

Introduction to Beekeeping: The Recap

- Casey Fletcher





The Craft of Beekeeping

- Bee keeping is complicated!
- There is no single correct approach to beekeeping
- Continuously learn from your bees
- Continuously learn from other beekeepers.
- Get involved, develop your knowledge and your network!

Keeping Bees –

What you should be considering NOW

- Check restrictions for beekeeping in your area
- Consider your 'hood before getting bees
 - Are there swimming pools near by?
 - Does a neighbor have a strong allergic reaction to bee stings?
- Select your hive location carefully
 - Select a sunny location to set up your hives
 - Make sure it is easy to access and work on!

Strong bees starts with Setting up the Bee Hive



Do you remember
what are the qualities
of an ideal hive
location??

Strong bees starts with Setting up the Bee Hive



- Sunny & warm
- Wind break
- Morning sun on the hive opening
- Easily able to access hive from sides or back

Critique this setup



Beekeeping supplies

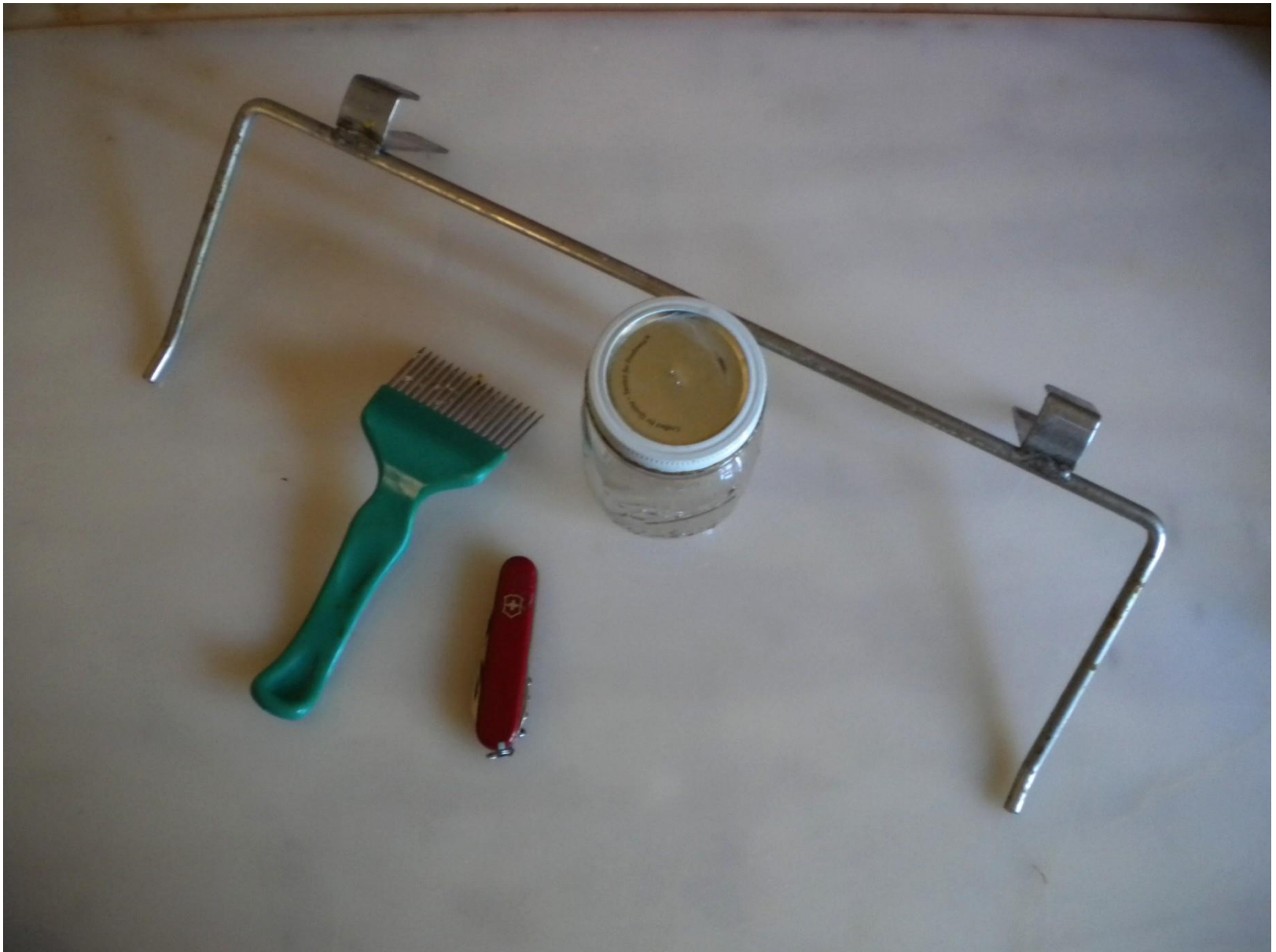


- There is an overwhelming selection of options for the beekeeper
- There is no one “best” solution
- But there is a “standard” toolkit used by most beekeepers...

Example Beekeeper's Toolkit



A few others for the kit...



Personal Protection

“I’m not like other people, I can’t stand pain, pain hurts me”

» Daffy Duck



Suits come in MANY styles



Langstroth Hive



NAME...

THAT...

PART!!!

Langstroth Hive



- Not the ONLY, but definitely a standard
- Telescoping cover and inner cover
- Honey supers
- Queen excluder
- Hive body
- Bottom board (screened or solid)
- Hive stand

Box options

- Hive bodies and honey supers come in 8 and 10 frame options
 - They are not interchangeable!
 - 8 frames are 20% lighter and are much easier to manage for the hobby bee keeper
- Hive bodies come in 3 depths: 9 5/8", 7 5/8" and 6 5/8"
 - Some choose to standardize on the 8 frame, 9 5/8 option
 - All equipment is interchangeable

Startup Cost – 1 Hive

	Quantity	Unassembled	Fully Assembled
8 frame hive			
telescoping top with inner cover	1	28	32
Hive bodies	3	51	165
frames and foundation (9 5/8")	24	83	
Queen Excluder	1	6	6
screened bottom board	1	29	29
		\$ 197	\$ 232
Clothing		Budget	Nicer
Helmet	1	10	
Veil	1	15	
Gloves	1	10	22
Vented bee suit with veil			170
		\$ 35	\$ 192
Tools		Budget	Nicer
Smoker (with guard)		35	37
Hive Tool		4	9
Frame perch		20	20
Bee Brush		5	5
		\$ 64	\$ 71
Total		\$ 296	\$ 495

Purchasing Equipment Tips

- Local stores and online catalog options
- Stick with one supplier for hive components
 - Sizes differ a little between companies, so different parts of a hive may not fit well together
 - Some companies offer discounts for larger purchases.
- You can save money by building your own
 - Many good plans online
 - Need table saw and hand tools
 - Time consuming, but very rewarding

Getting bees

- Get your equipment up and running before you get your bees!
- Four options for getting bees
 - Purchase a package of bees
 - Purchase a nucleus (aka nuc) of bees
 - Purchasing an existing hive
 - Collect a Swarm



Bee Packages



What is it?
Pros/Cons??

Bee Packages

- What you get:
 - 3lb of bees and a queen
 - Bees are bred to be predictable and easy to work with
- When:
 - Once a year only
 - Order before March for delivery in April
- How to get one:
 - Contact your local bee guild
 - Carrier Bees or other local bee supply business
- Cost: Around \$75



Purchase a Nuc



What is it?
Pros/Cons??

Bee Nucs

- What you get:
 - 2/3/5 frames of bees and a mated/accepted queen
- When:
 - Once a year only
 - Order before March for delivery in April
- How to get one:
 - Contact your local bee guild
 - Carrier Bees or other local bee supply business
- Cost: Around \$180-220



Purchasing an Established Hive



Purchasing an Established Hive

- What you **may** get:

- Queen, bees & larvae
- Pulled frames
- Unknown temperament and origin

- When:

- Anytime available

- How to get one:

- Craigslist or contacts at a bee guild
- You swap out new frames for “pulled” frames and must have all other equipment ready to go

- Cost: 10-frame colony ~\$250-350 (or more!)



Catch a Swarm



Catch a Swarm

- What you get:
 - Local bees
 - Unknown temperament
 - Unknown queen
- When:
 - March through April
- How to get one
 - Join your local bee guild and get on the swam list
 - Join your local bee guild and join the swam team
 - Craigslist
- Cost: Free(-ISH)





Ok – getting into the hive



The Honey Bee

Who dis?



Who dat?



Oh brother....



The Queen

- Queens are “made” by the workers
 - To replace a failed queen
 - Or to swarm
- The queen as the ovaries of the “super organism”
 - Can lay up to 1500 eggs per day
 - Can “choose” to lay worker eggs or drone eggs
- “The queen is dead! Long Live the Queen!!”
 - Unproductive queens are replaced by the colony
 - She can live up to 7 years (but 2yrs is more normal)



The Worker

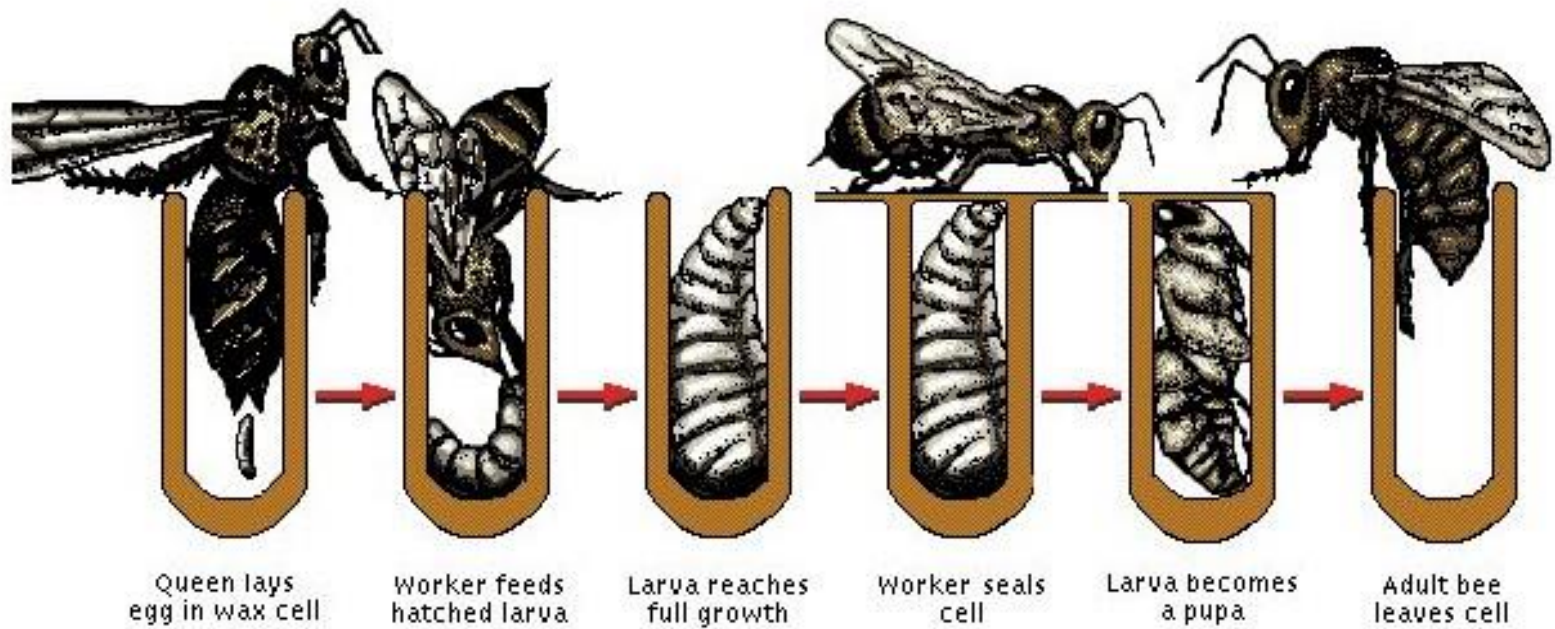
- All female bees
- Any worker bee had the potential to become a queen – All bees are fed royal jelly for the first 3 days of life
 - Worker bees are switched to pollen and nectar diet.
 - Queen bees are fed royal jelly their entire life
- Workers live around 6 weeks



Drones

- The male bees in the hive
- Entire role is to take mating flights, seeking out other queens to mate with
- They are expendable when times are tough





	Egg	Larva	Pupa	Total Development Time
Queen	3 days	5 1/2 days	7 1/2 days	16 days
Worker	3 days	6 days	12 days	21 days
Drone	3 days	6 days	14.5 days	24 days

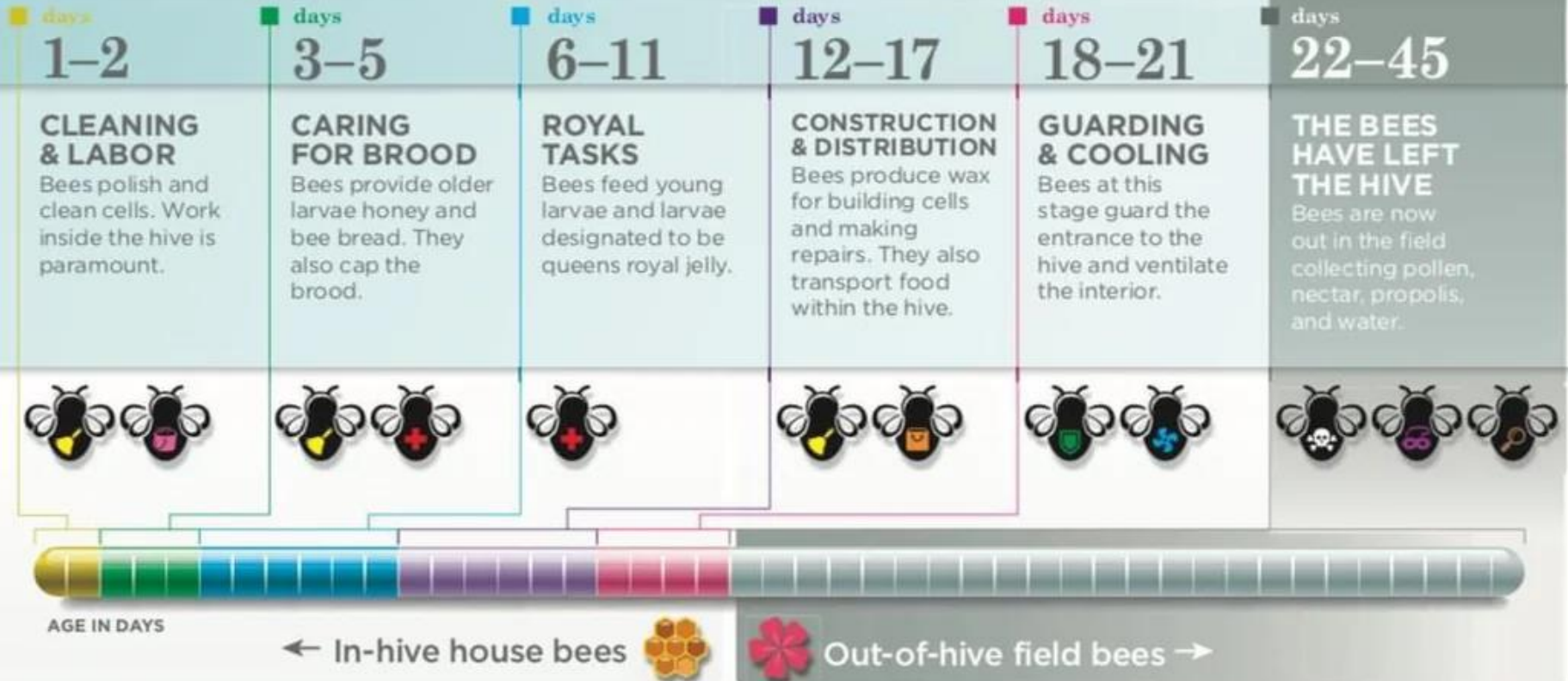
Honey Bee Lifecycle

Do you remember the different jobs?

HONEY BEE NAMES BASED ON TASKS



NURSE HOUSEKEEPER GUARD UNDERTAKER ROBBER FANNER RECEIVER HYGIENIC FORAGER



Foraging

- What are they after?
- Worker bees forage for pollen, nectar, water and tree resins (propolis)
- Food that is not consumed by the colony is stored and consumed when no food is available

Trophallaxis



Nectar

- Nectar is converted into Honey or Wax depending on colony needs
- Nectar is “ripened” into honey
- Honey is then the “heat source” – carbohydrate – for the colony.



Pollen



- Pollen is the protein for the colony and is essential for colony survival
- Pollen is a key trigger for colony expansion or contraction throughout the year.

Water

- Water is essential to the bee, the bee colony, and to honey production.
- A bee colony can consume up to 1 liter of water per day



Propolis



- Bees collect plant resins (sap) and use it to seal small gaps in the hive
- “Bee caulk”... said to have antiseptic properties

Organization on the Frames.. Tell Me What You See!





You've got your bees... they're in the hive... Now it's time for inspections!

Hive Inspections



- Use a checklist
- Start with the outside
 - Activity level
 - Pollen coming in
 - Dead bees on the ground (type? Age? Cause?)
 - Signs of ants or other predators
 - Condition of equipment
- Inside
 - Seasonally predictable
 - Brood patterns
- Be respectful, be intentional, be quick

When to Open a Hive

- Best to inspect when most of the bees are out foraging.
- Sunny, warm, and wind free days
 - – 65 to 95 degrees
- Mid day is best.
- Target 10am to 4pm

- If your bees are happily going about their business, they are less likely to be concerned with you.



Preparations before Opening

- Smoker is full, lit and smoking before you open a hive.
- Bee suit is clean and your veil is on.
 - You don't want to have bees flying before you put that veil over your head.
- All supplies you might need are with you and ready to be used
 - Do not leave an open hive unattended
 - Do not leave your smoker unattended
 - Do not leave the hive open longer than absolutely necessary

Calm Bees:

Tips When Opening a Colony

- Stand on the side or the back of the hive, not the front.
 - Standing at the front will prevent foragers from returning
- Be gentle. Avoid bumping or snapping sounds which will alarm the bees
- Use enough smoke to make the worker bees comfortable
- Avoid crushing bees!

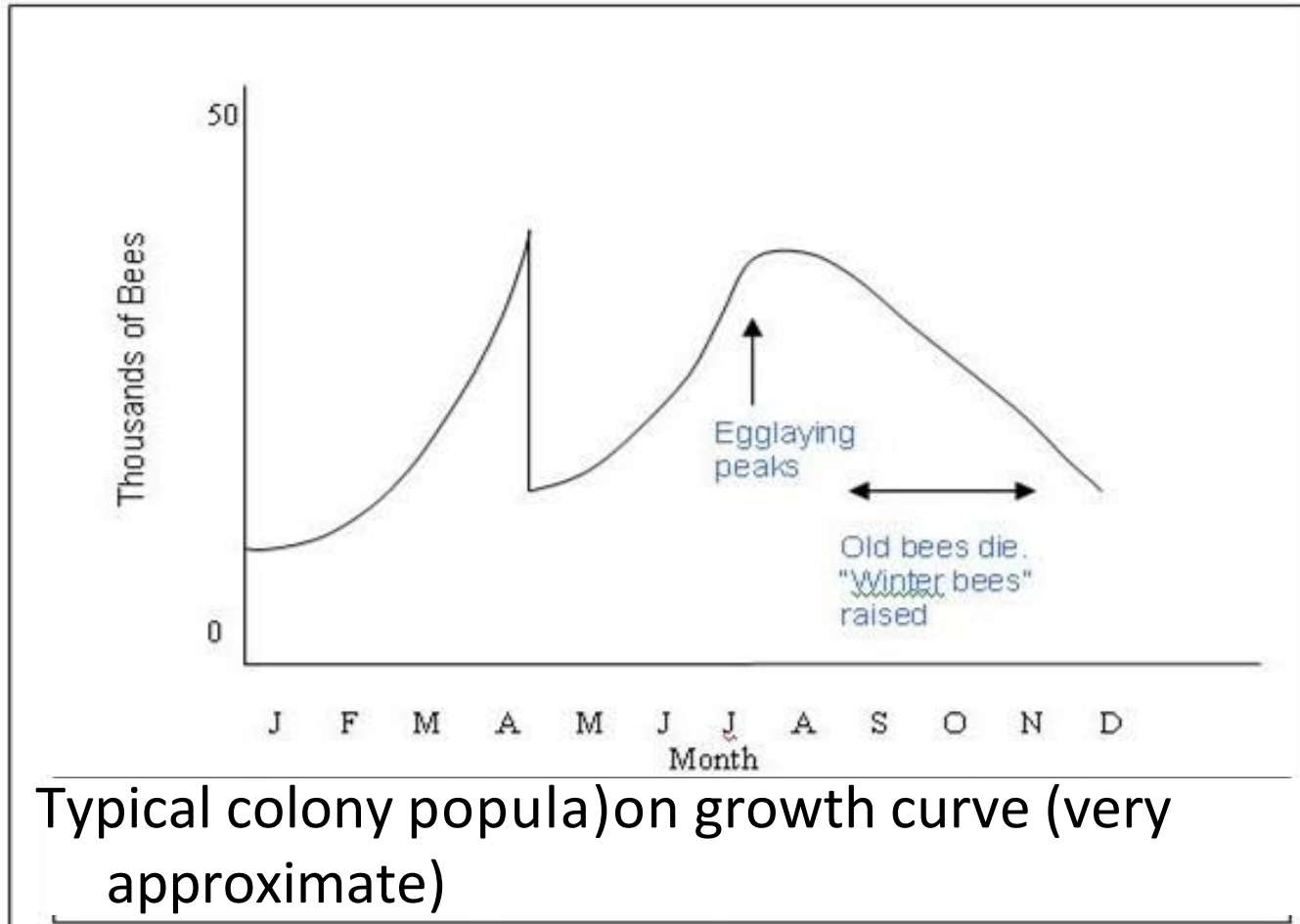
Colony health

- Strong colonies maximize new bees (Recruitment)
 - The queen has sufficient room to lay eggs
 - Plenty of nurse bees to take care of brood
 - Adequate food stores in the hive
- Strong colonies minimize death (Attrition).
 - Loss of bees through wear and tear, disease, and starvation,
 - Attrition is reduced average lifespan of the worker
- Our task is to maximize recruitment potential while minimizing attrition.

Maximizing New Bees

- Good colony location
- Equipment in good shape
 - No cracks or gaps that would let predators or bad weather into the hive
 - Equipment is serviceable (safe for you)
- Room to grow when they need it
- Feed when they need it.
 - Don't take too much when harvesting honey.

Room to Grow: Seasonal Changes in the Hive



Adding a Second Brood Box

- Colony growth happens very fast!
 - One bee takes roughly 5 times the space of a brood cell.
 - The colony needs to take full advantage of nectar and pollen flows in order to survive the winter.
- Colony is telling you they need more room when:
 - There are lots of bees
 - The hive is heavy
 - White wax

Two Brood Boxes, Lots of Bees

Adding a Honey Super

- Just another name for a box with frames
 - Often a Medium or Shallow box
 - Consider weight when determining what you are going to use for honey supers
- Use a Queen Excluder to keep the honey free from brood
- Don't mix honey frames with brood frames

Two Brood Boxes, Lots of Bees

Other Options

- Check to see if there are bees in both boxes
 - Bees may have entirely moved up – leaving the lower box empty.
 - ✓ You may want to swap box positions.
- Check for queen cells, especially if both boxes are stuffed with bees
 - They may be preparing to swarm
 - ✓ Options may be to split the hive or let them swarm

Queen Cells



Too Few Bees

- Queenless hive or failing queen
 - Hive inspection reveals no brood, or spotty brood.
 - Hive inspection reveals no queen
 - Hive inspection reveals queen cells.
 - Bees are loud and agitated
 - ✓ Possible solutions:
 - Requeen
 - Combine colonies
- Disease, starvation...
 - Increase bee longevity

Increasing Bee Longevity

- Focus on the big items
- Focus on those items we can control
- Learn from your bees and learn from other bee keepers.

Starvation



- Spring is a high risk
 - Lots of new brood
 - Low food stores
 - Winter bees too tired to forage
 - Spring rains or frost can kill food supply or prevent foraging.
- Watch carefully!
 - Heft the box to check weight
 - Look for capped honey
 - Feed if at risk!

Varroa destructor

- Breeds in capped brood cells and feeds on larva and adult bees.
- Mite infestation can kill a bee colony.
- Biggest risk is in late autumn through early spring
- Infested colonies will often have large number of bees with deformed wing virus.
- **Try to keep mite levels below a 1% infestation rate in adult bees**



Deformed Wing Virus



- Numerous bees with stunted wings in front of the hive
- Most visible indication of a heavy Varroa mite load

Bottom line with Varroa

- Your colonies will have Varroa mites
- They become a serious risk to colony health when the ratio of mites to bees is too high
- Your task is to learn how to read the signs and take appropriate action

IPM (what's that again??) Approach to Treating for Varroa

- Large, healthy colony in a good location is your best defense!
- Use screened bottom boards so mites naturally fall out of the hive
- Use a drone frame
- Treat with a miticide in fall and spring.
- As a beekeeper, continue to learn and adapt

Time to Test Yourselves!

What do you see, and what might it mean??







/





Robert Snyder 7/2020

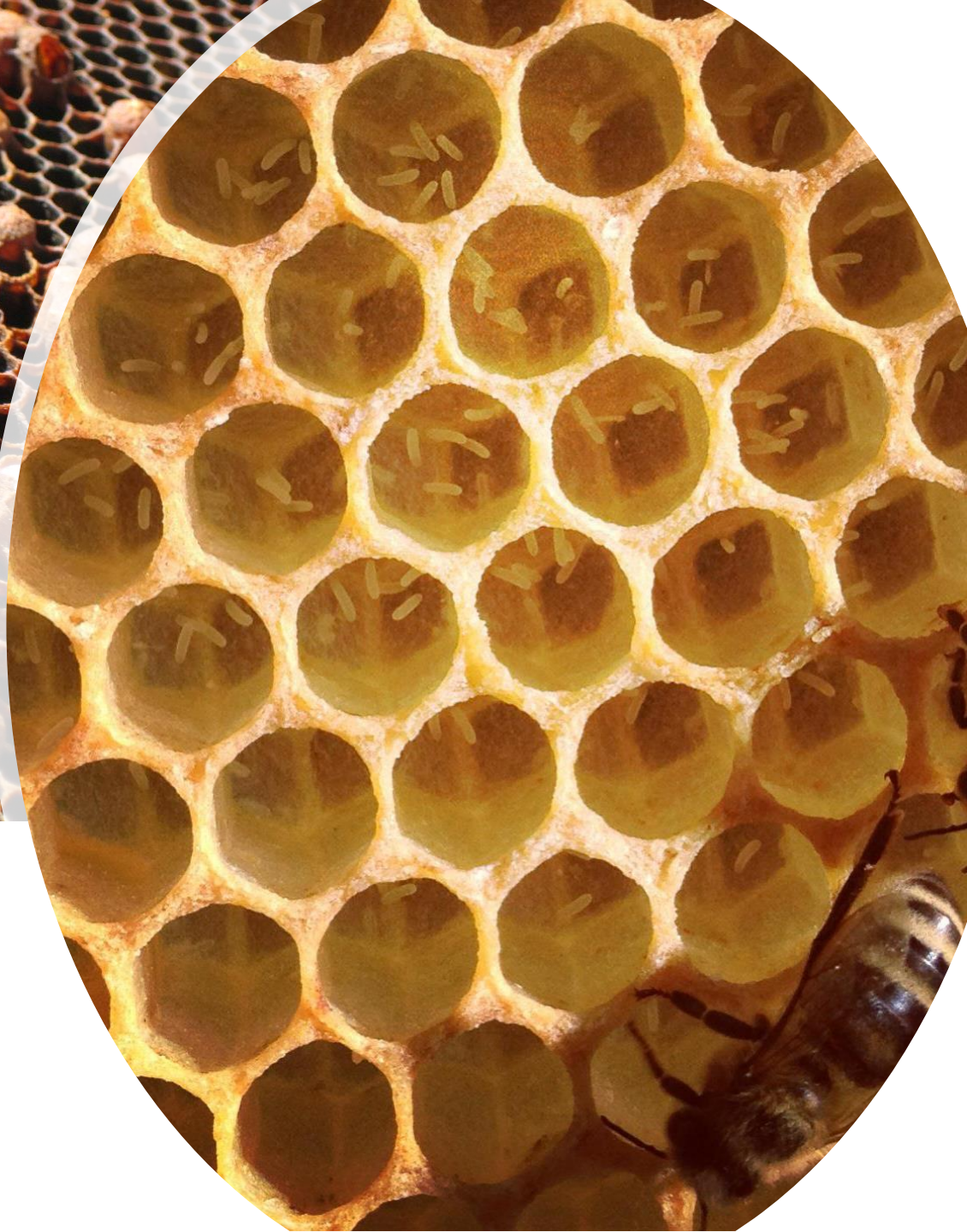


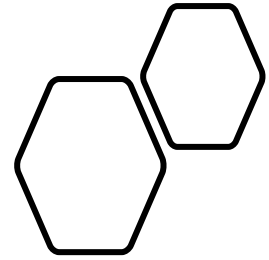
















THE END

... OR JUST THE BEGINNING!