CANTERBURY BEEKEEPERS

FOLKESTONE GARDEN HONEY

THE SWARMING PROCESS

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What, How and Why

What "swarming" looks like

- Many thousands of bees rush out of the hive and swirl around in the air
- Over ~10 minutes the bees condense to a placid cluster
  - usually ~20 yards from their starting hive
- They may stay clustered for 5 minutes or many days …
- Before flying off as a cloud
  - going half a mile or more
  - and into a chosen cavity
  - new home - staying!

The vital swarming 'gotcha'!

- About a week later, it happens all over again …
- But with not quite so many bees
- Hours or minutes later, it happens yet again …
  - but with fewer bees
- *And it keeps on happening!*
  - each one successively smaller
  - there might be several clusters in the nearby trees and bushes, at the same time - from the same hive!
  - this is called "Casting" or "losing cast swarms"
- When it eventually stops, the hive seems to be extremely short of bees … and honey …
- Having lost all those bees, the colony stays 'behind' all year, and is unlikely to give *any* honey crop …

So, what's all that about…?

- Swarming is how *colonies* reproduce
  - Colony as a "Superorganism"
    - Honeybees only survive by inter-dependence
  - Natural unbeatable urge to reproduce!
    - you are never going to wholly prevent it
    - but you can delay it (or avoid promoting it)
  - When ***they*** get the urge (Note - it is 'they' not 'she' - the *colony* decides, not the Q)
    - the colony DIVIDES and
    - 'half' of them go off to set up a new colony
      - the first ('prime') swarm with OLD Queen
      - subsequent halving each with a new VQ

So what causes swarming?

- Swarming occurs when:—
  - Spring is in the Air! (April to …July?)
  - The colony is doing really rather well
    - Plenty bees, brood and stores
  - Doing so well that the colony is too big to be held together by Queen's Pheromone output

Queen's Pheromone output

- The more she produces, the bigger the colony she can hold together, before her bees perceive its time to split
- BUT - as Q ages, her output reduces
  - halves every year
    - older Q's colony will swarm when smaller
      - so they will swarm earlier/more easily
- Different Qs— different pheromone output
  - different races - Italians? Carniolians?
  - or from a swarmy genetic 'pedigree' line?
    - hence the "Don't breed from swarms" advice
      - should be "from *wilfully* swarmy bees"!
        - because swarming can more often be the fault of the beekeeper, rather than the bees!

Queen's Pheromone output

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- Restricting Q's laying reduces her pheromone output
  - so ensure she has lots of empty *brood* comb and don't restrict her potential
    - *drawn* comb!
    - available next to the brood nest (not separated)
    - excess sealed winter stores?
    - comb space in supers is no substitute for brood comb availability! (BUT… see later!)
  - need a 'big enough' brood space in the hive
    - too small is a reliable swarm generator!
    - modern bees more prolific (since IoW disease)
    - single brood WBC? (10x DN frames)
      - brood and a half/extra deep/double brood

Queen's Pheromones

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- If the pheromones don't get circulated well enough, some workers may not get "enough" pheromones
  - and start building QCs …!
- Pheromones don't circulate properly (equally) if the hive is too full of bees - "congested"
  - so what is "congested"?

Queen's Pheromones

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- Pheromones don't circulate properly (equally) if the hive is too full of bees - "congested"
  - so what is "congested"?
  - prevent congestion by extending the hive
    - add (drawn) supers!
    - add an undrawn nadir? ?? !!!
  - this is about adding 'space' rather than 'brood space'
    - different needs, subtly different remedies!

Plenty bees, brood and stores

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- The colony won't swarm until it is 'ripe'
  - or as ripe as it thinks its going to be!
- It won't set about swarming unless it feels stong enough *to survive dividing*
- Hence, you *could* help defer swarming by deliberately weakening it
  - redistributing brood to boost a weaker colony
  - or stores to a 'light' one
    - make sure all are healthy BEFORE swapping!
- BUT you should be aiming for *all* your colonies being strong and well-provisioned!
  - regard strength as a warning signal, meriting a very close watch for swarm signs

Swarming occurs when:—

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- ~~Spring is in the Air!~~
  DRONES are in the Air!
- Swarming **can** happen whenever there are Drones about, and a colony with Q and even one QC …
  - remember that possibility!
- But it normally happens in Spring …
  - … which gives the daughter colony best chance of establishing before next winter
  - and with **lots** of QCs (more in stronger colonies)

In Spring

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- Queens laying rate increases quickly
  - needs more brood comb for brood nest
    - be aware some bee races have a really explosive Spring brood (colony) expansion!
- Spring nectar flows (eg OSR) can produce a sudden flood of nectar
  - needs lots of comb space for honey processing
  - unless enough supers in place, brood box gets filled
- There may be spare winter stores in the brood box

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- There may be spare winter stores in the brood box
- Combine those three effects and Q can suddenly run out of comb to lay in
  - so laying rate drops -so- pheromone output drops
    - swarm propensity increases!

Swarming tendency summary —

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- Swarming is **delayed** by having
  - Young Q
    - not from 'swarmy' genetic line
    - not from 'swarmy' race (Carnies? Italians?)
  - laying space (free comb in brood box)
  - nectar processing space (free comb in super/s)
  - space for the bees (hive not congested)
    - add supers for bee-room, not just for honey
      - no bad thing to give excess bees a job, eg comb drawing - which also helps use some of the nectar flow, freeing more comb for Q

So what are the signs of swarm prep?

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- Lots of QCs! — "As any fule kno"
  - Usually at bottom and sides of frame(s)
- But well before that…
  - The Q's laying rate reduces (she slims down to fly)
  - Normal brood ratio 1:2:4 at constant laying rate
  - Worker brood
    - 3 days as egg, 6 days as open brood, 12 days sealed
      - hence 1:2:4 from constant laying rate
  - When she slows down, we see greater proportion sealed brood, little open brood, very few eggs
    - If she slows down (becomes more like 1:10:40?)
      - Look **hard** for QCs !!! Now and next week…

So what are the signs of swarm prep?

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- Once QCs are in progress
  - the bees start "tanking up" on honey in readiness for leaving (full of honey)
  - this makes them
    - calm and gentle - "suspiciously nice"
    - not so busy foraging / keen to fly - so more of them are at home - hive seems much 'fuller'
- But in the half-hour immediately before departure
  - the bees can be seen running around in the hive
  - DVAV "dance of joy"
    - beekeeper panics or becomes very inventive!

What stage **will you notice** swarming?

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- (Drones)
- Old Q? Short of brood space? Congestion? Big colony?
- Q slimmer - and brood ratio not 1:2:4
- Lots of *open* "wet" QCs
- Unusually "Suspiciously nice" bees
- Some *sealed* QCs
- Agitated (but not aggressive) bees
- Oh Sh… there are masses of bees rushing out of the hive and circling around … !!!
- Clustering nearby(ish) if/when they locate Q
- Flying off as a group to a new home
- Not so many bees in the hive (and many sealed QCs)
- Very few bees left in hive, but lots of *open* ***empty*** QCs