven day inspection regime
 - ❖ Maximise space for queen to lay – keep moving out pollen barrier
 - ❖ Remove excessive pollen if necessary
 - ❖ Don't let nectar ripen in brood box, so...
 - ❖ **Super on quickly**
 - ❖ **Super off slowly – Exchange one-4-one when taking off honey**
 - ❖ *Tip: If bees reluctant to use supers then move shallow frame (DB Trap) up into super*
 - ❖ Remove excessive honey frames (brood box) if present
-
-

Space Mgt – As Season Progresses

- ❖ For smaller brood boxes – Nationals, Smiths, WBCs
 - ❖ May need to increase brood space by adding a shallow (brood-and-a-half) or a deep (double brood)
 - ❖ *[I'll return to this later if there's time]*
-
-

Prevention – As Season Progresses

- ❖ TIP - Holidays – extra super(s) just in case

- ❖ TIP – warm old foundation before using it



- ❖ TIP – rapid inspection

- ❖ TIP - look at bottom of brood frames for QCs

- ❖ For multi-box colonies, first look under top box for queen cells.
- ❖ If found then place top box carefully in upturned roof to protect cells from damage



Early Season Queen Interventions

- **Mark the queen** – many later manipulations need you to find the queen. Easier to find her when the colony is small.
- **Clip wings** – one side only, about two-thirds of both



Summary (Pre-trigger event) Skills and Techniques

- Weekly Inspection Regime
 - Assessing space
 - Rapid Inspections – tipping brood

 - Marking the queen
 - Clipping Q's wings

 - Marshalling your equipment
 - Caring for your drawn comb
 - Soaking out old syrup/ivy honey

 - Setting up bait hive(s)
-
-

Swarming – After the Trigger Event

- Space management is NO LONGER effective against swarming
 - There is now a determination within the colony to complete the process
 - Let's consider what ingredients are necessary for this to happen...
-
-

Swarming – Necessary Ingredients

- ❖ For a colony to swarm, it needs:
 - ❖ a Viable Queen (old or virgin)
 - ❖ Flying Bees:
 - ❖ Wax Producers (to establish new nest)
 - ❖ Foragers to provision the new nest
 - ❖ Favourable Weather
 - ❖ Leaving behind:
 - ❖ Queen cells to replace old queen
 - ❖ Nurse Bees to raise new queen
 - ❖ Food and Foragers to sustain the remnant colony
-
-

Swarming – Removing Necessary Ingredients

- ❖ For a colony to swarm, it needs:
 - ❖ Leaving behind:
 - ❖ Queen cells to replace old queen
 - ❖ Knocking down all QCs often first resort of the inexperienced or panicked beekeeper
 - ❖ Simple but Ineffective because...

Swarming – Issues with Removing QCs

- ❖ Have I found them all?
 - ❖ Swarm Behaviour is still active
 - ❖ Absence of eggs → QCs raised on 1 or 2 day-old larvae → will be capped in 4 or 5 days!!
 - ❖ May leave BEFORE capping of QCs
-
-

Swarming – Removing Necessary Ingredients

- ❖ For a colony to swarm, it needs:
 - ❖ a Viable Queen (old ~~or~~ virgin)
 - ❖ Simple and effective – best put into a nucleus colony
 - ❖ Acts as an Insurance Policy against failure of new queen
 - ❖ Must clear up the parent colony
- ❖ Leaving behind:



Swarming – Splitting Apart the Necessary Ingredients

❖ For a colony to swarm, it needs:

❖ a Viable Queen (old ~~or~~ virgin)

❖ Flying Bees:

❖ Wax Producers (~~to establish new nest~~)

❖ Foragers ~~to provision the new nest~~

❖ Leaving behind:

❖ Queen cells [one or two] to replace old queen

❖ Nurse Bees to raise new queen

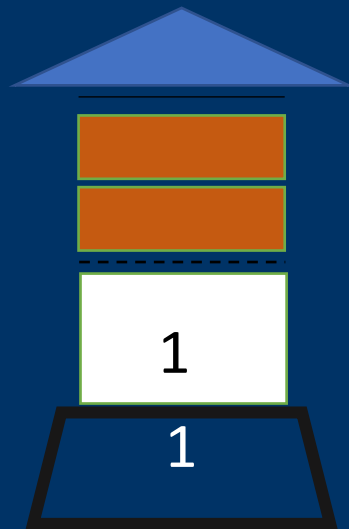
❖ Food and Foragers to sustain the remnant colony

❖ [The Brood]

→ Artificial Swarm

Pagden Split – Horizontal Separation

❖ From:



Q + Brood + QCs
+ all Bees

❖ To:



Q + Fliers + frame
capped brood



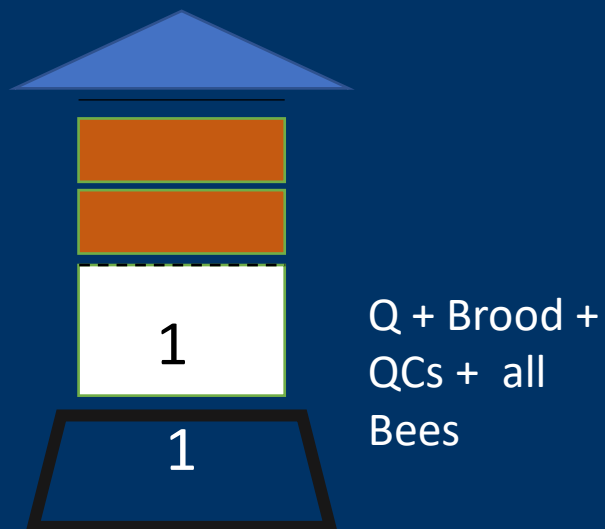
Brood + QCs +
Nurse Bees



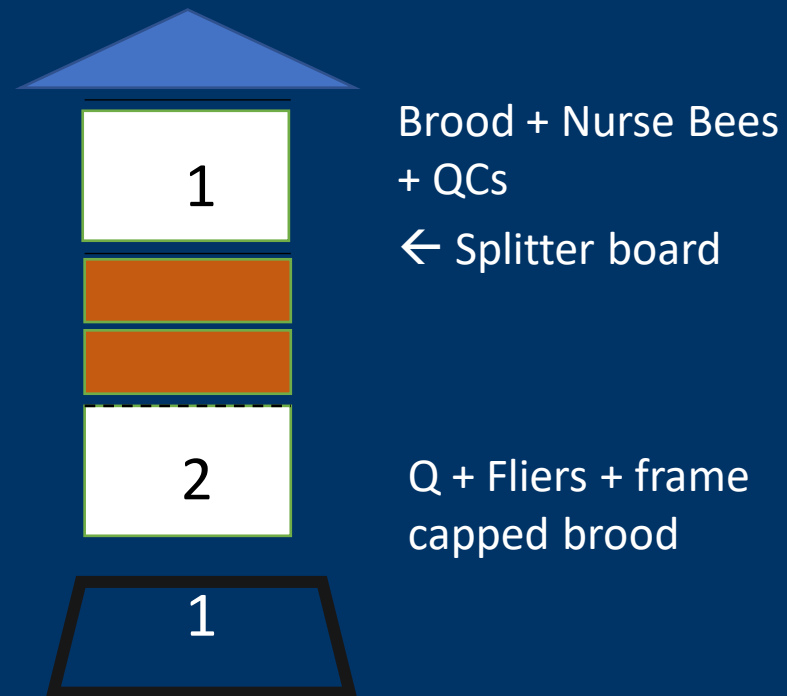
Demarre Split – Vertical Separation

modified with splitter board

❖ From:



❖ To:



Using the queens

- ❖ Supersedure
- ❖ Re-queening underperforming queens
- ❖ Anticipating Winter Losses

Summary (Post-trigger event)

Skills and Techniques

- Finding the queen
 - Splitting the brood into nuc plus parent
 - Artificial swarm
 - Replacing a queen
-
-

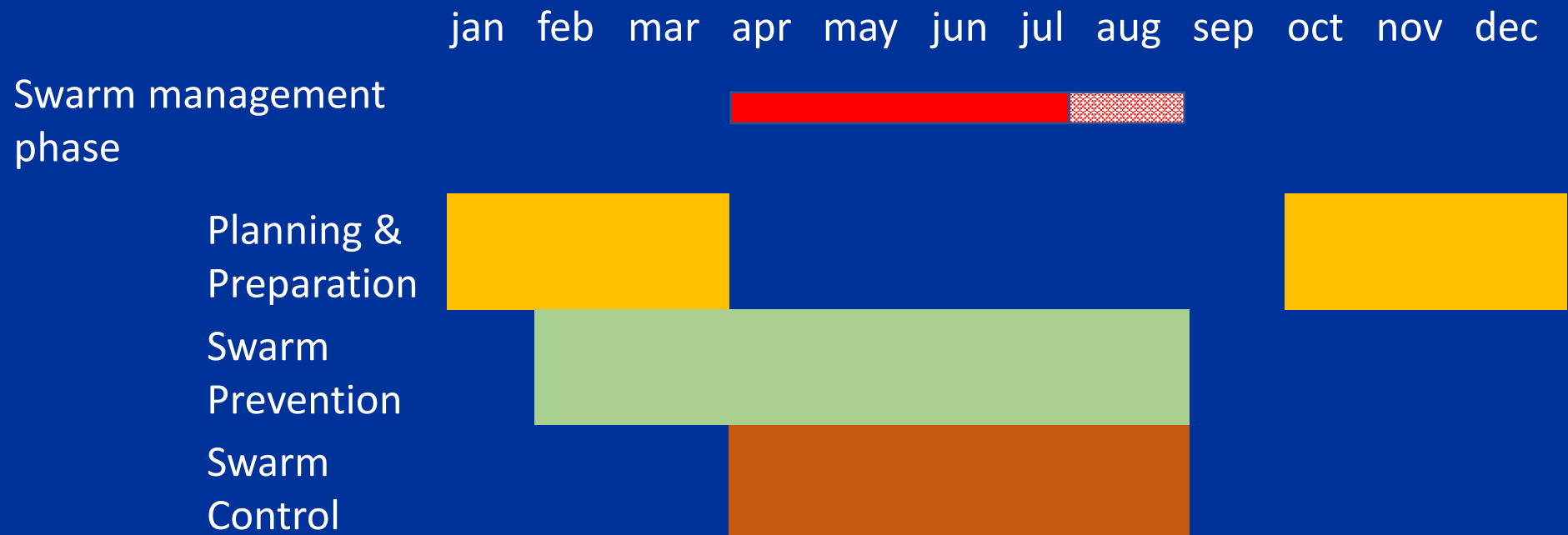
Space Mgt – Multiple Brood Boxes?

- ❖ Double Brood
 - ❖ + space for queen to lay
 - ❖ + allows exchange of frames
 - ❖ - double the frames to be inspected & treated
 - ❖ - unless prolific queen, unused space filled with honey
 - ❖ Brood-and-a-half
 - ❖ + space for queen to lay
 - ❖ - limited exchange of frames
 - ❖ - double the frames to be inspected & treated
 - ❖ - contaminates shallow frames
-
-

Space Mgt – Multiple Brood Boxes?

- ❖ National Brood Box
 - ❖ Circa 50,000 cells
 - ❖ Q. lays 1500 eggs p.d. needs 31,500 cells (62%)
 - ❖ Q. lays 2000 eggs p.d. needs 42,000 cells (84%)
 - ❖ Double Brood
 - ❖ Q. lays 1500 e.p.d uses 31.5% of available cells for brood
 - ❖ Q. lays 2000 e.p.d uses 42% of available cells for brood
 - ❖ Brood-and-a-half
 - ❖ These usage rates are 42% and 56% respectively
-
-

Swarm Management – Phases and Timing



Questions?

