



A Beginner's Guide to Keeping
Bees Thriving in the Boston Area

Beekeepers School

BABA Beekeeper's School 2026



BABA Beekeeping School

Week Seven Setup





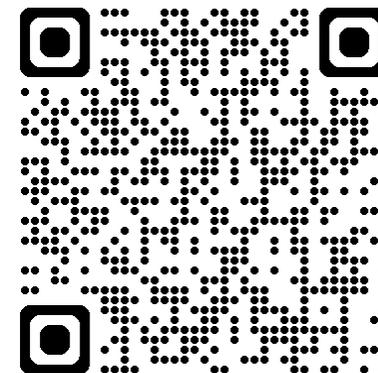
Welcome to Week 7

□ Week Six Recap

- Summer Queen Assessment
- The all-important 'Calendar of Summer'
- Equipment Prep for Future Beekeeping Activities
- And a glimpse of THINGS YOU WILL SEE
- The focus was on be vigilant about summer queen viability, varroa mite damage to winter bees in summer, more equipment suggested and things that help you feel comfortable about what you'll see inside a beehive



Presentation Materials



- **Presentation Materials Available**
 - Presentations can be accessed at this link
<https://managedmentoring.com/baba-bee-school>
- **Presentation Access Going Forward**
 - Each week the presentations will be added to that page
 - As we start each week, the weeks lessons will be available



This weeks Agenda

- **Varroa Mites & Small Hive Beetles**
 - This week we open with **Progressing One Box to Two**
 - We highlight **Feeding New Colonies**
 - We will focus on **Small Hive Beetles**
 - And we will finish with a primer on **Honey Harvesting**



- **Questions**

Q&A





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From One Box to Two

Lesson | Adding a Second Hive Bo





What is Covered in this Lesson

Colony Growth to one full box

Building all 10 Frames before adding

Placing the second box

Enticement to the second box

Forecasting full Grown



Dedication

In Memory of Alfie Grillo

This lesson is dedicated to Frenchtown NJ Beekeeper **Alfie Grillo**

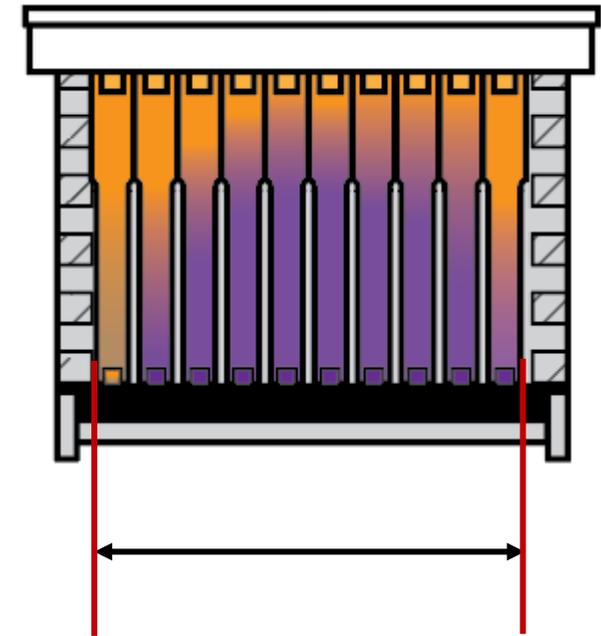
Alfie maintained a number of hives at his home and was always present with a helping hand and a smile.





From One Box to Two - Concept

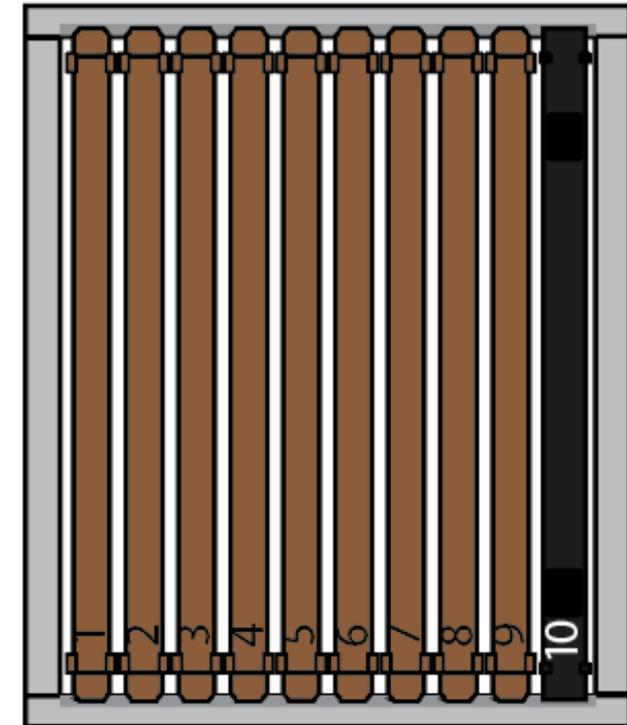
- **When the 1st box fills out, add another...**
 - We will cover in this review some details under the fold about what this means.
 - Setting a baseline, we want to outline the objectives.
 - Our objective is full frames of comb – side wall, to sidewall.
 - To say this another way, we want to avoid the end frames (position 1 and 10) from not being well formed.





Initial Box Buildout 10-F

- **10-Frame Deep**
 - The starting point for this presentation is building out to 10-frames
 - We start with taking into consideration that you have an internal feeder, and you are following the guidance of the program.
 - We acknowledge that some did not do this, and we will have instructions if you have 10-frames and are feeding in another way.
 - Follow the instructions for what situation you have.



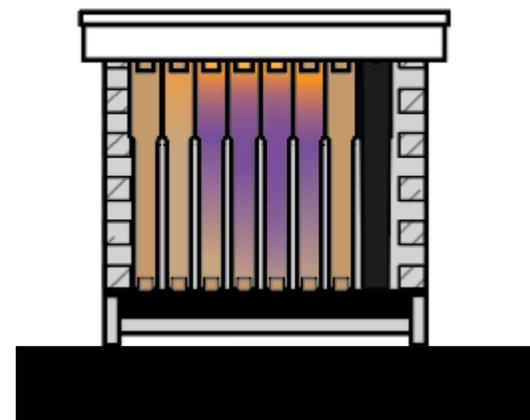
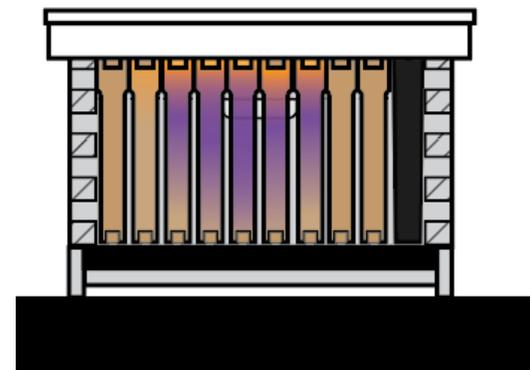
Back of the hive



Initial Build Out 8F and All Medium

- **10-Frame Medium Arrangement**
 - If you are building out 10-Frame mediums, then you will follow the base procedure for adding a box over the stack two additional times.

- **8-Frame Deep Arrangement**
 - If you are running 8-Frames, simply do this earlier
 - When you see the build out to the outer walls; take action





ALL 10 FRAMES

Getting all 10 Frames of Comb Drawn out in the Bottom Box

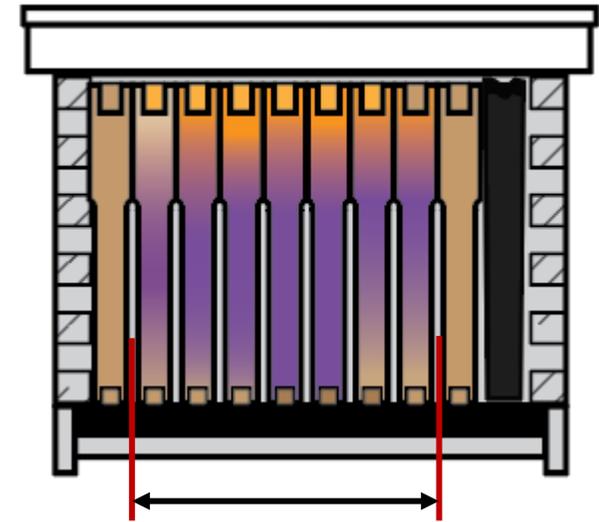


Build out Progression

When to take action

- **Inner Frames, Built Out and Occupied**
 - When the initial hive box is built out in the center, that is the time to execute the procedure to build out the outer frames

- Colony State
 - The colony is growing rapidly
 - Significant amount of bees
 - Comb building should be rapid
 - Frames 2-8 are built



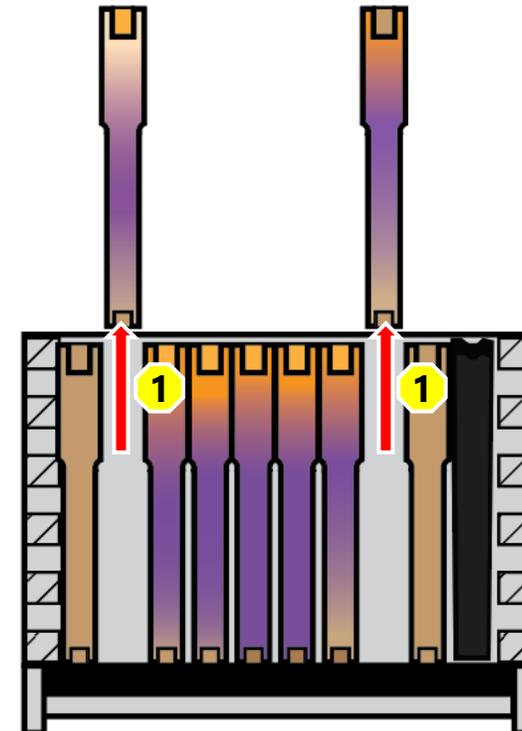
- Next Operation
 - BUT FIRST: Swap the Unbuilt Frames to the Interior



Swapping Frame to the Interior

- **Moving unbuilt frames inward.**
 - Step 1: Pull frames #2 and #8 out.

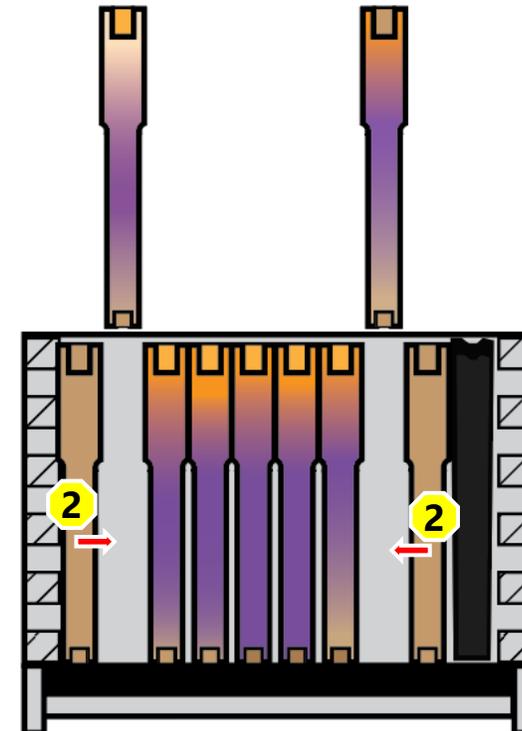
Note: If you are running 8-frame hive boxes you would do this same procedure with your outer frames when the interior frames were fully built out *just sooner...*





Swapping Frame to the Interior

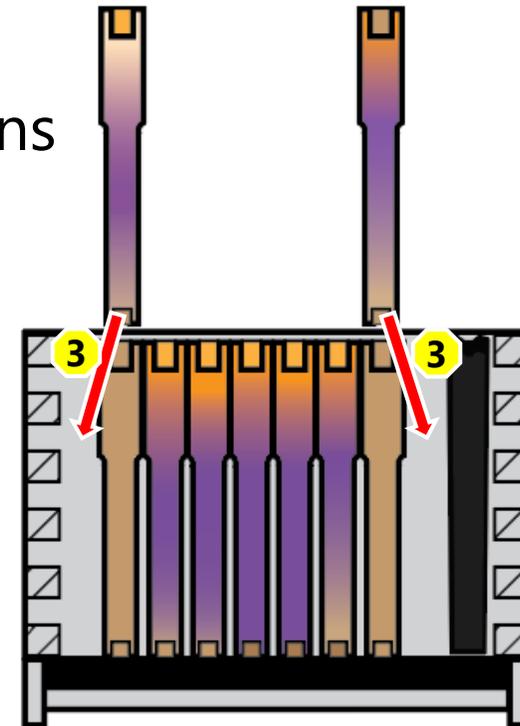
- **Moving unbuilt frames inward.**
 - Step 1: Pull frames #2 and #7 out.
 - Step 2: Move #1 and #9 inward





Swapping Frame to the Interior

- **Moving unbuilt frames inward.**
 - Step 1: Pull frames #2 and #7 out.
 - Step 2: Move #1 and #8 inward
 - Step 3: Put #2 and #8 in the outer positions

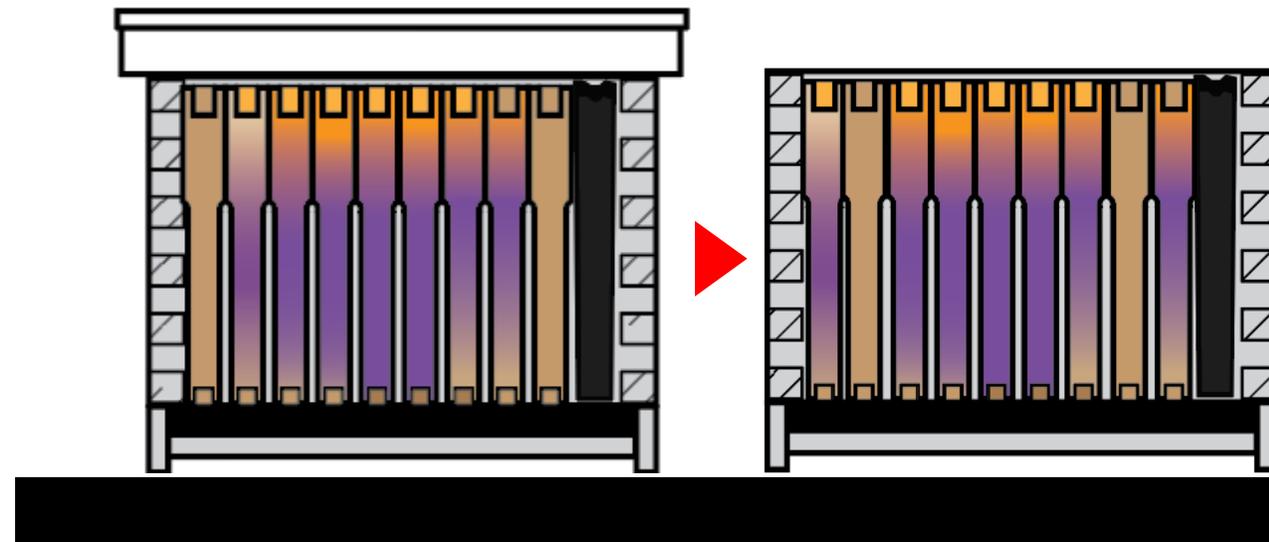




Swapping Frame to the Interior

- **Moving unbuilt frames inward.**
 - This will result in well formed outside frames.
 - If you add a box before this, it is typical that the outer frames are not well developed

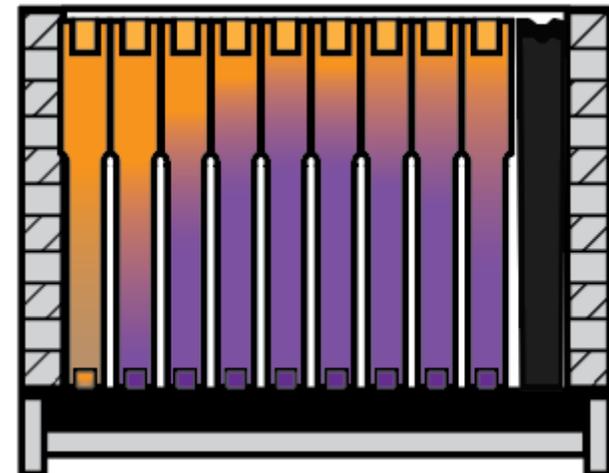
In short order the bees will build out these frames





Adding the second box

- **When the frames are drawn....**
 - Execute a few steps to add another box
 - The next few slides are going to step through the process
 - When done, a second box will be on top with 9 foundation frames in the top box and the feeder.
 - The bottom box will have 9-drawn frames
 - And we will give them one more on the interior so they can finish the job.





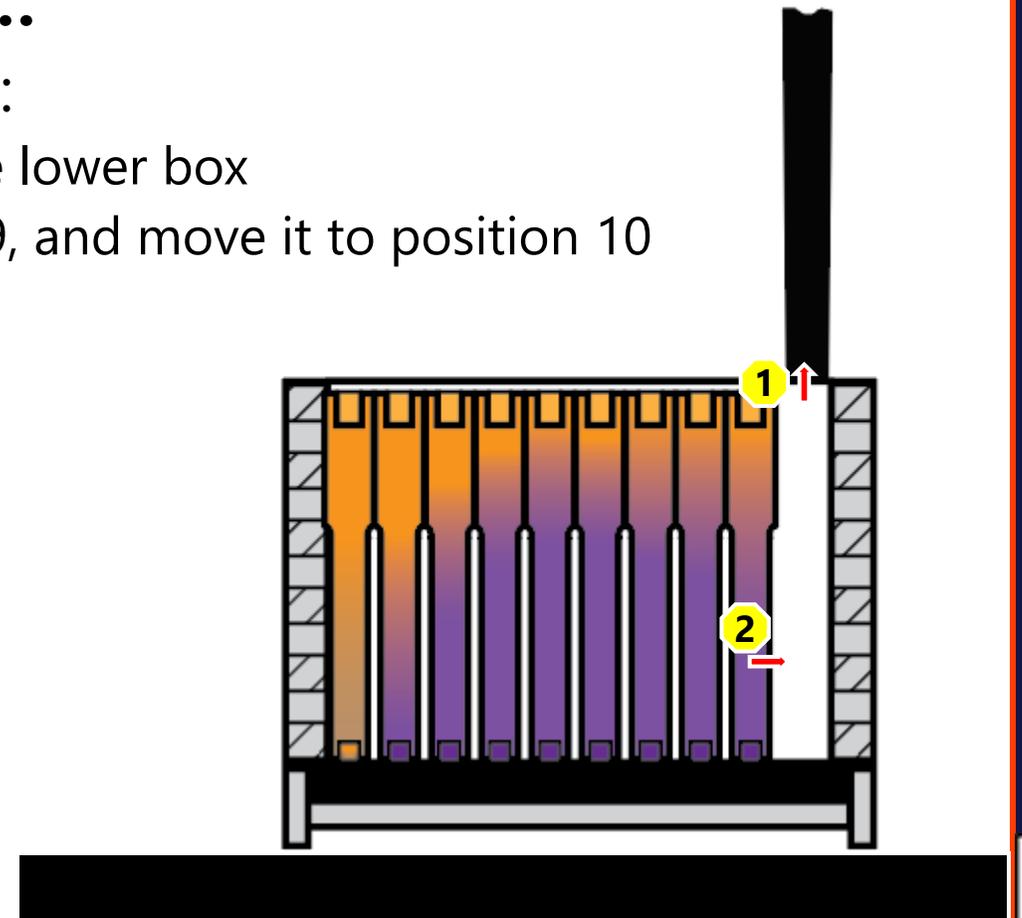
PLACING THE SECOND BOX

Steps for adding a second box above the colony



Adding the second box

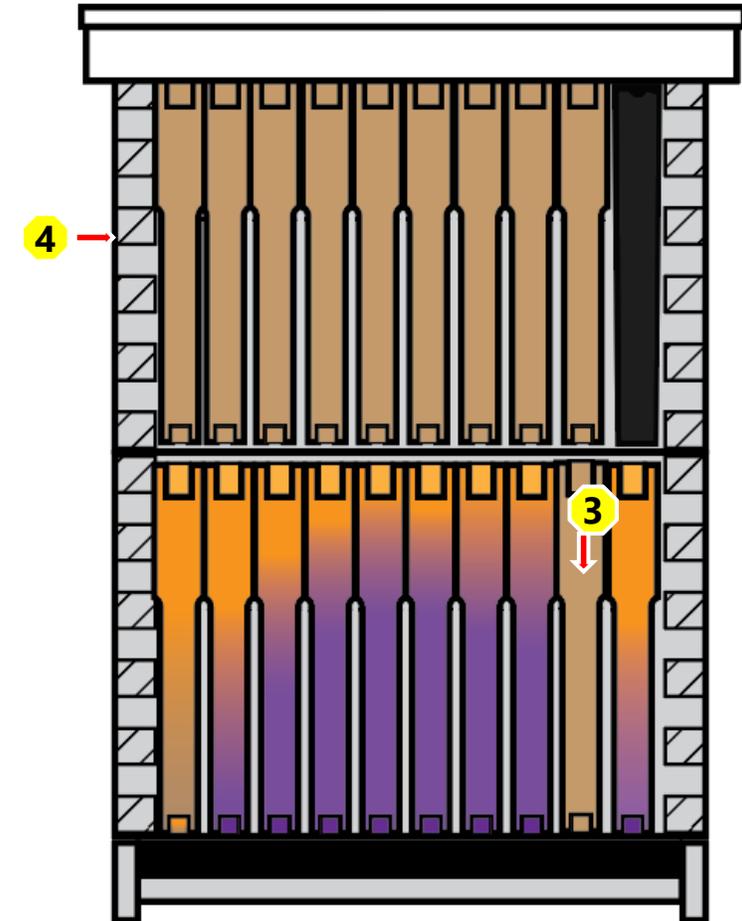
- **When the frames are drawn....**
 - Perform the following changes:
 - Step 1: Remove the feeder from the lower box
 - Step 2: Take the frame in position 9, and move it to position 10





Adding the second box

- **When the frames are drawn....**
 - Perform the following changes:
 - Step 3: Take a foundation frame and put it in position 9 (lower box)
 - Step 4: Place the next box on top with 9 Foundation frames and an internal feeder in position 10.



When done, your configuration will look like this ^

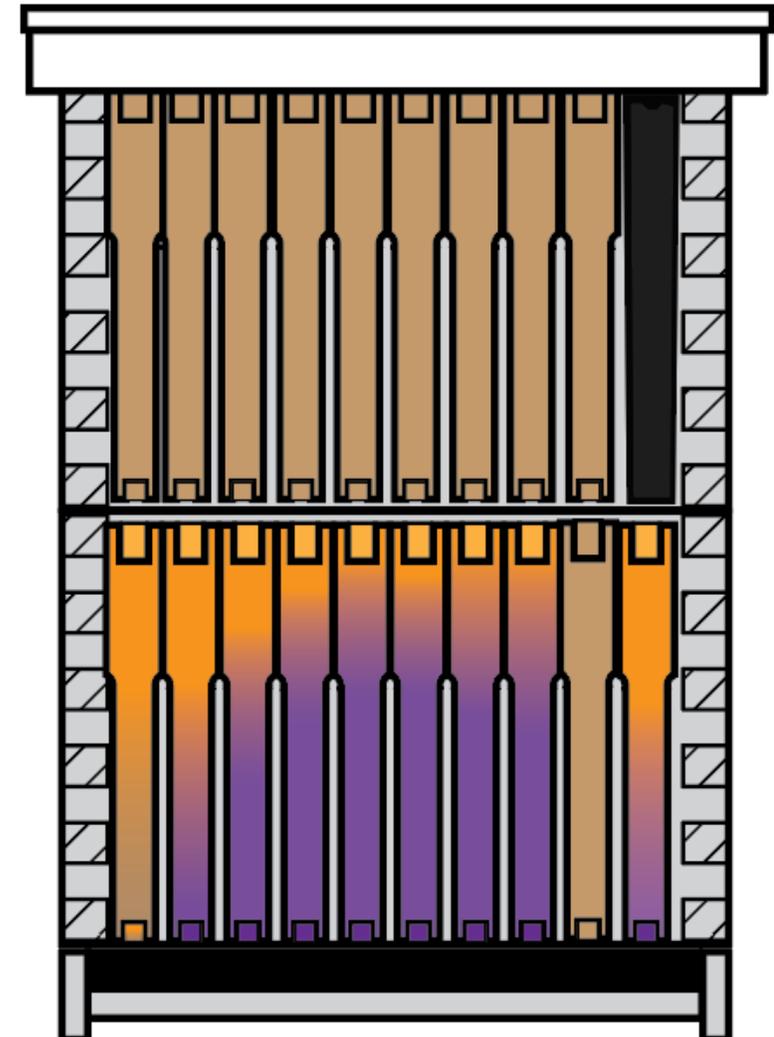


What comes next...

Reminder
B=Bottom
T=Top

- **Finish the bottom box**
 - The bees will draw out the comb in position B9

- **Building out the top box**
 - They will commence building out the top box.
 - When the top is near full, repeat the procedure to rotate the outer frames to the interior so they are fully drawn
 - You would also pull the inner feeder so they can draw frame T10

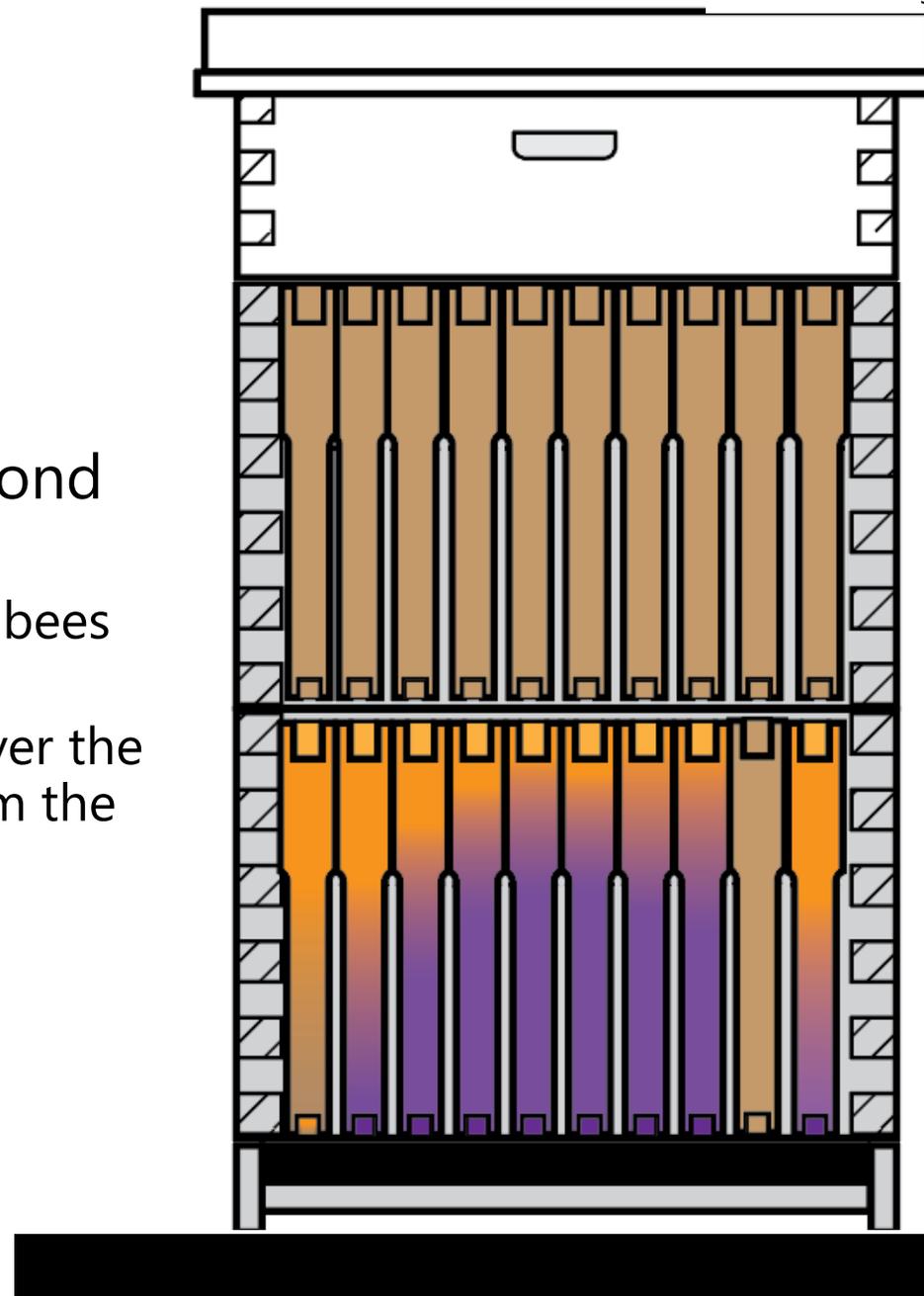




Recommended Alternative Feeder Configuration

□ Swap Feeders

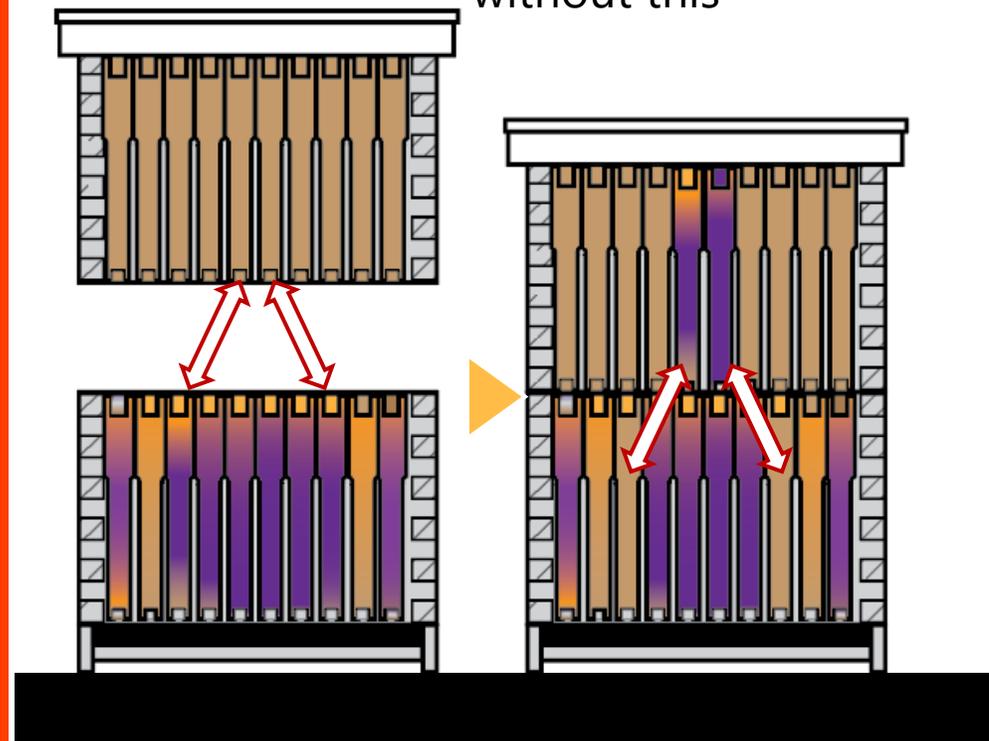
- You can consider when the second box goes on...
 - Pull the internal feeder, and let the bees build out all 10 frames.
 - Add the Mann Lake Style Feeder over the two boxes and feed the colony from the top.



□ Moving to two boxes

- Optional move to entice the bees into the second box.
- Moving two of the brood frames up
 - Center them over the bottom box
 - The two frames will draw the bees up into the second box

- [Probably overengineered] The bees will move up without this

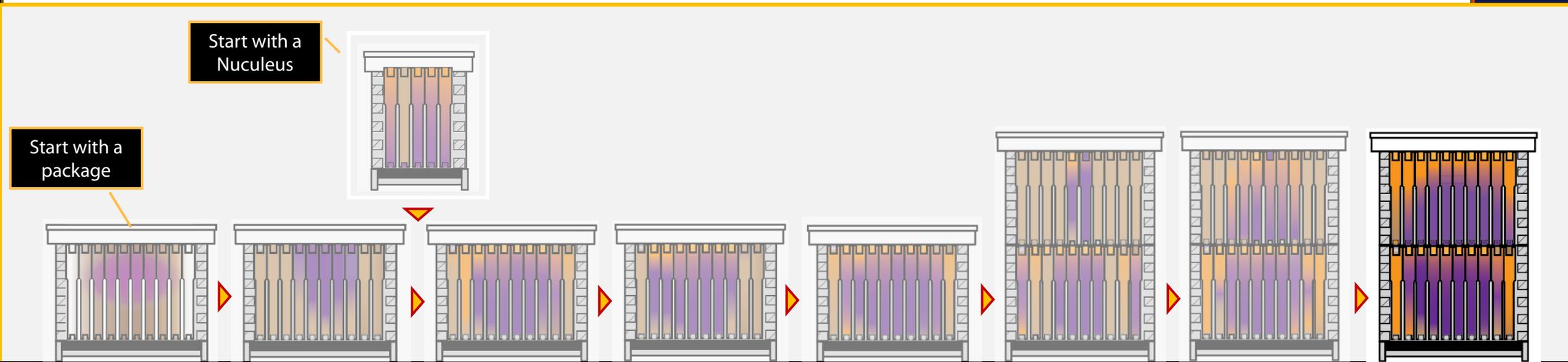


An option to Consider

Full Progression

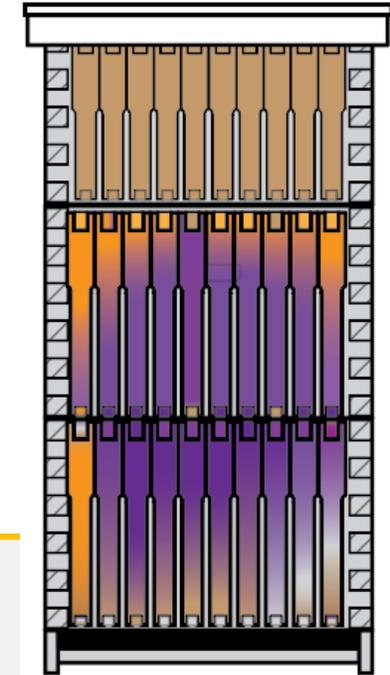
□ Second box to full

- From Package (or Nucleus Hive), to fully built out two deep hive
- This illustrative process shows the optional step of pulling two frames up into the second brood box to entice the bees...

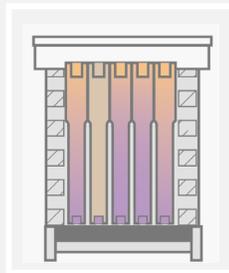


Full Progression

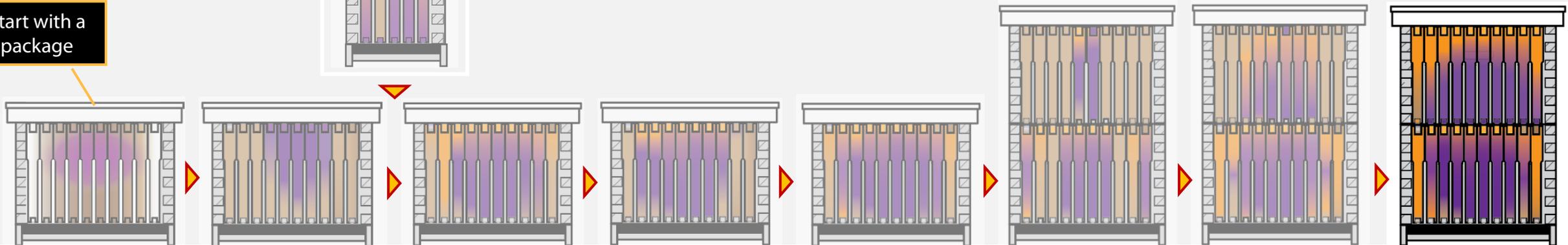
- **With Good Fortune > Honey Supers**
 - If your colonies do well, you may get honey supers drawn
 - It is a good season to get a honey super or two drawn; and an amazing season to get one or two honey supers full. It happens, and varies season by season



Start with a Nucleus



Start with a package





Q&A

- **Questions**





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Feed New Colonies

Lesson | Feeding Fledgling Colonies





What is Covered in this Lesson

Spring Sugar Solution

Filling Internal Feeders

Feeding in the Spring

Avoid Overfeeding

Volume and Timing

Providing Water



Mixing Sugar Solution

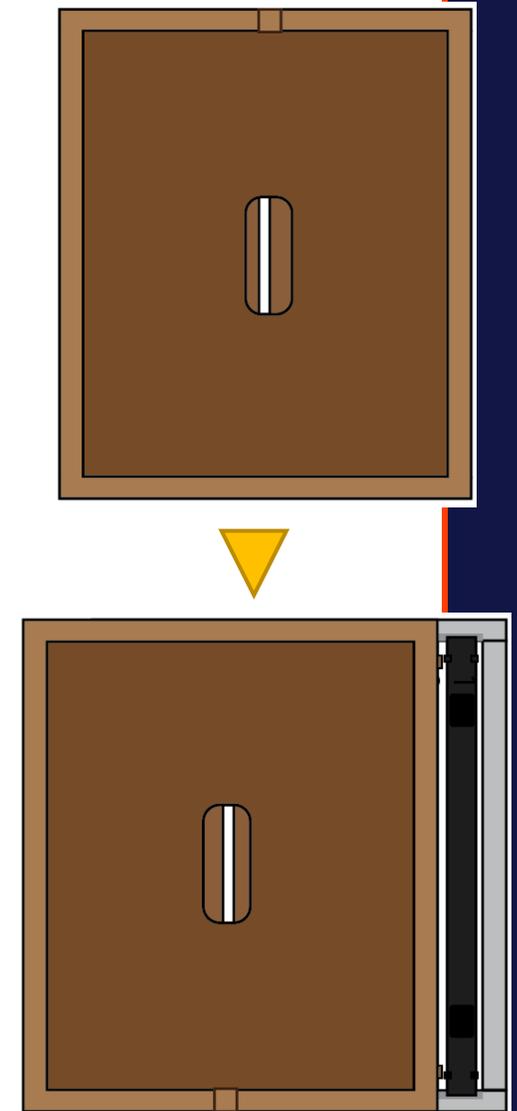
- **Spring Feed is a 1:1 Ratio**
 - One part water and One part Sugar
 - By weight or volume, it does not matter
 - Making up your solution
 - Mix warm water and sugar until the sugar is dissolved
 - Move into vessels that are conducive for conveyance and pouring
 - Make up only what you will use in the short term
 - If it is left to long, especially in warm weather, it will grow mold, ferment, and spoil
 - Bees will not take to cold or spoiled solutions



Feeding the bees

Minimal interruption

- **Feeding 1:1 solution in the inner feeder**
 - Have everything ready; staged
 - Light the smoker, put your gear on.
 - Lightly smoke the entrance
 - Wait a 5 count, remove the roof, smoke in hole.
 - Using your hive tool, pry up the inner cover
 - Move the inner cover to expose the feeder, but leave it covering the top bars
 - Fill the feeder. Slide the inner cover back.
 - Return the roof, being careful not to crush bees





Feeding in spring

Feeding during the nectar flow

- **What of feeding during a flow?**
 - Keep doing it.
 - It is said that bees prefer nectar over sugar solution
 - Sometimes the bees will not take syrup and sometimes they will.
 - In spring, with an active nectar flow, they may ignore it altogether.
 - Why are we feeding in the first place?
 - Sugar solution and/or nectar provides carbohydrates
 - Bees need significant carbs to build comb and fill reserves



Feeding in spring

Feeding during the nectar flow

- **What of feeding pollen?**
 - What about pollen substitutes/supplements?
 - It is not necessary.
 - There is plenty of pollen at this time of year
 - Natural pollen is far superior than what you'll feed, especially in the spring.
 - If you insist
 - If you do put pollen patties on, keep them small – deck of cards sized.
 - Just place it on the top frame, **right over the brood nest.**
 - Make sure the inner cover sits flush on the rim of the hive body



Internal vs. Top Feeder

- **Temperature Dependent**
 - Internal feeders are close to the bees
 - Then can keep it warm-ish, which keeps it viable for use
 - If you put a top feeder on too early in the spring the syrup will chill, and the bees may not take it
 - Rule of thumb: Switch to a top feeder when the weather is warm enough for you to be comfortable in a T-Shirt during the day
 - Even if there are some cool nights, the sun will warm the liquid in the morning and make it viable for the bees to pull down from a top feeder



Switching from Inner to Top Feeder

Mann Lake Style Top Feeder

- **We recommended a top feeder**
 - Feed from the top of the hive, no need to open
 - We recommend you switch to this **when the weather is consistently warmer**
 - It is the right time if you consider the weather will not chill the food so much that the bees will not take it.
 - It replaces the inner cover and sits directly on the hive
 - Use of the feeder
 - Take the outer cover off
 - Fill with liquid; careful not to spill
 - Return cover
 - Do not overfill. Recall that you have to take it off to inspect the bees



Photo Credit
Mann Lake Co.

Note: *You can put your inner cover above it.*

Be sure to close off the notch and hole though to prevent robbing



Mann Lake Feeder

*It can get heavy...
Syrup can go bad...
Do not Overload it...*





Arizona Ice Tea Jugs





Too Much of a good thing

- It is possible to over feed bees
 - When this happens, the bees will store excess in the brood area
 - This will stunt the colony as the queen will have no place to lay
- Inspect for over feeding
 - When you see your brood nest loaded with nectar/sugar solution slow down or pause your feeding.
 - Bees recover from this quickly, and you can resume feeding – just slow down what you are giving them.
- What does it look like
 - Nectar in the cell looks like hard, black shiny glass





What does it look like?

Backfilling the brood area





Way too much overfeeding

This beekeeper's Bees Swarmed





When and How Much?

- **Quart a week, then check progress**
 - Assume you are putting bees in the box when the best nectar flow period is going. Do you need to feed?
 - Feed in light amounts, unless they stop taking it and it spoils
 - If you are feeding, how much and how often
 - Gallons are not required. We saw what the problem is there.
 - If you are going to feed, consider how big the colony is and how much could they really need!
 - A quart to start, then up it if they are not backfilling.
 - Be patient or risk problems from overfeeding
 - As the nectar flow tapers off (<July 4th) then you can feed more if they are behind.



Where to get Sugar

- **Supermarkets, Wholesale Stores, other**
 - Some simply by sugar at their local grocery stores
 - Other opt to head to the sugar isle at their local Costco, Walmart, Restaurant Stores, Sams Club, Beekeeping supply houses, and more.
 - They sell larger quantities, often at discounted prices
 - Some of them offer a large enough discount to possibly even warrant a membership
 - Each community is different, and some have luck at local bakeries.



How Long am I going to feed?

- **Two full boxes built out, and then some**
 - At least until the two boxes are fully built out
 - Then, depending on when this is done, you may want to try to have them build comb in a medium honey super
 - Ballpark finish date > July
 - Estimates of how long this takes is not hard and fast.
 - Each colony grows like a child – at a different rate.
 - Ideally, we will get colonies built out before the summer dearth in early to mid July.

Giving Bees Water

Reminder

- **Water is critical for bees**
 - If there is no natural nearby water source, provide water
 - We recommend a bucket with holes and floaties
 - Place in 30 yards or so from the hive
 - Feed water at the entrance
 - You can provide water at the entrance
 - The only good use for a boardman feeder
 - Early has an added benefit
 - Do this early and bees will come to your water source, not your neighbors
 - Consider some salt or fragrant oils.
 - Enough salt so that the water has just a touch of salty taste to you.





Questions

Q&A





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Small Hive Beetles Primer

Lesson | Small Hive Beetles





What is Covered in this Lesson

Small Hive Beetle Primer

Small Hive Beetle Management Considerations

Impacts of the Small Hive Beetle

SHB Controls



Presence of Small Hive Beetles

□ New England Assessment

- Small hive beetles are possible in beehives throughout the United States
- Their impact to beehives spans from no impact to catastrophic
- Small hive beetle infestations can however overwhelm a hive to the point of collapse



Generally, a Minor Pest

- **Hive Beetles are mostly a 'minor pest'**
 - Holistically it is not a routine for beekeepers to be concerned
 - This is a generalization, and of no consolation to beekeepers who have lost a hive to the onslaught of hive beetles
 - Certain regions have significant problems
 - Some areas of the United States, including pockets of the Mid-Atlantic Region, are in a constant battle against hive beetles
 - Some geographies contribute to where hive beetles thrive
 - The support foods that keep beetles going (beyond beehives) and they have favorable conditions for reproduction (for example sandy soils that improve reproduction cycles)



Hive Beetle Defense

□ Honeybee Defenses

■ Strong colonies go a long way into keeping hive beetles at bay

■ The best defense is maintaining strong colonies

- Strong colonies keep hive beetles out, and they keep them contained within the interior
 - It is however no guarantee from a hive being overrun. Sometimes even strong hives are overtaken

■ Hive Beetles Corralled

- Honeybees will mount an active defense to keep hive beetles confined within the hive.
 - Bees will surround a clutch of hive beetles and prevent them through active engagement from navigation into or around the hive



The Potential for Damage

- **Small hive beetle can be a destructive pest of honeybee colonies in the following ways:**
 - Cause damage to comb; major infestations 'slime' the honeycomb
 - Consume larva, honey and pollen stores in the hive
 - Tainting stored and harvested honey.
 - Honey is tainted by specific yeasts associated with the beetles and can be rendered foul and unfit for human consumption
 - Colony absconding due to overwhelming infestation



Hive Beetle Forms Adult/Larva

□ **Adult appearance**

- The adult beetle is dark brown to black and about just under a 1/4-inch (5–6 mm) in length



□ **Hive Beetle Larva**

- Three pairs of pro-legs near the head and spines on their back.
- 7/16th-inch (11 mm)
- White or cream colored.





Hive Beetles in the Hive

□ Larva & Adults

■ Larva

- Small hive beetle adults are usually sequestered to the outer margins of the hive interior.
 - As such, this is the most common areas that eggs are laid, and larva are present
- Larva burrow through comb, consuming food stores for growth.
 - They will burrow into honey, pollen, and even brood frames. As scavengers they will consume honey, pollen, and developing larva.

■ Adults

- They are found all throughout the interior, and traversing the margins



Pupation

- **Developed Larva will head for soil**
 - Larva will feed within the colony for 2 to 4 weeks
 - When it is ready to transform, it will leave the hive and burrow into the soil to pupate
 - Larva can traverse vast distances to find suitable soil
 - Larva burrow into the soil, then develop an earthen cell where they pupate to an adult
 - The gestation of the SHB is very dependent upon conditions (soil moisture, temperature, composition, etc.). Good soil (for the beetles) means higher impact to some locations.
 - The developing beetle larva typically emerge in four to six weeks.



Hive Beetle Trickery

- **Free Range Beetles live within the colony**
 - Beetles that are not actively sequestered often can be found freely moving about on the comb
 - Honeybees and Hive Beetles have evolved in tandem in the sub-Saharan Africa and co exist there.
 - They have proven troublesome for European Style bees of the US after being introduced here accidentally in 1996
 - They employ a tactic for trophallaxes and are actually fed by bees
 - Free walking hive beetles can trick honeybees into feeding them by mimicking the signal to interact with the mouthparts of the nurse bees



Hive Beetle Slime

- **Yeast Spores in Beetles Feces are the culprit**
 - As hive beetles consume resources in the hive they, like any other organism, defecate after consumption
 - Their excrement contains spores of yeasts that thrive in the moist environment of the comb – and it is the yeast that consumes the resources and transforms honey into a slimy residue
 - A bloom from the yeast happens rapidly and an infestation can overwhelm a hive in 24 to 36 hours if left unchecked
 - The impacted honey will leak from the cells and drip down the hive, even running out of the entrance in some instances.



Pest Management Approaches

□ Traps and Biological Controls

■ Beetle Traps

- Takes advantage of hive beetles trying to avoid guard bees.
- They will seek refuge in quieter, dark places, and are tempted to hide specially designed traps.
 - Many traps are filled with oil, and the beetles die after being submerged

■ Biological - Mechanical Controls

- There are a handful of biological and mechanical controls that one can use to combat hive beetles – *Expanded upon in the next few slides...*



Hive Beetle Traps

- **Hive Beetle Traps come in many form factors**

- These work by filling with oil
 - The hive beetles try to escape into the device from the bees and get stuck in the oil
- They are placed in the fringe areas
 - Hive beetles are looking places to hide from guard bees and you will place these in areas where the hive beetles will be retreating too





Mechanical Controls – Swiffer Style Sheets

□ Swiffer Sheets

- Small sheets cut out and place in and around the hive interior
 - Like Velcro to small hive beetle legs, placing small swaths of sheets have proven effective at trapping hive beetles
 - One places the swaths in the corner margins
 - Hive beetles seek refuge from guard bees on the interior
 - As such they are often found in dark corners, hiding on the inner cover, and in the margins of the bottom board. You will also find a contingent of bees constraining their movement (hive beetles jail)
 - Sheets place in this location catch up the hive beetles, but not the bees
 - Occasionally though bees do sometimes get entangled in the fabric



Biological – Soil Controls

□ Soil Treatments

- If you can control the soil around the hive and damage the larva...
 - Some employ diatomaceous earth (cuts through the outer surface with its sharp shard shapes), some put hard covers around the hives
 - Hive beetles typically crawl around three feet and then burrow into the ground. They can by observation crawl far distances to find a suitable place to enter the soil
 - Areas with hard frosts often kill off populations of hive beetles and lessen impact in the spring.
 - Hive beetles are strong fliers (can fly up to 6 miles in one go) so they will come north during spring, even if they die off in the soil
 - Some place salt on the soil
- Use care not to impact bees while employing approaches



Mechanical Controls - Barriers

□ Ingenious Barriers to Entry

- Other approaches include specialized barriers built into hive equipment
 - Some beekeepers look to employ specially designed barriers that use the biology and behavior of the mite to sequester them so they cannot make entry
 - One example is a specialized trim affixed to bottom boards that hangs over the edges of the bottom board where it mates up with the hive boxes.
 - This trim prevents the beetles from going up and over into the hive.
 - Bees catch the beetles trying to get around the obstruction and corral them; preventing access into the hive.
 - Variations on these approaches are on the web; found with a little research



Biological Controls

□ Beneficial Nematodes

- Specific forms of nematodes can be purchased and distributed on the soil around the hive
 - Nematodes are not detrimental to honey bees
 - Two specific species for hive beetles: invective nematodes (Steinernematidae & Heterorhabditidae genera).
 - They will seek out larva in the soil and damage them when they burrow into them and lay their eggs
- This is a consideration when trying to cover a wide swath of soil



Chemical Control

- **Noted, but NOT RECOMMENDED by us**
 - There is one approved chemical beekeeping treatment that kills hive beetles (Checkmite+) but should never be used in this manner
 - The active ingredient is Cumophos, a proven harmful Organophosphate
 - We feel this product is truly a no-go when it comes to placement into beehives and strongly advise against its use
 - While it is still sold in catalogs, Cumophos contaminates the comb and takes an inordinate amount of time to dissipate in the environment. Do not do this.



Questions

Q&A





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Pulling and Extracting Honey

Lesson | Honey Harvesting





What is Covered in this Lesson

Prepping for Box Removal

Pulling Honey Supers

Setting the stage for extraction action

Uncapping

Extracting

Straining and Filtering



Processing honey is a 3-step process

- **Get the honey boxes off the hives**
 - Clear the boxes of bees and get the boxes to a spot where you can harvest
- **Uncap and spin out the honey**
 - Remove the honey from the frames and into containers for jarring
 - Often includes initial straining of honey as part of the operation
- **Filter and Bottle**
 - Filter honey and bottle it into honey jars



Reconnaissance

- **Do this ahead of time, or Just in time?**
 - It is your preference how you proceed. **I like to plan the work**
 - A week or two prior to the date for harvesting do a quick inspection
 - I am looking to see:
 - Frames fully Capped? Is there any brood in the honey supers? What is the volume?
 - Sometimes I learn I need to wait a bit for full capping
 - I usually use this as an input to plan our extractions sessions and understand the level of effort. When you are small, you might do this and pull the same day
 - Incidentally, I used to do this back in the day when I had two hives in the backyard also



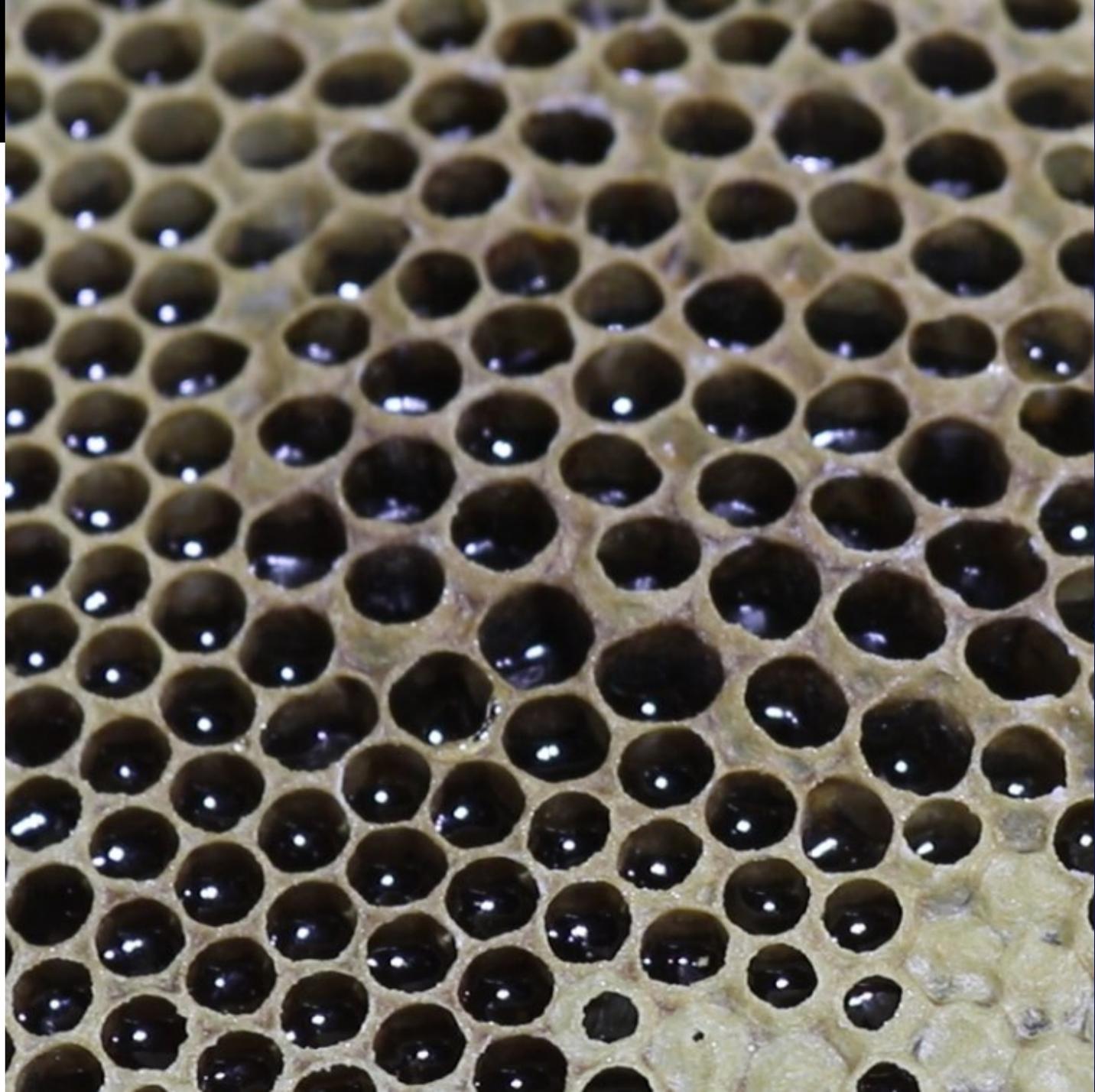
Extract in a timely manner

- **Two Elements – Dearth and Extraction**
 - Plan your timing to pull the honey
 - Wait too long: bees might consume your harvestable honey in the supers
 - Harvest expediently to avoid pest problems
 - Small hive beetles (SHB) can deposit eggs in honey. SHB's can emerge and ruin your frames of honey if you keep unextracted honey in holding.
 - SHB EGGS? Don't worry - Any extraneous materials are filtered when the honey is filtered for bottling (Including any errant bug parts, SHB eggs, wax flakes etc.).
 - If you pull but cannot extract right away, **plan for a way to freeze the comb**
 - This will kill off any possible larvae in waiting and prevent an infestation

Moisture Considerations

□ Pull ripened honey

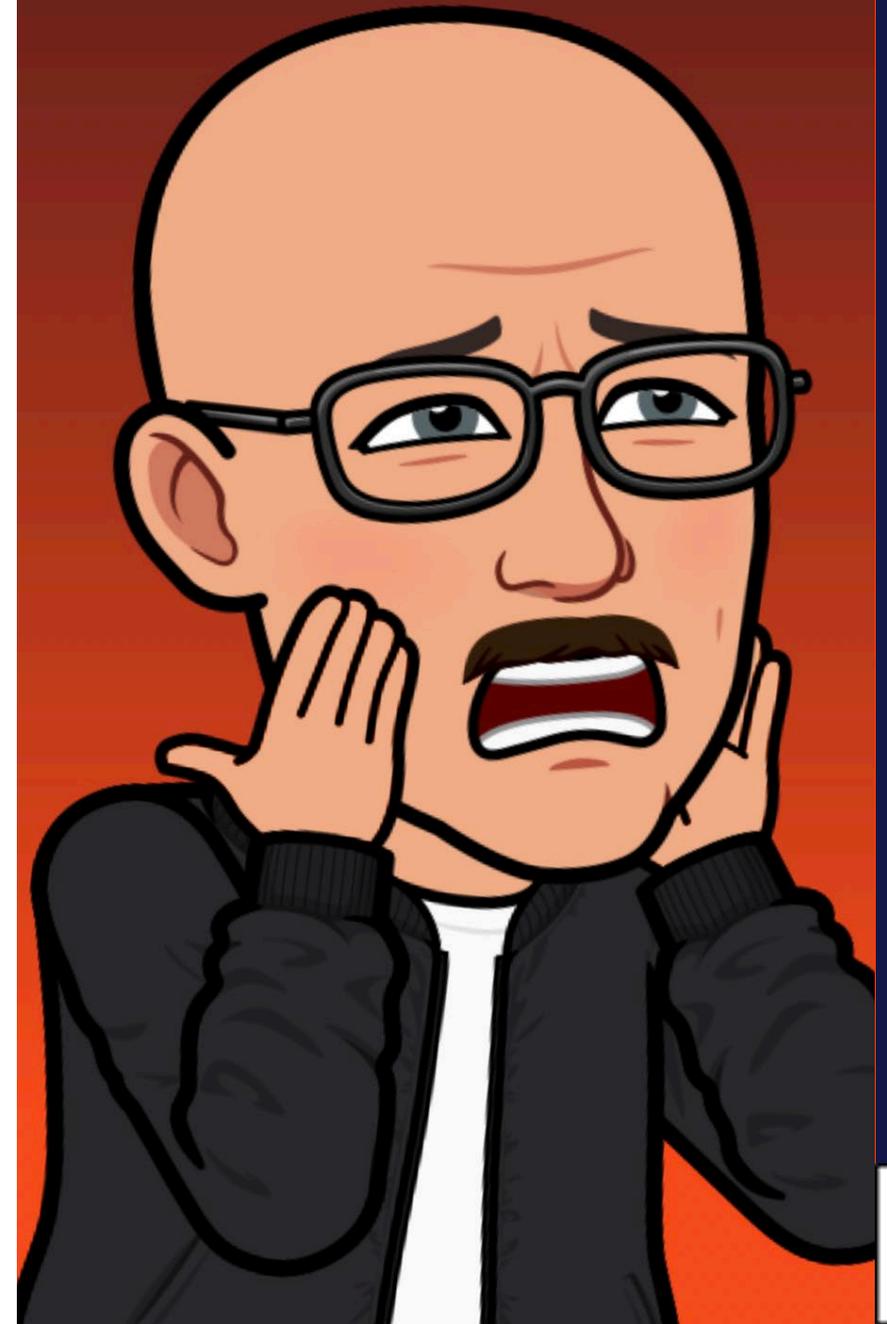
- Avoid pulling frames that have un-ripened honey
 - Un-ripened honey can be described as wet appearing nectar in the cells that is not dried/processed sufficiently for capping
- Fermentation Risk
 - Pull un-ripened honey and the moisture content of the harvest will be too high
 - Wet, high moisture honey, can ferment and will go bad in the jar
- Some un-ripened honey will be ok
 - If you have a few frames that are close, but not quite there, it usually evens out





An Old School Test

- **Personally, this makes me sad**
 - I think of all the work the bees did for that and suggest that **if it looks wet put it back**
- **Shake it out – if it falls it is not ripe enough**
 - You can hold a frame horizontal to the earth and shake it
 - If the liquid falls to the earth it is too wet





Planning for what you take

- **Considerations when harvesting from a colony with a bigger population of bees**
 - If you pull the honey supers, where are the bees going to go?
 - Many times, they will simply deal with being a bit more crowded in the brood nest – given they lost working space when you pull supers
 - Given them something in return
 - Maybe you want to consider prepping at least one honey super with foundation and give them space to hang out
 - It is not the right time to draw comb, but if they have the space and opportunity, depending on your location, they may draw honeycomb for you.



Pulling Honey

Many Different Ways to talk about



Fume Board



□ Combination of a piece of Hardware and Liquid

- Use of a prepared liquid that repels bees out of the honey super

- Many products are available in the marketplace

- Examples: Honey Bandit, Honey Robber, Fischer's Bee Quick, Honey B Gone

■ Repellent Odors

- The smells varies... Some beekeepers consider the smells repugnant, and others are not impacted by them in any way.
- User care in handling as smells will linger; say within your car if you transport a fume board.

Representative List





Fume Board Use



□ Overview of the Process

- Smoke the entrance of the hive
 - When pulling honey, you will be banging around on the top of the hive
 - Smoking the hive calms the bees in the nest.
 - Do smoke above the inner cover; avoid smoking down into the honey super as you do not want smoke in the honey
- Apply repellent to the to the carpet, and place it over the super
 - Wait a few moments, then pull the box when it looks clear.
- Use on warm days, in the sun – warmth helps the vapors release (the plastic on top absorbs heat)

Do you actually need a fume board?

We have seen beekeepers use a sheet of saturated newsprint or cardboard on top of the frames



How Much Repellent?

□ Follow Directions or...

- Most have directions to follow but sometimes you need to use your senses to determine how to proceed
 - **Chemicals are potent so be conservative.**
 - Start slow and add more if the bees do not clear
 - Bees are quite sensitive to the repellents; a little goes a long way
- If there are no directions... or it is not working
 - Again, use sparingly and if it does not clear, add a little more. In our experience - sometimes in cool weather, cloudy days, they products are not as effective.

Maraschino Cherries/Almonds
Several of the products have this odor profile and the repellents often smell of these things





Blower Method

□ Blowing the bees out

- Often an approach that would be seen in a commercial organization
 - Noted by some to be a bit hard on bees and stresses them.
 - Others say it does not bother them at all.
 - Adjust the amount of force by going half throttle or adjusting the force to suit the need. Works better with 9-Frames in the super.
- Use an electric blower, not a fuel based one
 - Fuel based blowers give off quite a bit of exhaust that can impart flavors in your honey (especially uncapped ripened honey in the comb)
- Set the box on end and blow through the channels
 - Do this away from the colony: blown out bees will return to the parent hive.
 - Start slow and away; move in tighter, giving the bees time to dislodge

Go for Volume of air, and not necessarily super high force



Example

Video Credit: Woodchuck Tinman



Honey Harvesting: Escape Boards and Ports

- **8-Way Escape Board**
 - Same principle, different design
- **Triangle Escape Board**
 - One way exit based on bee biology
- **Porter Style Escape**
 - Porter Bee Escape through the inner cover hole





Escape Boards



- **8-Way or Triangle Escape Boards**
 - Theory – bees go down, and they cannot return from underneath
 - How to use
 - Place the escape under the box to be harvested **a day in advance**
 - Wilt the cool temperatures of evening, bees will leave the box to go down to join the warmth of the colony
 - Upon your return the next day and the box will be 'empty' of bees
 - How it works
 - It is ok. There are always bees that didn't read the manual



Escape Board Particulars (cont.)



- **Some practical comments about use**
 - Temperature is Key:
 - Work best with large temperature swings between night and day
 - Foiled Timing
 - *If you leave them on for more than a day or so, **bees will find a way back in**
 - Foiled by Mistake
 - If you left and upper entrance or there are any holes in your equipment, bees will return through the exploits they find.
 - Unguarded open boxes might get wiped out by clever robber bees



Fume Board: Kevin Seal of Approval

- **After trying many methods**
 - I use a fume board with great success
 - I find that it works quickly and reliably
 - I have never encountered any of the repellent smell in my honey or within my honey supers
- **Combo Platter coming up**
 - Instead of frame by frame, I look to employ a fume board and electric blower (+ a brush to get the strays) – **Reason? > Speed**





Cover Below and Above in Transport

- **When transporting keep things covered**
 - Coroplast under the stack – Coroplast or even a spare roof over top
 - This is a prudent practice all the way through and prevents:
 - Bees getting in the boxes that you will open eventually to extract the frames
 - Bees pestering you after you remove your gear to walk to your destination while transporting the boxes
 - Bees learning where you are going to be harvesting and inviting all of their friends
 - Keep the stacks tight / boxes aligned
 - Align the boxes, and negate any gaps when transporting



Use Hive Benches

□ Help Your Back

- Avoid pulling honey boxes and placing them on the ground
 - Putting honey boxes down on the ground/grass is dirty
 - Lifting heavy honey boxes from the ground requires you to bend over to lift a heavy object. This can be risky for your back
- Pull boxes and place them in your cart or at minimum on a bench
 - Avoid letting honey boxes go below your waist if you can during the process





Setup and Staging

Prepping the Workspace for Harvesting



Sweep / Blow / Wipe Down

- **Whether in a kitchen, a garage, a honey house...**
 - Clean the surfaces.
 - Sweep the floors ahead of time, let the dust settle. Then sweep again, and/or blow out the residual dust with a blower (say if in a garage).
 - Then with a wet cloth, rinsed frequently, wipe surfaces down prior to performing extractions
 - You want the environment to be clean and dust free with as little dust floating through the air as possible
 - Do all of this ahead of time so you can to do your best to prevent dust from settling down into your honey. Make a few passes at it, as necessary.



Mis en Place

□ Setup the Operation

- Stage the equipment in a workflow
 - Set the boxes with honey, then tables, then extractor and so on
 - Think of the logical order and stage your tools accordingly
 - There is a lot of back and forth when processing and even small efficiencies pay big dividends over the time you are harvesting
- Boxes | Uncapping | Extracting | Staging & Storage > for Exit
 - Setup cleaning supplies (hot water, buckets, lint free cloths) for each part of the operation

Definition

Mis en Place:

a French culinary phrase which means “putting in place” or “gather”.

Hmm, Hive tool to pull frames from boxes, music, fan to keep cool



Temperature during Harvesting

- **Warm rooms are best**
 - Warm temperatures aids in honey flow during extraction
 - When it is cool, place your honey in some place warm prior to extraction
 - However: Hot Temperatures – Hot Beekeeper
 - It is rather common to be harvesting during the height of summer and if you are in an outside space, it can get quite warm
 - Consider some fans for cooling, but do not open the windows and doors (bees will find you).
 - Wear rags to catch any sweat that may drip of your head and have cool drinks at hand. Take breaks and be careful not to become overheated



Time Investment

- **Dedicate the time (4 hours two hives)**
 - Hour to Harvest, Hour setup, hour extracting and at least an hour for cleanup
 - It generally takes about 30 to 45 minutes per honey super but it is highly contingent on how many people – what setup and other options
 - Put some music on, listen to an audiobook, play a back episode of the Beekeeper's Corner Podcast – or whatever makes you happy
 - Maybe play your exercise playlist for the gym so you work faster :-)



Extractors

- **Manual or Motorized Extractor**
 - 2-Frame, 9-Frame, 20-Frame or more
 - Sometimes bee clubs often have one to loan
- **Considerable Investment**
 - Often it is a good strategy to borrow one to learn
 - Determine your requirements through direct interaction and then make your sizeable investment after developing your preferences.
 - Or simply stay with borrowing the club's extractor year on year





Honey Harvesting: Uncapping Tub/Tank

□ Uncapping Tub

- These utility pieces are designed to aid in uncapping frames
 - The wood bar is designed to rest a frame on while uncapping
 - It often has a nail protruding to spin the frame on
 - The tank collects the wax cappings
 - Excess honey can be strained off from the built in gates
- They are pricy, but quite helpful





Inspect the Equipment in advance

- **Prior to extracting, go through everything**
 - Whether it is your equipment, or someone else's – **go through it before getting started**
 - Look over the extractor and review the nooks and crannies for cleanliness
 - It is quite common for honey and water to collect in seams, and this can lead to waste or debris that you will not want in your fresh honey
 - Sometimes previous users of borrowed equipment may not clean the equipment to a standard that you would, and you might wish to touch it up before starting
 - Look over the buckets, and especially the gates, to ensure cleanliness prior to starting.
 - Look for spider webs, errant bugs, and other things that might have snuck in during storage. Wipe out any collected dust and grime.



In a kitchen? It can be done...

□ Some advice

- Conduct the operation with purpose
 - No Pets, and establish rules... And know that **YOU WILL DRIP HONEY**
 - Clean every surface, as stated before.
 - Consider tarps for the floor, and protect your surfaces from damage
 - Extractors can scratch floors – protect your flooring
 - Consider shoes that you can take off (*Can you say crocks?*) as you exit the space, so you do not track the dripped honey throughout your house



Hygiene

- **Constantly take time to clean up**
 - Wipe surfaces down
 - Keep floors and flat surfaces clean – wipe off your clothing
 - Wash your hands throughout – and your arms
 - Rinse your tools, refresh your cleaning water, swap out for clean rags
 - Use lint free cloths and washcloths
 - **Avoid licking your fingers** – no matter how much you want to
 - On a serious note: You will feel ill if you cheat on this by the end of the session

Such an odd thing to say, but your arms get covered with errant honey in a good number of things you do during the operation



Uncapping

Uncapping Tools and Techniques



Best Uncapping Options

□ Uncapping Fork

- Tined device that for pricking or scratching
 - The most common use is to insert the tines under the cappings and pull up. This pulls away the capping, and you tap it off into the tank
 - Secondly, you can turn the tool to have the tines perpendicular to the surface and scratch the comb face (hence the term capping scratcher).
- A quite effective tool in the hand





Best Uncapping Options

□ Bread Knife

- Thin long blade is wonderful
 - Works especially well when the capping is just a touch higher than the face of the frame
 - It not only provides great dexterity for slicing thin layers of cappings off...
 - It also works very well to help you pick across the frame face and knock off any errant capping slices that have adhered to the face of the frame





Other Uncapping Options

- **Cold Uncapping Knife**
 - Cold Uncapping Knife: cutting comb off with a purpose-built knife
 - A beekeeping industry knife that is a lower cost version of a hot knife.
 - It is **often held in hot water** and used to slice the comb across the face.
 - Requires a little more force from you to get through the capping, and the wide blades can be a bit odd to work with – but they are quite a bit less than the electric ones



There are Other Uncapping Options



● *Tined Uncapping Fork*



● *Electric Heat Gun*



● *Electric Heat Gun*



● *Hot Uncapping Knife*



Tilt the frames over

- **A simple tip while uncapping**
 - Instead of leaning the frames back while you are uncapping
 - See if you can tip them forward and slice from the top down
 - Things you slice off fall into the collection area and not back on the frame
 - Things that fall on the frame, stick to the frame face
 - Things stuck to the frame face have to be picked off and they get in the way
 - It seems awkward to do, but you get used to it and it makes the work go faster





Extracting

A Run Through of the Process



Secure the Extractor

- **Screw Extractor legs down**
 - Most extractor legs have a hole for fastening
 - In this case simply screwing it to some boards provided significantly more stability
 - Locking it down helps it from walking across the floor

Note the indent for the bucket to nestle into >





Secure the Extractor Bucket – **Gate Open**

- **Position the bucket under the gate**
 - Secure it to the legs with a bungee cord
- **Always leave the gate open on the extractor**
 - The gate is to be open right from the start
 - If you leave it closed, honey collects in the bottom of the extractor and is spun by the action of the internal bucket
 - This whips air into the honey and is extremely hard on the extractor motor
 - You risk burning out the motor if you are not paying attention



Loading: Distribute the Load – **Start Slow**

- **Place your frames in the extractor with purpose**
 - Consider the weight and volume of the contents
 - Try to balance the frames from side to side as you load in the frames
- **Start Slow**
 - Start the extractor on low speed, then gradually increase it
 - Heavy frames will spin out and hopefully equalize
 - In time when some of the honey is extracted, you can gradually up the speed of the extractor until you reach a happy middle ground



Watch the strainer/filter

- **Strainer/Filters clog rather quickly**
 - Make sure you have spares handy and stay vigilant
 - It is a waste of good honey, and a supreme mess when filters clog and overflow
 - Mistakes slows down your operation and ***puts you in a cross mood***
 - Use coarse strainer
 - Consider only lightly straining the honey (**or not at all > next slide**)
 - Afterward you can filter it to the finished state when you have banged through the operation in a secondary filtration



What of no filter at all (from the start)?

- **Some let it flow in the bucket sans filtration**
 - The technique here is quite successful
 - Initially you let it flow into the bucket unfiltered right from the extractor
 - You set the bucket aside for a few days and all of the wax bits and debris floats to the top
 - You then proceed to filter it from the gate, into a second bucket fitted with a *moderate to fine* bucket filter
 - Drain the bucket down until the gook at the top gets to the gate
 - At this stage you can adjust the bucket filter to your preference and strain out the rest of the more chunky stuff floating the top



Extractor Shimmy

□ Extractors Wobble

- Expect the extractor to wobble from side to side
 - Go slow and don't let it get out of control.





Keep the Extractor Lid Closed

□ “The Vortex Effect”

- When extraction actions occur, super small particles are created
- The air in the spinning extractor carries them up and out of the top if you open the lid
 - If you find that your surfaces have a light haze of stickiness, and the hairs on your arm feel funny, you have experienced ‘vortexed honey particles’ floating through the air
 - Our current extractor shuts off when you lift the lid, but some extractors can keep spinning



Less than full extractor

- **At the end of the run**
 - If you do not have enough frames to fill the extractor slots
 - Simply place the load in a way that distributes the weight evenly
 - You can sometimes even place extracted frames in the empty slots to balance things out to finish the job





Straining / Filtering

There is a difference in these terms



Straining vs. Filtering

□ Straining

- Generally considered a coarse operation and is employed to catch larger chunks
- Strained Honey: Strained to the extent that most of the particles, including comb, propolis, or other defects normally found in honey, have been removed. Grains of pollen, small air bubbles, and very fine particles would not normally be removed.

□ Filtering

- Removal of small, even microbials in some cases
- Filtered Honey: All or most of the fine particles, large pollen grains, air bubbles, or other materials normally found in suspension, have been removed.



Bottling / Straining Stand

An optional piece of hardware to consider

Use for Bottling



Use for straining/filtering





Filtering/Straining: Deeper Dive



These are rule
of thumb
guidelines

- **At least 600 Micro**
 - **Straining:** This gets you by for general use and allows for the constituents of honey to pass through

- **For a Show; 400 or more**
 - **Filtering:** 400 micron filter, followed by a 200 micron filter, followed by a superfine filtering agent
 - **Common Substrates:** Nylon Panty Hose [*new please ;-)*], silk, or very fine cloth



More Natural vs. Pristine

Store Bought Honey

- Filtered in the extreme > To avoid crystallization
 - Also heated to remove any and all traces of crystallization

Home Bottled Honey

- Lightly strained or filtered, keeping some of the crystals and all of the pollen

Show Honey

- **Highly** filtered for clarity and absence of crystallization and foreign particles



Let the buckets settle

- **After extracting, close the bucket and let it set**
 - This will allow any debris, bubbles, and wax in the honey to float to the top (away from the honey gate)
 - Some let it set for 3 days to a week before bottling
 - It takes this long sometimes for the settling to occur
 - You can use the 'Saran Wrap Trick' [Next Slide] or you can use a slotted spoon or some other implement to pull off the debris
 - You can also open the gate and draw from the clear honey out of the bucket, and when you get to the top 'sludge' let that drain into a filter for further refinement

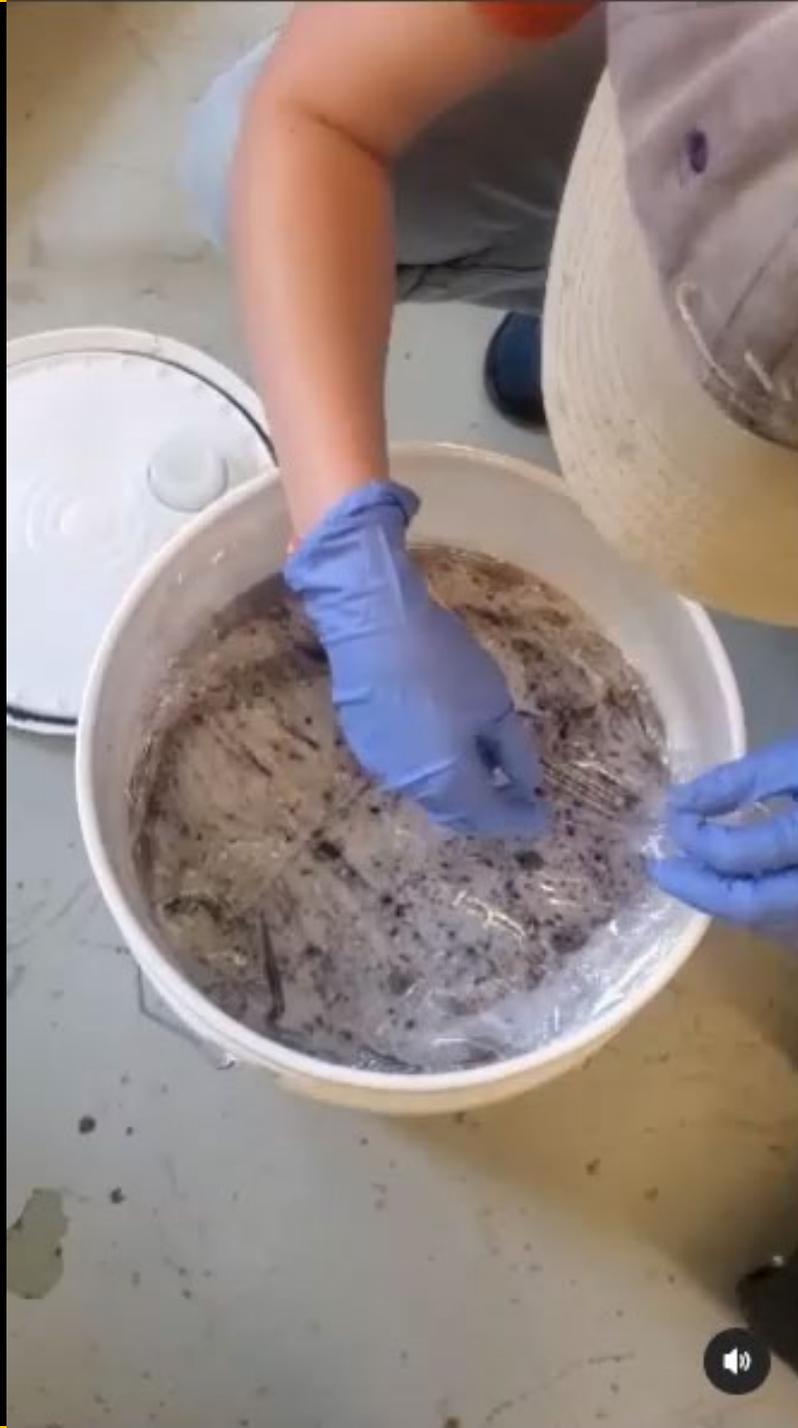
Keep Buckets Covered/Sealed

Honey is hygroscopic (it will absorb moisture). Always keep honey in buckets covered during storage to maintain moisture levels



Saran Wrap

Credit: Dyce Lab Instagram



❑ The '**Saran Wrap**' trick

- *Place a piece of Plastic Wrap over the honey – press it down*
- *Pull it up with a pinch from the middle and draw it off.*
 - Or roll it off like demonstrated
- *The debris on the top of the honey sticks to the Plastic Wrap*



Filling

Fill to the top of this Ring



Build 10 Frames – Use 9 For Honey

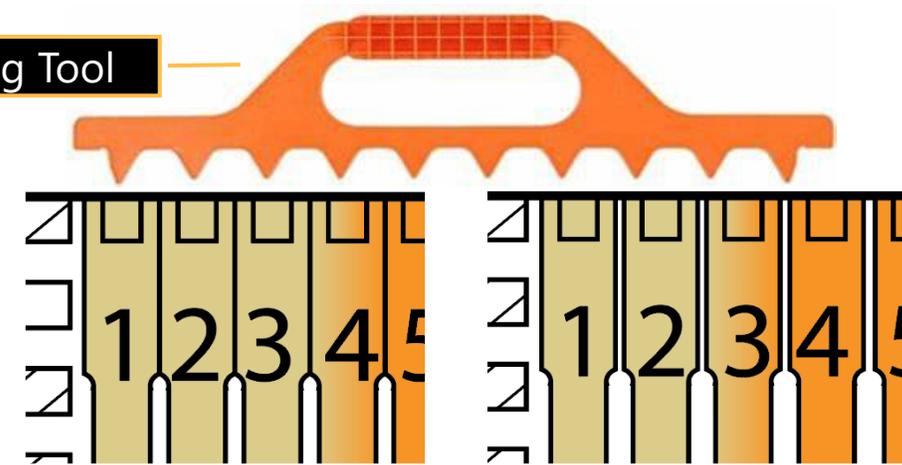
- **When you are getting your bees to draw supers**
 - We coach our beekeepers to do 10 frames for build out
 - Place 10 frames in the box, during spring
 - They draw straight honeycomb (no wonky stuff).
 - You can do 9 right from the get-go but you risk *wonky*.
 - We prefer to do 10 to build, then 9 to honey harvesting
- **When placing for Honey Collection**
 - Space 9-frames in the box
 - The extra space – violates bee space – and in this instance that is a good thing

Run 9 Frames in the Honey Supers





9-Frame in Honey Supers



- **An Odd Notion (9-Frames)**
 - Normal means 10 frames tight – shoulder to shoulder
 - In the case of running 9-Frames in a 10-Frame box, it also changes the pathway and airflow in the hive from top to bottom.
 - Consider a frame spacer (see image)
 - Anomalies aside, this is a tried-and-true practice
 - It is truly a time and effort saver when it comes to uncapping comb when the comb face proceeds past the frame edge.
 - It makes cutting off the comb face exponentially easier when performing honey extraction work



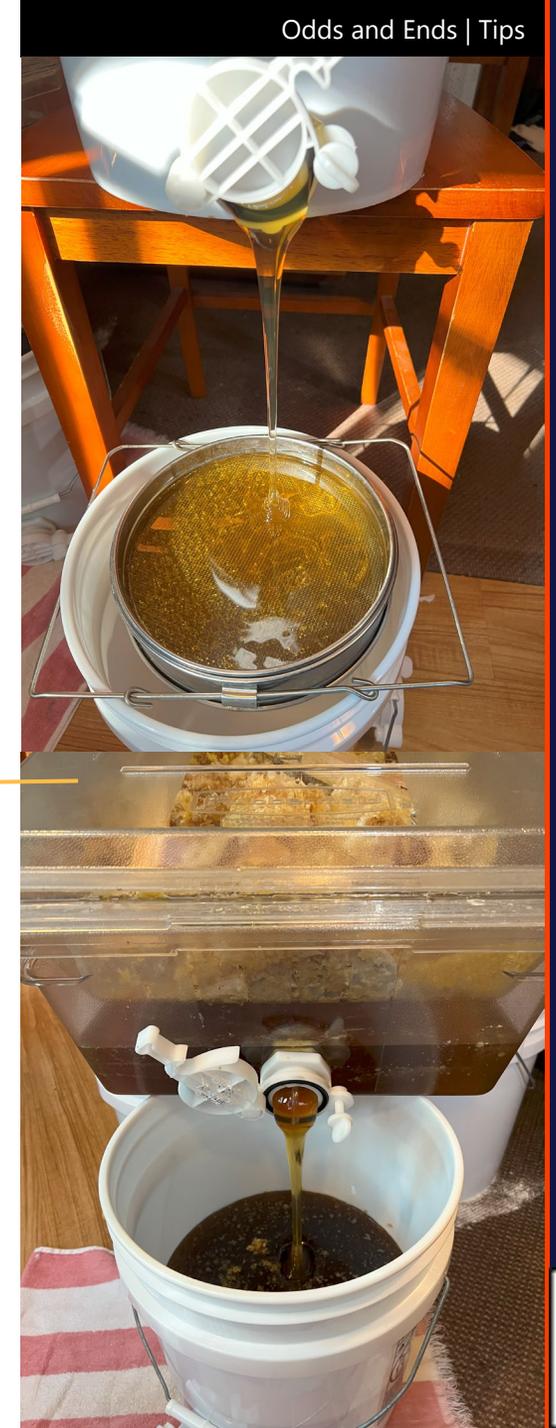
Given extra space, bees will build deeper cells

This places the capping out from the frame edge



Separate Your Extraction Boxes?

- **Each hive harvests individually**
 - This is not something that a new beekeeper needs to be worried about, but it is an interesting consideration
- Same Harvest (Spring 23) – Two Different Supers
- You might find that the honey is distinct
 - If you Extract a super from a single box, and strain all of that into a bucket
 - What is to say that you might isolate the next one by using a separate bucket
 - Is it necessary, no? Is it interesting to consider? – Yes, *shmaybe*





Extractor Washing

□ Protect the Motor

- If it is a powered extractor, Never spray the motor. They are not waterproof
 - If you are going to spray things down, cover the motor to protect it

□ Cold Water under Pressure

- *If you work at it, with both pressure and volume, you can get things very clean. You might need to scrub or brush, but it will come clean*





Let the bees help you

- **Even if you do a stellar job – the bees can help**
 - Leave your buckets, capping tank, extractor and other items out
 - The bees will find the equipment and help you clean it out
 - **You might think you have it clean** but honey, in harmony with water tension - holds quite well in cracks and crevices
 - The bees will find every sip and clean out what you left behind
 - Sometimes you might tip things over and see liquids dislodge and be available to the bees or wiping out
 - Do not put things away wet – they will mold, and mildew in storage





Filling



Bottling

129

□ Finishing

- When you finish, wipe and wash the jars of drips, spills and smears
 - Clean the jars before you return them to the boxes for storage
 - Place them for safe keeping in the glassware boxes you saved



□ Questions

■ Next Week...

- Maladies and Diseases
- Swarm Dynamics: Triggers and Indicators
- Swarm Management
- Course Closing

Q&A

