



Swarming


'Introduction to Beekeeping Course'
MBA Teaching Team
Course 2021/22



Moray Beekeepers' Association SCIO SC050177




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Why do bees swarm?

- Perfectly normal phenome
- A laying queen only replaces losses or increases the own colony
- When a queen is replaced – still only one colony
- Swarming not essential to individual colony survival
- Means of natural reproduction of colony
- Large number of honeybees leave the hive with the queen to establish a new colony

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Theories why bees swarm


- Overcrowding/Congestion – lack of space, high proportion of young bees
- Queen substance – reduced transmission of queen substance due to congestion and/or diminishing of pheromones in aging queen
- Excess of brood food, abundant resources
- Genetics

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Process of swarming




- Bees chose time of the year carefully
- Preparation of the original colony – queen cells
- Mostly mid-spring, May/June
- Early swarms in April
- Dependent on season, regions
- Unlikely swarming before they have sexually mature drones
- Secondary peak possible in August/September

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Swarm preparations



- Young queen cells (play cups) with eggs or young larvae
- Increase in drones
- Queen forced to lose weight
- Worker bees get 'lazy', full stores
- Some workers start scouting
- You find possibly several / many queen cells on your frames







Photo: G. Collins
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Swarming

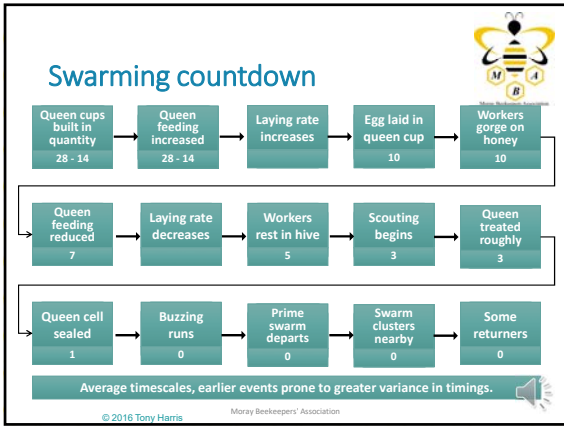


- Primary swarm leaves the colony on day when first queen cell is getting sealed (day 7/8 after egg was laid)
- Swarm ~50% of colony
- Virgin queen emerges 8 days later (day 15/16)
 - head of colony
 - head of cast swarm
- Virgin queen sexually mature after 22 days (drone 38 days)

	Queen	Worker	Drone
Egg	1	1	1
Larva	2	2	2
Capped	3	3	3
Pupa	4	4	4
Emerging	5	5	5
Adult	6	6	6
Sexually Mature	7	7	7
Sexually Mature	8	8	8
Sexually Mature	9	9	9
Sexually Mature	10	10	10
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Sexually Mature	42	42	42
Sexually Mature	43	43	43
Sexually Mature	44	44	44
Sexually Mature	45	45	45
Sexually Mature	46	46	46
Sexually Mature	47	47	47
Sexually Mature	48	48	48
Sexually Mature	49	49	49
Sexually Mature	50	50	50

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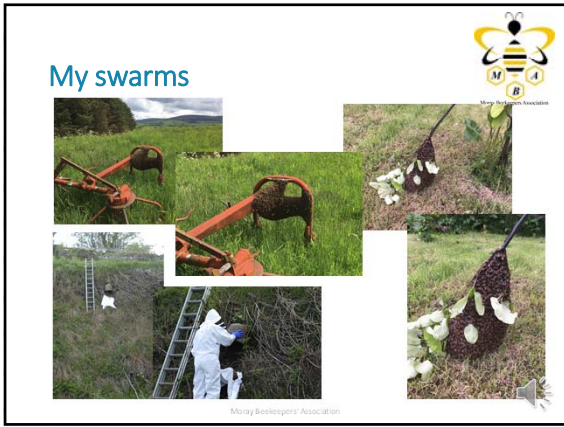
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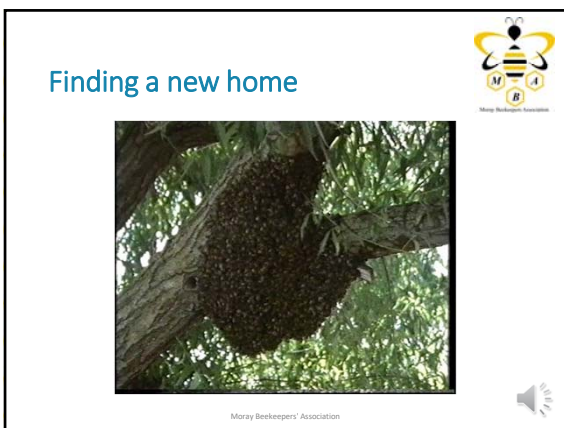
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Swarms



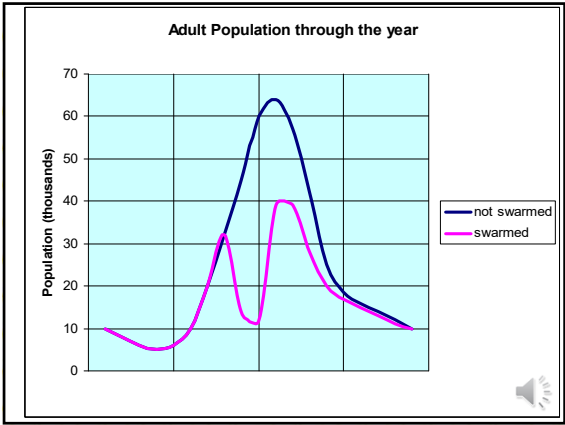
© Tony Harrig



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 isn't worth a fly


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Primary and cast swarms



- Primary swarm – leaves the colony with the old, laying queen.
- 70% of workers in a swarm ~ 10 days old
- Cast swarms – the colony which was left back swarms again shortly after the primary swarm with a virgin queen
- Cast swarms have a slim chance of survival over the winter
- Most feral colonies swarm in spring – once!
- ~40% of the swarms will swarm again at end of summer



© www.hongbeeswarm.co.uk

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Collecting a Swarm

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Collect & rehome a swarm

©Cotswold Bees Ltd, <https://www.youtube.com/watch?v=vt-Q1gkP1x4>
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Swarm collection


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Queen cells





- Swarm cells
 - Usually May/June
 - Usually at the bottom of the frame
- Emergency Queen Cells
 - If the old queen dies or is killed
 - Created from young larvae (≤ 3 days)
 - 'hooked nose', numerous, middle of frame
- Supersedure Queen Cells
 - Usually in autumn
 - Bees not happy with their queen (age, unproductive)
 - Max 5 cells, peanut shape, in middle of the frame


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Swarm cells





© Knight Valley Beekeepers Image credit: Wu Gang Zhong and Zhi Jiang Ding

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Emergency queen cells




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Supersedure cells

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Swarm prevention and control

- Young queens (1-2 years) are less likely to swarm
 - Strong queen substance
- Prevention: measures to avoid swarm preparations
- Swarm control: measures once the colony has started to make preparations
 - Queen cups with eggs or larvae
 - Unsealed (!) queen cells
 - Too late if queen cells are sealed

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Swarm prevention

- Avoid congestion - provide more space
 - Additional super(s) – honey storage
 - More brood space, e.g. more frames or second brood box
 - Rearrange brood comb
 - Remove frames of sealed brood
- Have a young queen
 - Very unlikely to swarm with a one (or two) year old queen
 - Consider requeening after 2-3 years


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Swarm control

- Once a swarm cell is sealed the swarm most likely already left the colony
- Destroying queen cells DOESN'T work, only delays the swarm by a few days
- Several methods available
 - Nucleus method
 - Easy to manage also for the beginner
 - Least equipment required




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Nucleus method of swarm control


- Removing the old queen with a frame or two from a colony preparing to swarm can prevent a swarm issuing (Control)
- When unsealed queen cells are found
- Prepare a nuc box and have spare brood frames available (preferably drawn foundation)






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Nucleus method of swarm control

- 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 the house bees of 2 frames into nuc
- Your nuc consists now of:
 - 2 F Brood (sealed) & bees
 - 2 F Stores & bees
 - 1 F Empty drawn comb
 - 2 F Young bees shaken in
- Locate nuc to a shady position






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Nucleus method of swam control




In the parent colony:

- Check the colony carefully for QC's
- Leave 1 unsealed QC with larva in good position, mark frame with drawing pin
- Knock ALL others QC's down.
- Rebuild the hive filling up the gaps with frames of foundation

One week later:


- Gently check the marked frame for your QC and that it is sealed
- Check all other frames for new (emergency) QC's and knock down
- Leave colony for 3 – 4 weeks then check for queen, eggs/brood.
- Ask for help if no brood after 6 weeks

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Nucleus method of swarm control




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

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Can You Spot the Queen?




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Traditional Way of Hiving a Swarm



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