



# Using Biology and Behavior to Manage Spring Buildup, Swarming, and Honeyflow

Presented to Northland Beekeepers Association

June 2023



# Background

- About Me
  - Hobby Beekeeper and what I call an “Almost Master Beekeeper”
  - Beekeeping since I was 14-15 years old (on and off 30 - 35 years in 50 years)
  - Kept Bees all across Missouri (St. Louis, Leasburg, Sedalia, Lewis and Clark Village, Excelsior Springs and Independence)
  - I divide my Beekeeping Experience into my “Dark Ages” and “Age of Enlightenment”
  - The DA were “pre-Varroa” And my AE was “post-Varroa”

## What am I going to talk about?

1. The 4-B's
2. Swarming
3. Population Growth and Space
4. The walk-about
5. Nectar Management
6. Apply to Simple buildup Plan



# The 4 B's

Biology, Behavior, Brood Cycle, and Brood Nest

- Bee Biology and Bee Behavior as the structure for understanding what, why, and how
- Brood cycle is the calendar (Bee Math)
- Brood Nest is the decider (Population engine)

# Swarming

- The swarm impulse is one of two driving instincts for every bee you ever met.
- The two instincts: survival of the colony, and reproduction of the colony
- Swarming starts with the first egg laid.
  - 4 Stages of Development:
    - First stage – mostly all worker brood – batch brood – cover bees limitation
    - Second stage - drone brood and queen cups – spreading brood out – adding nectar storage outside nest
    - Third stage – brood nest grows to queen capacity, brood ratio 1 – 2 – 4 units eggs, larvae, pupae, infinite balance potential
    - Fourth stage – imbalance – space limitation → backfill → idle house bees → queen forced to lay in queen cups and the swarm is on...



# Research Basics & Timing

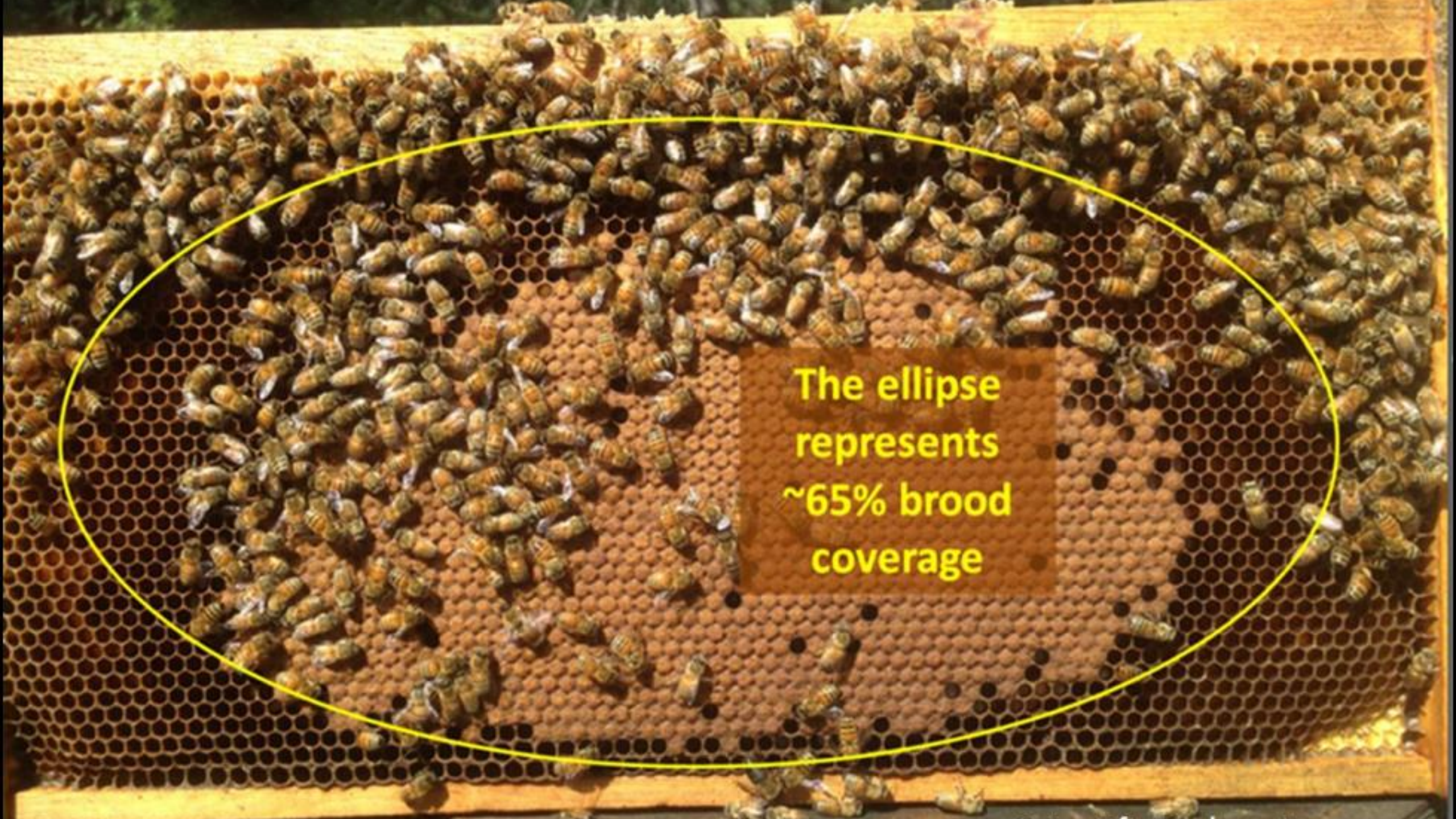
- Nuc Growth – Randy Oliver – [ScientificBeekeeping.com](http://ScientificBeekeeping.com)
- The Walkabout – Sizing the cavity – Tom Seeley
- Nectar Management – Walt Wright – [Beesource.com](http://Beesource.com)



# What about space?

- According to Randy Oliver: a deep frame has a little more than 6900 cells. 5200/medium 90% full of eggs = About 6200 cells of brood. Medium = 4680.
- 10 deep frame box = 69,000 cells, 8 frame = 55,200
- mediums =  $5200 \times 10\text{fr} = 52,000$  x 2bxs = 104,000 cells, 8 frame = 93,600
- If a queen can lay 2000 eggs a day. In 21 days = 42,000 eggs/cells.
- $42,000/6200(\text{deep frame at } 90\%) = 6.774$  frames Medium = 8.97 frames
- The remaining space used for nectar and pollen for brood rearing
- Bees will store nectar above the nest to allow space for queen (super earlier) Nectar will be moved in and out of this first super. Not an issue until brood nest expands to more than half the box.





The ellipse  
represents  
~65% brood  
coverage



# So, What's the Plan?

- Bee Pop 20-25K – Need 10K to start
- 3 brood cycles (63 days)
- Balance brood nests early reach 10K asap
- Need Supers on before brood emerge





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Date	Manipulation
Jan 28	Pollen Patty
3 weeks/Feb 17	1 <sup>st</sup> brood cycle complete
March 1	First strength assessment S-M-W
March 9	Balance brood or add 3 <sup>rd</sup> medium or wait
3 weeks/ March 11	2 <sup>nd</sup> brood cycle complete
March 26	2 <sup>nd</sup> Balance brood
April 1-15	Super if Brood @3-4 frames sealed brood or wait

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Feb 1

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2023 snow 2 inch. mild coldfront

2021 Mild cold front 1-2 inches of snc

2022 added pollen sub

63 Days till April 1

10" Snow.15 to -5 degrees F 2014

2018 1-1/2 inches Snow 10F.

2021 - 1-2wk Cold Front starting today









June 18, 2018





June 2021



May 15, 2023 – Raytown – Beekeeper Julie  
Gibson – Captured Black Locust Flow





## Misconceptions

- “My bees will swarm more because they have less space”
- “There will be less bees because the queen will be limited to lay”
- “They can’t collect enough honey to harvest for me”
- “They will starve in Winter”





