



The Beekeepers Corner Podcast

Harvesting Honey



Harvesting Honey

- ❑ From Harvesting to Bottle





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Our Home Yard: Spring 2021

What is Covered in this Presentation

Assessing The Harvest in Advance

Methods for Pulling Honey

Setup and Staging

Uncapping Tools and Process

Extracting

Straining / Filtering

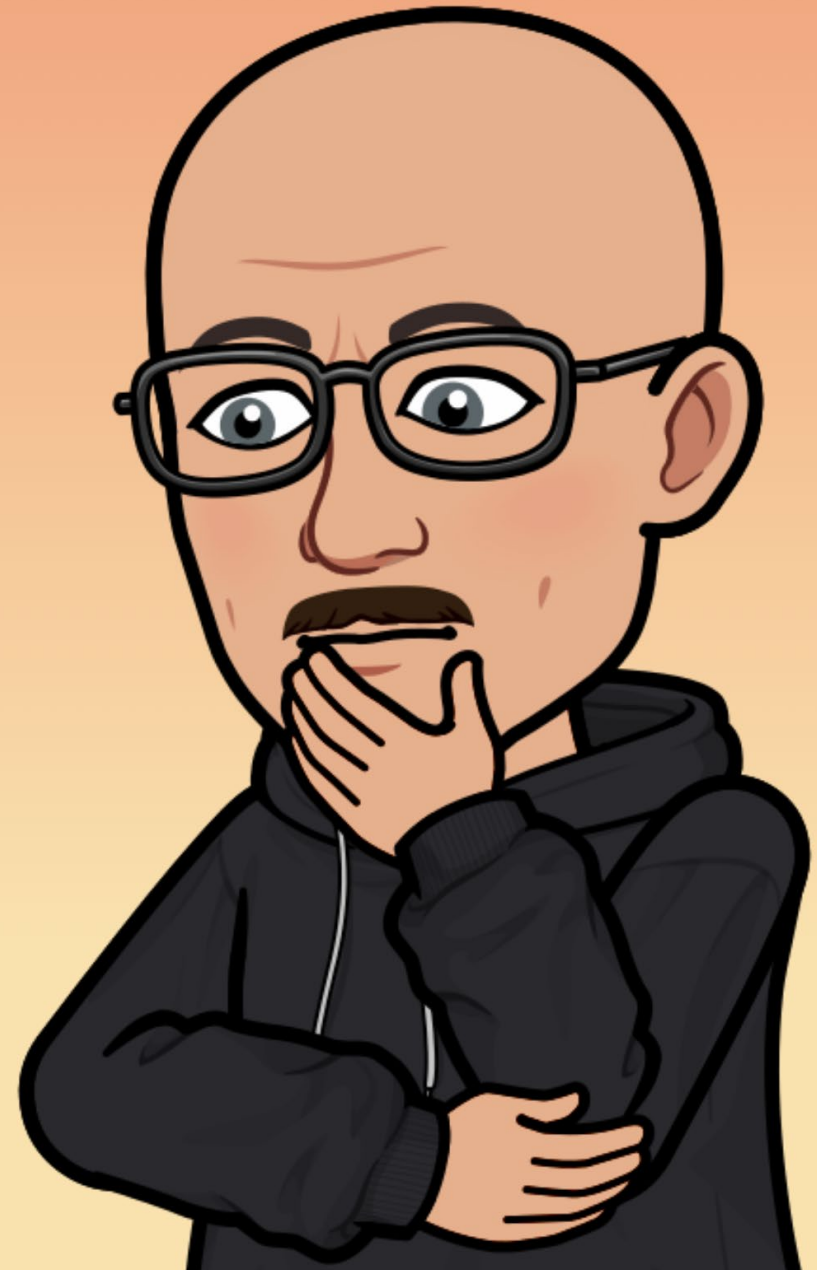
Clean Up

Preparation for Bottling / Bottling

A Quick Aside

□ Before we get started...

- *This is a 'food for thought' presentation*
 - This is our way – **and it doesn't have to be your way.**
 - If I say something and you disagree or think your way is better – please continue
 - I will share my rationale, and give context to what I do and why I do it
 - But your circumstances are wholly your own and you do you
 - If anything, I only hope that will be helpful in getting you thinking and improving





One More thing

□ There are a lot of slides

- *In order to get through them, I will take questions at the end*
 - If I did a good job, then hopefully I will get you all the answers by the time we finish

□ The slides are available

- *The presentation is posted for download*
- *Visit www.bkcorner.org and you can have a copy of the deck.*

Assessing The Harvest

Checking Honey Super Frames for Readiness



Are the frames Capped? Is there Brood?

□ Do this ahead of time, or Just in time?

- *It is your preference how you proceed. **I like to look in advance***
- *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

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.

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

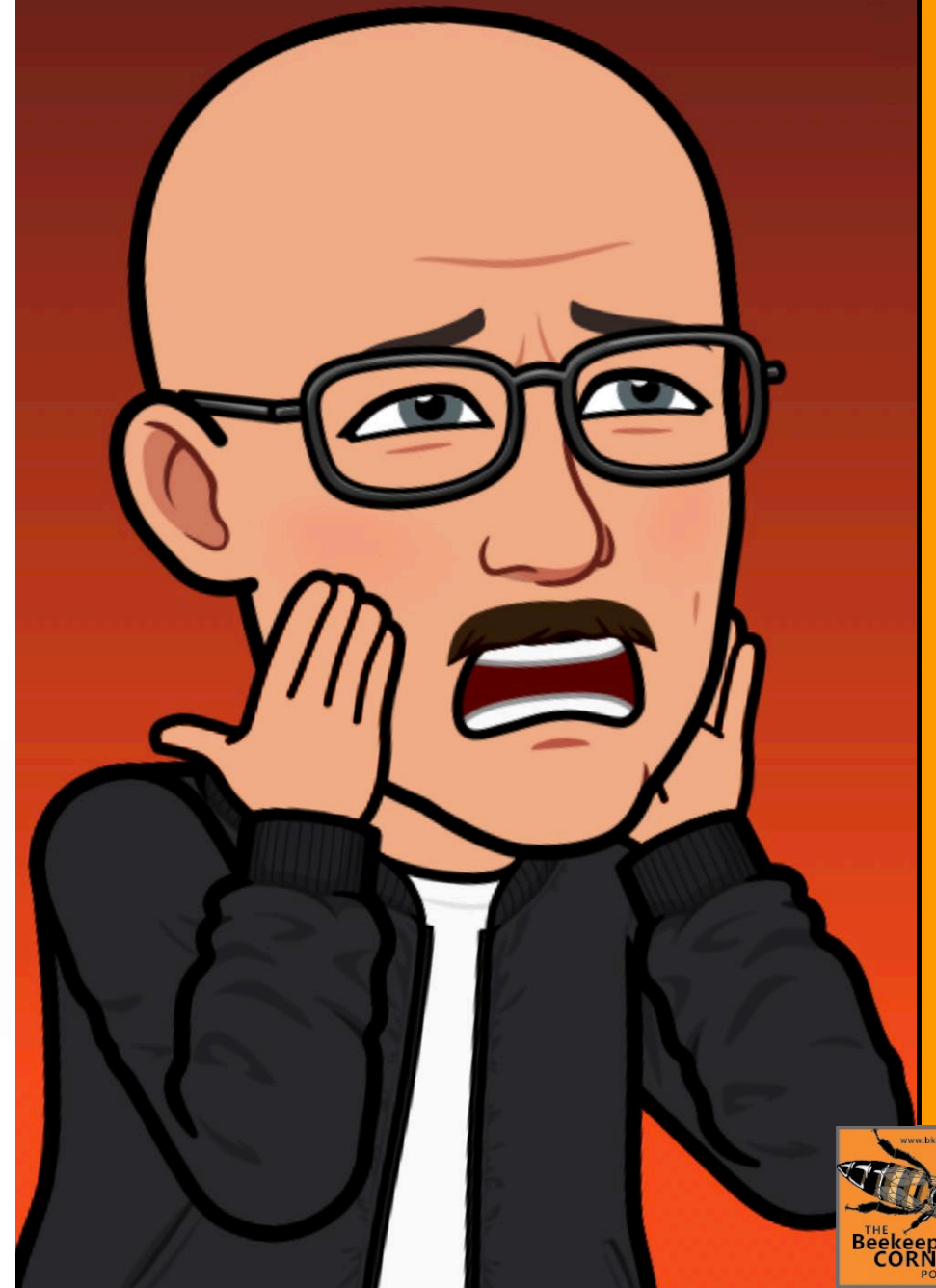
❑ Pull ripened honey

- *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*



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

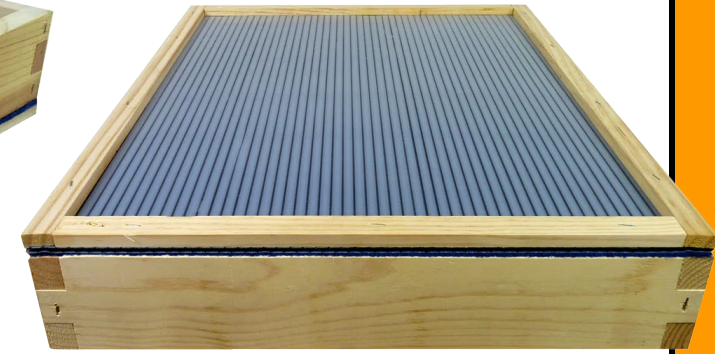
Representative List

● *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.



Fume Board Use



□ Overview of the Process

- *Smoke the entrance of the hive*
 - You will be banging around on the top of the hive
 - Smoking the hive calms the bees in the nest. Can smoke above the inner cover
 - Do not smoke down into the honey super. Do not want smoke in the honey
- *Apply the liquid 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*
 - Hence the plastic heat collection feature on most fume board designs

**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

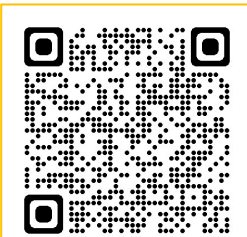


Blower Method

❑ 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.
- *Our thought....Use an electric blower, not 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

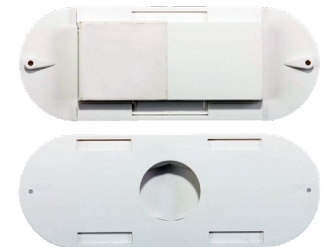
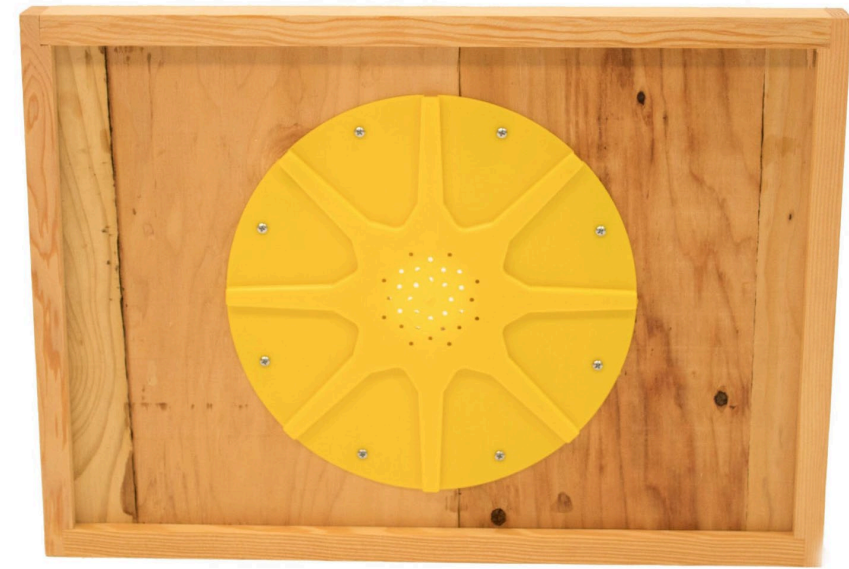
- *Same principle, different design*

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*

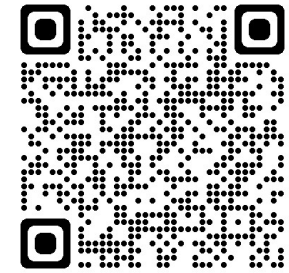
- If you left and upper entrance or there are any holes in your equipment, bees will return through the exploits they find.
- Unguarded open boxes might get wiped out by clever robber bees



Frame by Frame or whole box?

□ I often take individual frames from a super...

- *Most people take the whole box – Just saying*
- *I personally bring a spare box, and go frame by frame*
 - I use a fume board which will clear most bees, *but even so...* there are always errant bees lingering in a box exposed to a fume board
 - My process is to pull the box off and put it on my bench. Then I pull individual frames from the origin box, knock off the bees with a tap or a flick of my brush, and move them to a spare that I have brought out
 - I cover the destination box with a plastic sheet as I am proceeding with each frame. This keeps errant bees from getting in. When done there are no bees inside.



Pulling honey with a fume board

This makes my wife quite happy as she dislikes opening a box and letting bees in the honey harvesting space.

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 am going to try a fume board and electric blower when I think of it – **Reason?** > **Speed***

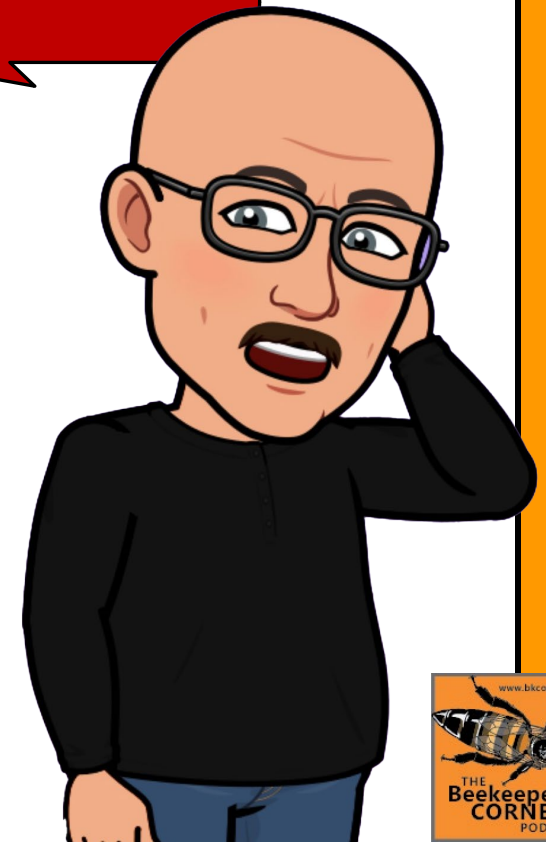


Only load a few boxes in your cart

❑ Boxes of capped honey are heavy

- *You will need to plan how you are going to get them from point A to point B*
 - Consider using a cart. If that is you, **do not try to wheel a tall stack**, split the transport job into smaller jobs.
 - ❑ If (or more like when) the top box falls of the stack when you bump into something, the subsequent even that happens when the box crashes to the ground can become quite interesting (**ask me how I know***). Be conservative and make more trips
- *Think about your transport plan – end to end*
 - Plan the work, work the plan. Have your staging process planned out

*Broken Boxes,
Broken Frames,
Clouds of Bees,
Lost Honey...



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

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

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.

Extractor Maintenance

□ When starting up...

- *Check the operation of the extractor*

- In operation extractors wobble and shake, and there are a lot of forces exerted on the structure

- *Look and listen for hardware problems*

- Prior to starting, and when you first start extracting, look for loose bolts and hardware.
- Listen for grinding sounds and motor issues.
 - If you hear something, stop and correct it to prevent damage from being exacerbated. Avoid pushing through – consider *that you don't want metal shards in your honey*

Stainless Steel

Because of its acidity, honey reacts with common steel, iron, aluminum, galvanized metal, copper, tin, and more.

*Besides **producing toxins**, this can also affect taste and color.*

❑ Avoid Old Metal Extractor Designs

- *While not common, some of the older designs are no longer suitable*
 - Extractors are quite durable and there are some out in the world that were made from metals that are not suitable
 - ❑ If the design is not stainless steel, avoid using it as it can react with the honey
 - Sometimes the surfaces can be prepped in a way that seals them and makes them acceptable

Antique Galvanized Steel Extractor

Photo found
on the Internet



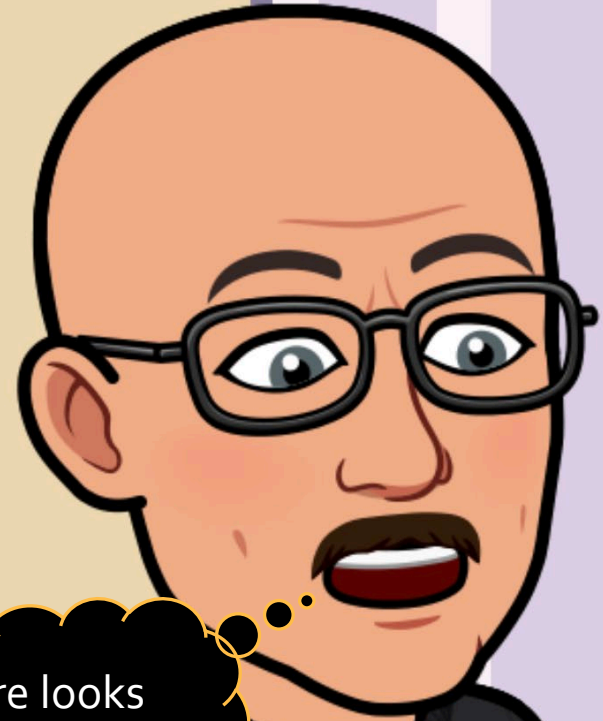
Kevin Moment



We started out with a galvanized extractor.

This is 2008 era manual extractor

We uncapped our frames into a pot



Sure looks familiar...



Honey Harvesting: Extractor

Manual or Motorized Extractor

- *2-Frame, 9-Frame, 20-Frame or more*
 - Something that 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: Buckets and Filters

Harvesting Buckets

- *Food grade buckets with lids (and handles)*
- *Buckets with valves (gates)*

Filters

- *Stainless steel filters with varying grades of filtration screens (more on this later)*
- *Nylon fine mesh filters – or other alternative setups*



Buckets and Filters

- ❑ Prepare enough buckets for the task
 - *Use food grade buckets with matching lids.*
 - *Have at least one with a honey gate on it for bottling.*
 - Buckets are paired with a filter, or filters, to strain whatever comes from the extractor so ensure that you have your matched pairs ready to go
 - ❑ Consider that you often deal with filters that clog and switch them out as you go.
 - ❑ **Have spares** – or consider that you may have to stop the operation temporarily while you address a filter that is running slow or clogged altogether
 - ❑ Use buckets that fit under your extractor gate



Refractometer

Measuring Moisture

- *Harvested honey should be at a specific moisture*
 - Too much moisture and a honey will ferment over time
- *Refractometers measure moisture*
 - They are simple to use and relatively inexpensive.
 - Place a drop on the screen, review the internal viewfinder to take a reading
 - They are a failsafe, and many beekeepers have never used one.
 - Read the instructions for the model you have. Calibrate if needed.

Rule of thumb
– Keep it between
17 and 18.6% moisture

Higher than 18.6%
is subject to fermenting

Most times,
readings fall right in line



Equipment Stations for the Jobs

□ Staging the Boxes

- *Stack your boxes on a piece of cardboard or plastic*
 - Honey always drips through the boxes to the surface below.
 - Optionally, keep your boxes covered with a second piece, in case bees get in.
- *Prep a cappings collector (Uncapping Pan or Tank)*
 - Buy a piece of hardware designed for the job or use a large baking pan
 - Set up corresponding cleaning for the uncapping task: Large pot with hot water and a washrag to wipe up spills, something to wash your hands
 - Use these as needed throughout and refresh with new water as required



Uncapping Tub/Tanks

❑ Purpose built or homemade

- *Uncapping tanks are sold through bee catalogs*
- *If you are handy, you can make one with parts from a box store.*

❑ Wax *and* Honey Collection

- These are large wide, flat tote shaped boxes that usually feature one tote nested inside the other. The top tote has a perforated floor to collect cappings
- The bottom tote often features a honey gate that lets you drain the collected honey that runs off the cappings



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*



Building Your Own?

❑ There are many plans on the internet

- *Be sure to use food grade plastic and stainless steel if any of the parts are metal*



Maybe Too Tall?

- In most setups, uncapping takes place over a table.
- If the top box is tall and the bottom box is tall, the stack can make uncapping both ineffective and uncomfortable
 - ❑ Your arms are up in front of you and it is both awkward and uncomfortable to work this way for any period of time.
 - ❑ It also makes it harder to see.
 - ❑ Of course, you can use a lower table... but this has its own challenges... Consider low profile totes.

No Uncapping Tank?

□ A large pan with an insert will do

- *Sometimes good enough is perfect and you can simply go into your kitchen and get your largest baking pan*
 - Set it over a lint free tea towel to keep it from sliding around on the table
 - Take a second folded tea towel and place it inside.
 - As you set the frame down into the pan, it will slide around when the wood contacts the metal. The second towel aids in preventing it from slipping around
 - Of course, you will have to scrape it off and 'wring it out' when you are done, but it will be a benefit during your operation.



Extract in your Kitchen?



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

Uncapping Options: Tools

- There are myriad of tools to use

The ANSWER: *Bread Knife and Uncapping tool*

- Beginning with the end in mind, our universal survey over years demonstrates that **anyone with experience inevitably tells us that these are overwhelmingly the best tools**
- *Uncapping forks (aka Capping Scratcher)*
 - The designs vary and given that users have different preferences, some might work for someone, and be disdained by another
 - The good news. These are inexpensive – and you can buy a number of them and pick the one that suits your preferences.



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
 - Secondarily, 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

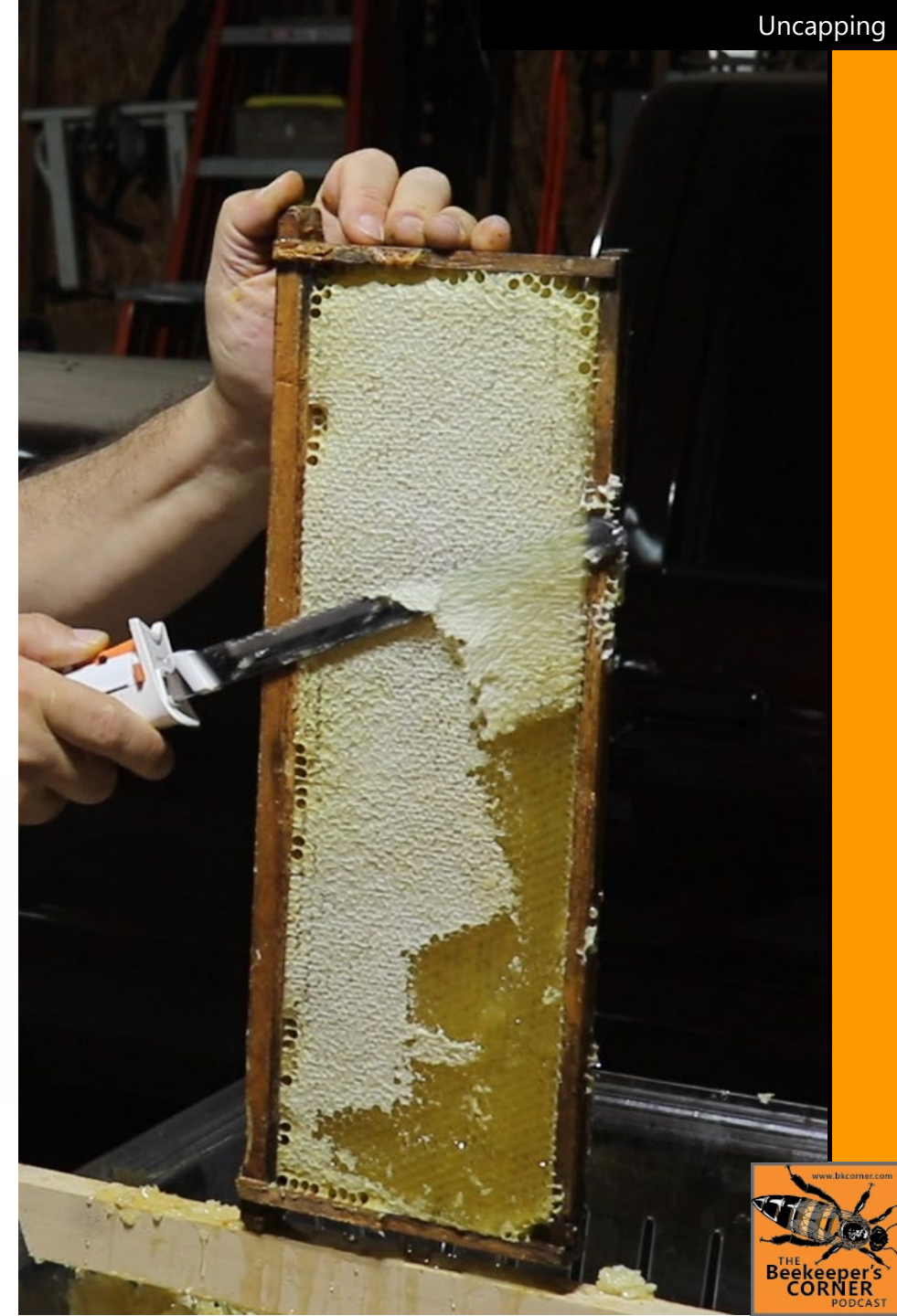
- *Thin long blade is wonderful*
 - Works especially well when the capping is just a touch higher than the face of the frame
 - It not only provides great dexterity for slicing thin layers of cappings off...
 - It also works very well to help you pick across the frame face and knock off any errant capping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



Uncapping Options

❑ Electric Carving Knife

- *Not often thought of, but pretty good*
 - Like a bread knife, these work well
 - ❑ Of course, they require electricity and make it a bit easier to “oops” and cut into the wood
 - ❑ But overall, they, with only a pinch of practice, are rather effective and very much worth a try if you happen to have one.
 - ❑ Use care not to slice into the wood. They can cut wood if you are not careful.



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



Other Uncapping Options

❑ Static Heated Uncapping Knife

● *Hot Uncapping Knife*

- Melts the cappings while slicing
- Another beekeeping industry tool that has is powered and heats the 'blade'.
- Operationally it glides through the capping, melting through the wax
- Two form factors:
 - ❑ One with a set thermostat, and another that has temperature controls to increase or decrease the temps so it doesn't get overheated and cook the honey/wax.



Other Uncapping Options

❑ Adjustable Heated Uncapping Knife

- *These requires practice*
 - Hot Knives take a little know how.
 - ❑ If you only use them occasionally, then you may take some time to get adept with the tool
 - ❑ If you let it sit without using it, it can overheat and burn the honey on the knife
 - Plunge it into the cappings to cool it down
 - Sometimes they seal the cells
 - ❑ Unlike the heat gun, these are easily opened with a capping scratcher

Temperature Adjustment Dial



Other Uncapping Options

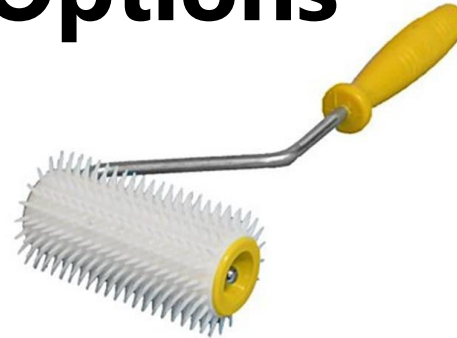
❑ Electric Heat Gun

- *Heat the comb and melt the cappings.*
 - Pros and cons in usage
 - ❑ Pass it over the comb and it opens the cells
 - Wax gathers on the cell edges as it melts away
 - ❑ Wax is often mottled and **leaves as a glaze over the open cells** – Glazed cells do not spin out (can pick at it with a capping scratcher)
 - ❑ Can heat the wax and honey in the comb too high and cause scorching.
 - **Do it wrong and it smells like marshmallows in your harvest room**



Other Uncapping Options

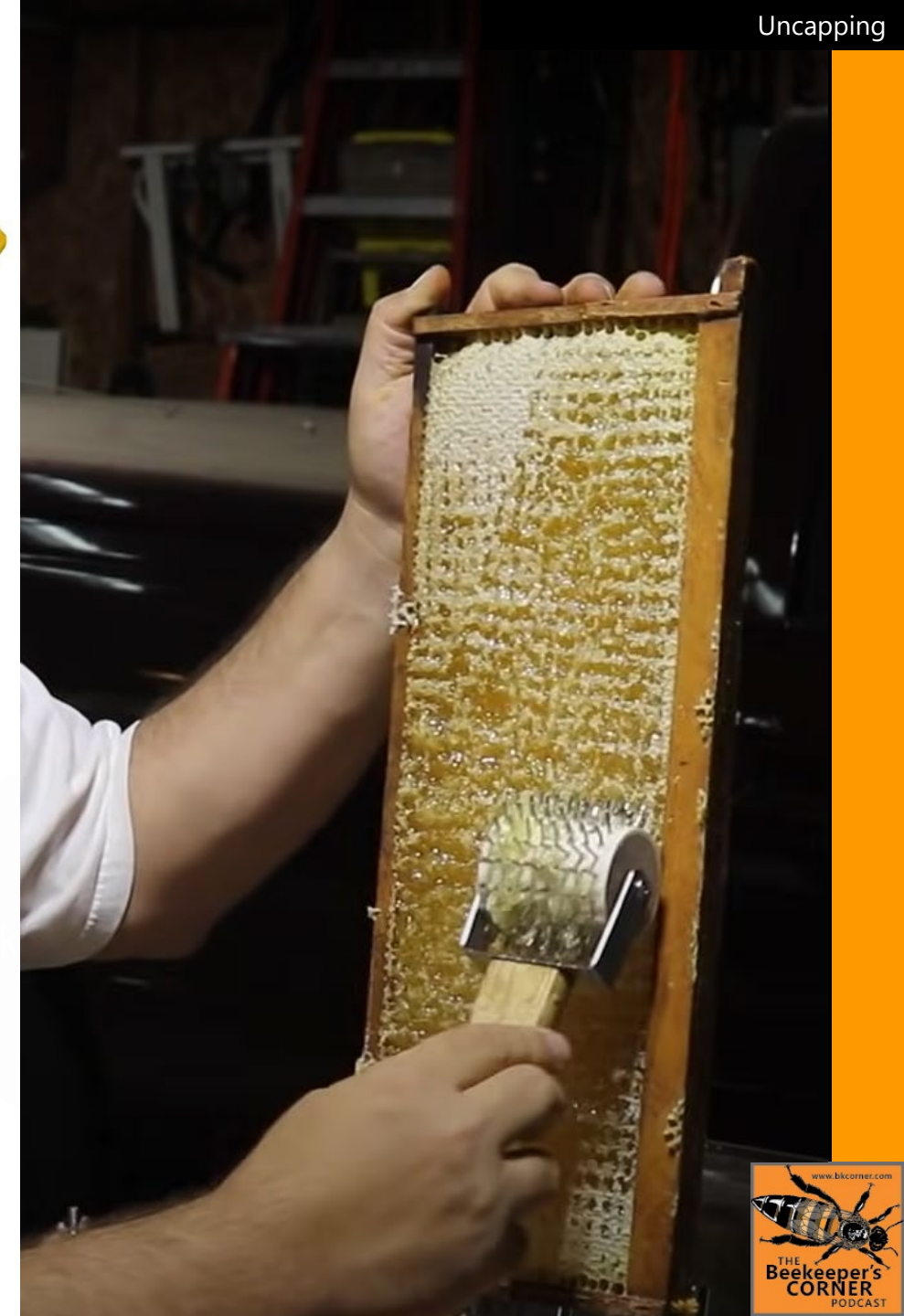
❑ Spiked Rollers



- *Honey Punch Rollers / Needle Rollers.*

- Roll the spiked roller over to penetrate the cappings
- Effective and terrible all at the same time.
 - ❑ Results in massive amounts of shards that clog up your extractor and filters. This makes cleanup quite hard and also negates any capping wax to process after.
 - ❑ No cappings wax to render later (that's a con to us)
 - ❑ Doesn't open some cells (easy to miss) and seems to do a lot of damage to the honeycomb; results in more work for the bees to repair

This is a really big con in our minds



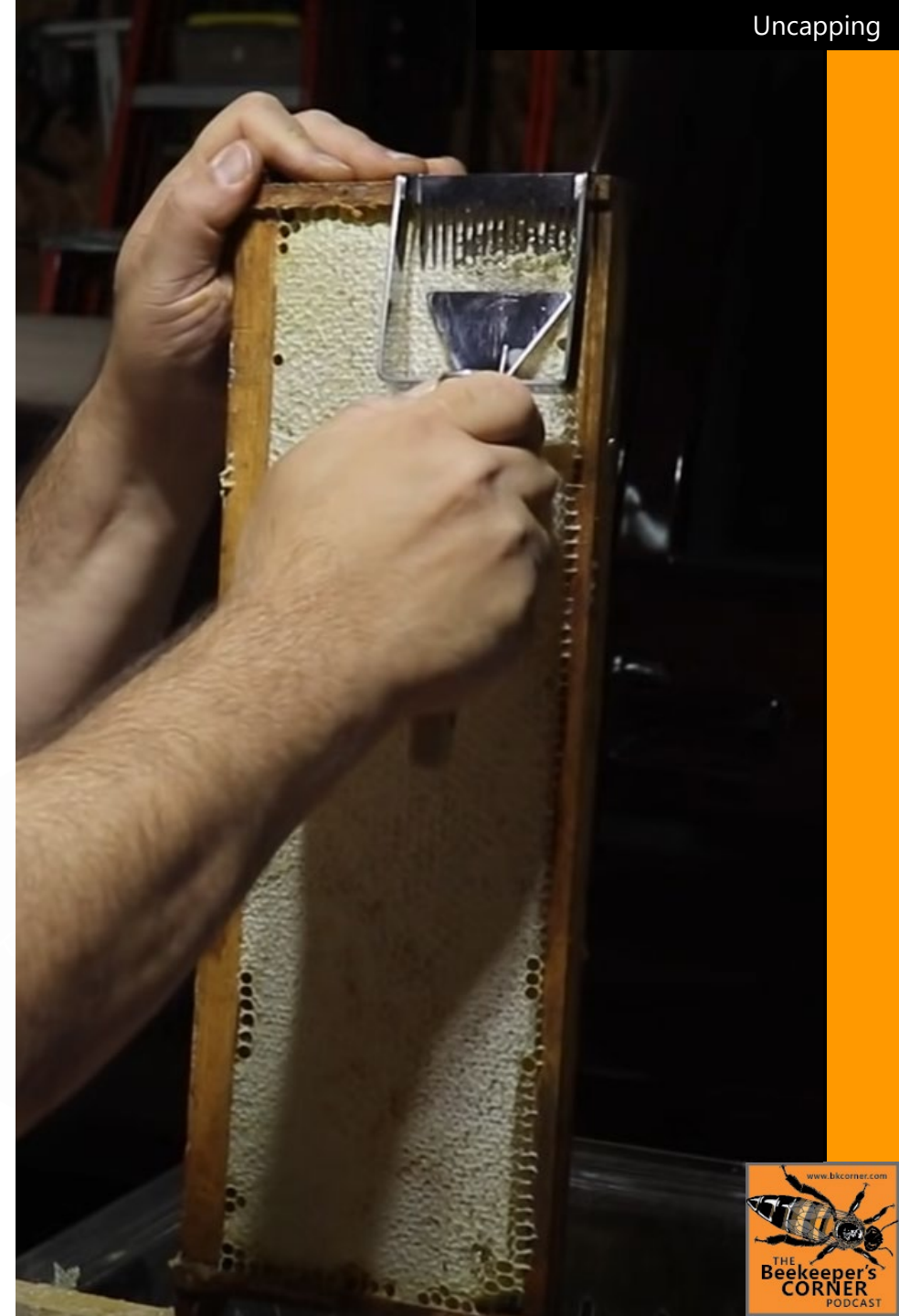
Other Uncapping Options

□ Tined Uncapping Fork

- *"The magic tool"*

If you have ever seen the promotional video, it is so magical...

- When it works, it can work well.
- However, when used in certain conditions, it is sometimes a challenge
- I wanted to love it, but now it sits in my collection of tools
- I have had beekeepers tell me that they love it so I guess your mileage may vary

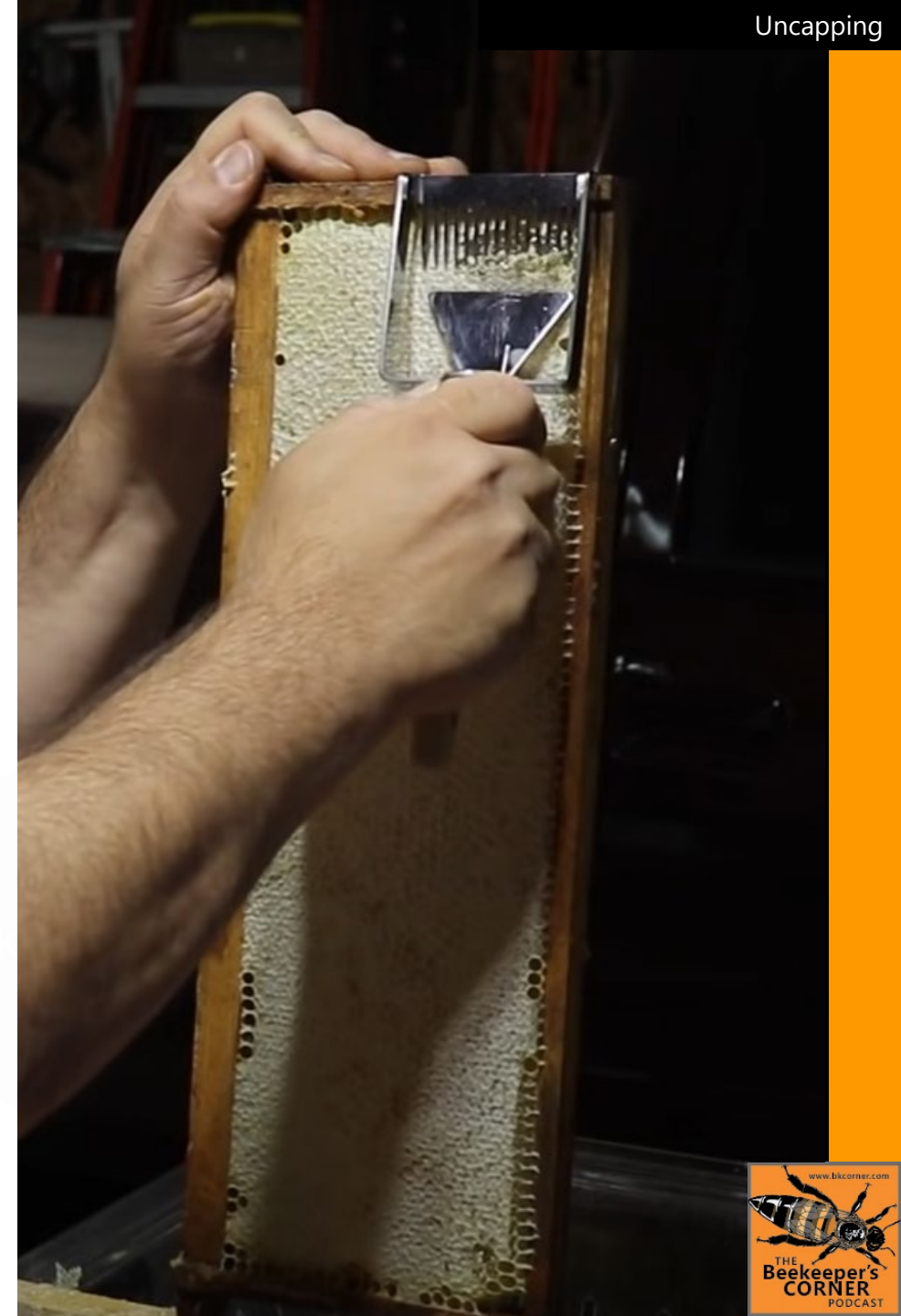


Other Uncapping Options

❑ Tined Uncapping Fork (cont.)

- *"The magic tool, Why is not magical for me"*
 - When the capping is thick, it is hard to pull it through the wax
 - When the cappings are flush or sunken with the frame face, it is really hard to get the cappings off
 - The tines sometimes stick in the woodenware when you are close to the top and bottom bars. Really requires a deft touch –which is hard to do after a long session
 - It has a tendency, without being careful, to gouge deep swaths in the comb which is frustrating. This happens no matter how careful you are in your uncapping technique.

Maybe it's not that magical after all



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 >



< Club Extractor

□ Instructions

- *Our club provides a detailed laminated instruction set with the extractor. Use and cleaning*

□ Gate Cap

- *They do not have a closable honey gate. They give a cap that you unscrew so you cannot leave it on by accident*



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 go berserk, or you are forced to be a hugger
- ***Are you a hugger?***
 - Admit it! Just about every beekeeper has done it.
 - The machine starts to wobble, and you don't know what to do
 - You give it a great big hug and your hips move like you are hula-hooping. Yes, yes you have done it – ***we know we saw it!***



HUGS?



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, pollen grains, air bubbles, or other materials normally found in suspension, have been removed.

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

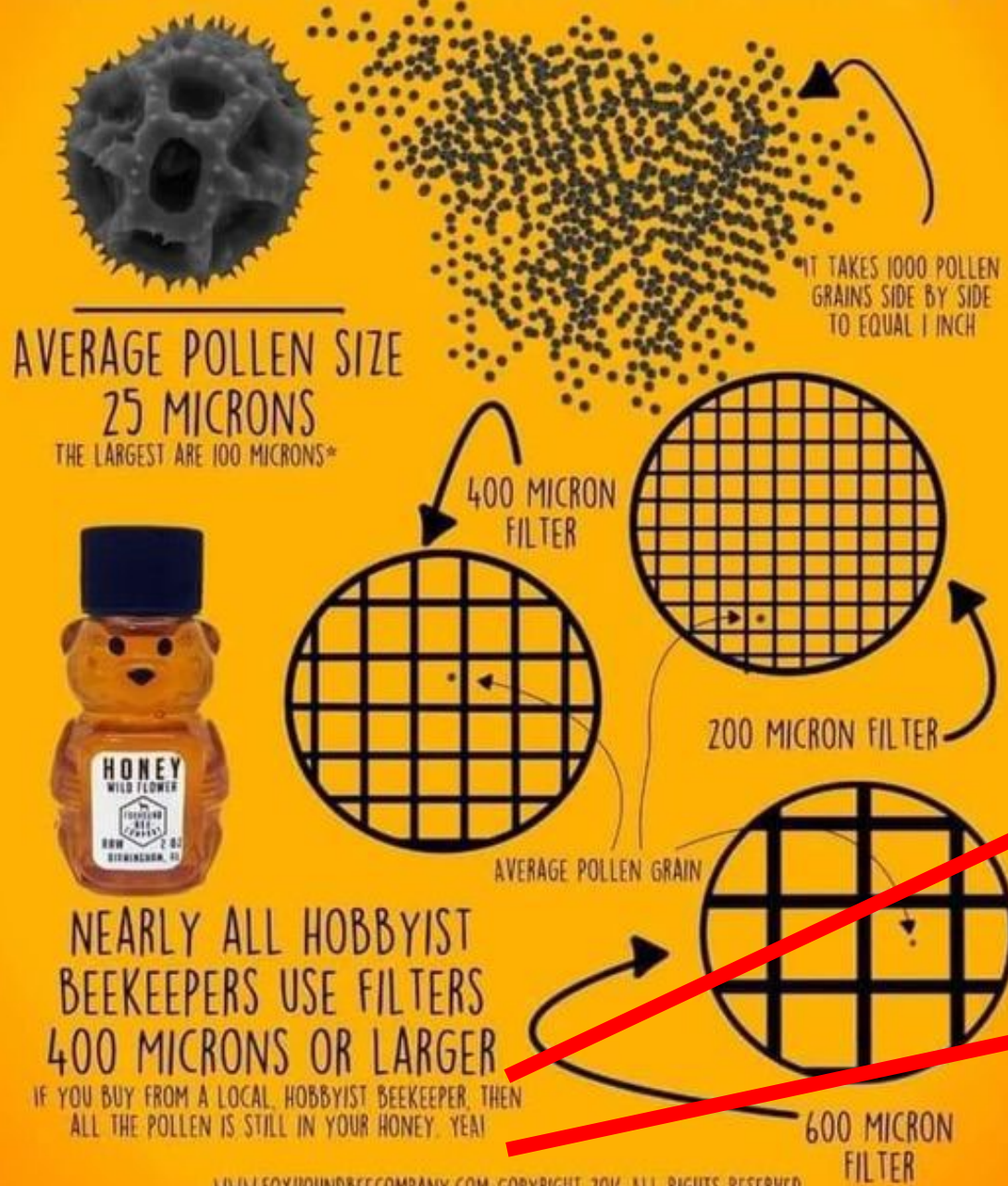
❑ Home Bottled Honey

- *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*

HOW MUCH POLLEN IS IN YOUR HONEY?



Filters & Pollen

- *This diagram has been floating around on the internet for quite some time.*

▪ *An Important clause to consider...*

IF YOU BUY FROM A LOCAL HOBBYIST BEEKEEPER THAN ALL THE POLLEN IS STILL IN YOUR HONEY – YEA!

Odds and Ends

A compendium of tips, insight, guidance and advice

Grading Honey

□ Resources on the Internet

- *Honey is very well studied and there are many resources available*
- *The USDA Extracted Grades and Standards Web Page has multiple resource guides and information*
 - Start with the **U.S. Grade Standards for Extracted Honey** PDF
 - **Grading Manual for Extracted Honey** PDF



USDA Extracted
Honey Grades
and Standards

Find a Friend in Beekeeping

□ Mentoring

- *Shortcut your learning by helping someone else do it the first time.*
 - What you learn by participating with someone else is often invaluable

□ Two people make the job much easier

- *There are a good number of tasks that run in parallel*
- *It makes it easier and sometimes can avert problems*
 - You go back to uncapping frames, and the extractor walks away from the honey bucket

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

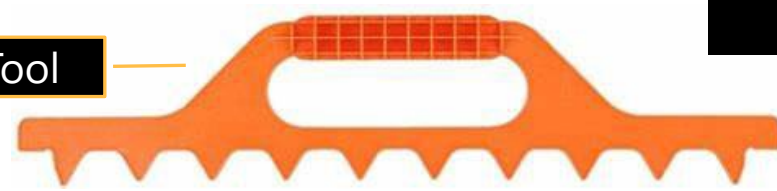
□ When placing for Honey Collection

- *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



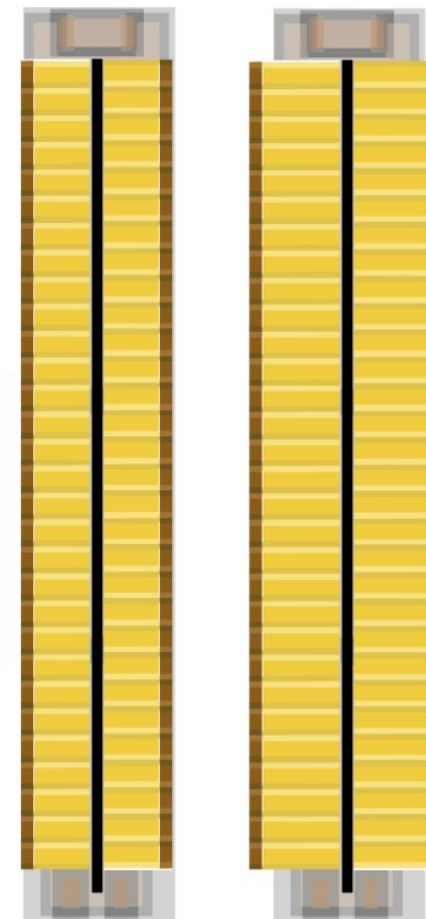
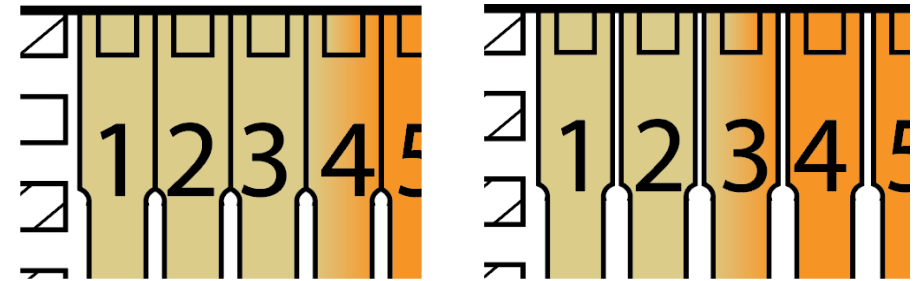
Plastic 9-Frame Spacing Tool



9-Frame 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

If bees get into the Harvesting Room

- Turn out the lights, cover the windows
 - *Provide one small opening that allows light to show through*
 - We often turn off the lights in our garage and crack a garage door opening at the end of the day
 - *The bees will fly to the light and clear the room*
 - At dusk the bees will look to exit and return to the colony and fly to the lingering light
 - *During the day, the bees will fly to the lights in the room – that's ok*
 - If you open during the day, **you risk bees coming in!**

How Much Honey? Honey Harvesting Yields

□ Honey Harvesting Yields (general estimates)

- *1 deep – 5.5 gallons, 65 Pounds*
- *1 medium 35 to 40 pounds*
- *1 shallow 25 to 30 pounds*

□ Number of Jars Needed

- *1 Deep, 65 one pound jars, or 88 Pint Jars*
- *1 pound ~ 10.7 fluid ounces*

Honey and Metals

□ Keep in mind that Honey is Acidic

- *It can react with certain metals*
 - This can affect color and taste. It can also produce toxins in some situations
- *If using metal...*
 - Stick with Stainless Steel, and avoid storage in Metal containers
- *Switch to Glass or Food Grade Plastics (PEET, high density polyethylene HDPE)*

Storage and Reliquifying

□ Store above 70°F if you can

- *Honey stored at 50° to 60°F is sitting at the ideal temperature for crystallization (good for fine micro particles and creamed honey, but that is another talk)*
- *Heat to 105°F to 115°F to re-liquify*
 - Lower is better, but takes more time... Honey can get to 110°F to 115°F in the hive in some conditions. Any higher may destroy enzymes and alter flavor
 - We use a sous vide for this...
 - Do not use a microwave, do not refrigerate

Cleanup of Extracted Frames

□ Have the bees take care of them

- *Do not store frames with honey remnants in them (post extraction)*
 - Return extracted frames into their boxes and place them back on the hives
 - Either they go on for the fall harvest, or we can put them **over an inner cover**, and when they are picked through, we take them off and store them.
 - As to storage of honey supers: Wax moths generally will not go after honey boxes. They are more interested in the remnants left over after brood rearing.
- *Alternatively: You can put them out in the open*
 - Bees will rob them of residual honey
 - **Use extreme care** not to set off a robbing frenzy when you do this

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*



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 :-)

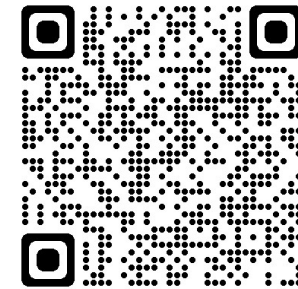
Crush and Strain (No Extractor)

□ Simple system of buckets and strainers

- *This Two bucket system negates the need for an extractor*
 - Good option for a hobbyist who only wants to process just a few frames
 - Does end up ruining the honeycomb but you can melt it and use it for other things
 - Simple project to build that anyone with a few tools can do
- *Some beekeepers do this as a management practice*
 - They focus on fresh wax in their hives and this forces refreshes
- *Having it in your arsenal will mean that you will always have it on hand*



Fruit Press
Yet another option

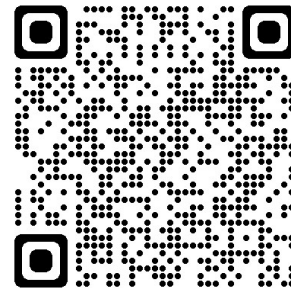


Youtube: Walkthrough
of a crush and strain
system - Video

Crush and Strain (Small Scale)

□ Small system

- *A simple system to process a batch of errant comb with honey that always happens*
- *Two large mason jars taped together with a screen in between.*
- *Gravity does all the work*



Youtube: Simple Crush
and Strain Video



Clean Up

No job is complete if the cleanup is not done

Initial Rinses

- ❑ If you have a lot of honey in something that you are rinsing
 - Use a **small amount of water** and a **silicon spatula**
 - Use the spatula to scrape things down and expedite the process
 - ❑ Note: Take the water / honey mixture and put it aside – it might turn out to be the best **mead** you ever made
 - ❑ You can also feed it back to the bees in a 1:1 solution
 - *Then wash it off until the water runs clear*
 - A hose under pressure does a great job at really working out all of the honey and debris until it is clear from the items you are cleaning



The magic spatula –
Oxo Good Grips
Silicone Cookie Spatula

Tools in a bucket

- Use a spare bucket to collect 'smalls'
 - *Give everything a rinse outside with the hose*
 - *Bring it in the house and wash it with a drop or two of dish detergent*
 - *Rinse and rub until everything is clean and no longer sticky*
 - *Leave it all to air dry*

Washing Up: Extractor

□ Initial Rinse with the hose until the water is clear

● *Open the gate and rinse everything thoroughly*

- No need to take out the basket, but you might want to rotate it manually if that is not going to damage the motor

● *A word about Rinsing with Hot Water*

- Some beekeepers pour hot boiling water over– this is a hotly debated thing
 - It can melt the wax and actually work against your desire to clean things
 - It can rinse out lubricating oils the are at the bottom of the basket

● *Follow the instructions – See the manual of your extractor*



This is our personal extractor
It is a Lyson 20 Frame

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

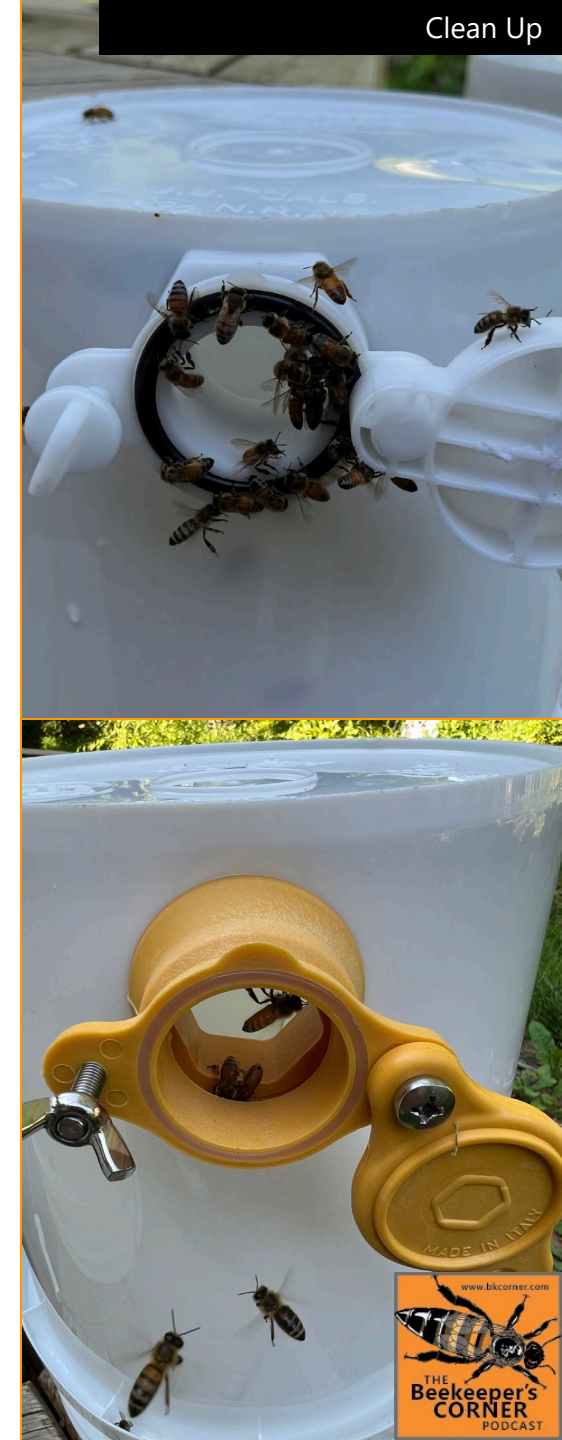
❑ Cold Water under Pressure

- *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*





Clean the Cappings

Set it out for the bees to clean up

- *A quite effective approach; **be careful of robbing***

The bees will clean out all of the excess honey and leave you with well chewed flakes and really clean wax

Make an adult beverage?

- *We sometimes put it in a pitcher and pour some booze over it*

The booze washes the honey off the wax and when you filter the alcohol, it is now yummy honey flavored



Mix, Strain, Filter, Bottle, and Enjoy

The strained cappings went to the bees for a final clean, and then melt in the solar wax melter.

Mix cappings and alcohol



Strain Cappings, the Filter with coffee filter



Pour filtered alcohol back into original container



Bees Cleaning Honey From Cappings

Clean Up



Rendered Cappings

□ Cappings rendered in a solar wax melter

- *After the bees pick through it, we run it through our wax melter*
 - It further refines any extraneous debris out
 - We are left with clean, pristine cappings wax
- *We use this in a handful of ways*
 - We make lip balm, sunscreen, candles, and several other products of the hives.
 - Clean cappings wax is exactly what you want to use for cosmetics





Wrap It Up

Cover the Extractor – Bag the buckets

- *We keep everything sealed in perfume free plastic bags*

This helps to keep bugs, dust, and critters out of them (spiders, earwigs, etc.)

- *Turn the buckets over so they are stored upside down in storage*
- *Keep everything together so it unfolds well for the next round*

Bottling

Moving it into the bottle

Washing Glassware – Necessary?

□ Technically No

- *Most commercial people do not take the time*
 - Jars are shipped upside down and they do not get gunk inside.
 - You might have to wipe them down, but the insides “should” be clean
- *As a hobbyist – Shmaybe...*
 - Sometimes glassware is set in cardboard boxes that might have sat in a warehouse for a while and either dust gets in or the cardboard degrades
 - Rinse and Dry, not a bad idea. Dishwasher Rinse – not with detergent*
 - *maybe run the dishwasher empty, then run through a rinse cycle

What do we do? *We rinse and dry...*



□ We hand rinse and dry our glassware

- *We are doing small batches as a hobbyist*
- *It is simply what we have always done*

What do we do? Mostly *Plastic Lids*

We find metal will rust with time

- ❑ We prefer to use plastic lids these days.
 - *We still have some metal ones, but the plastic ones hold out*
 - *We ask our customers to give us jars back (discount when they do)*
 - *We run them through the dishwasher – it saves us a touch of money*

Consider Saving Glassware

□ Honey Jars are Great, *but....*

- *We still save suitable attractive jars to the side*
- *If it looks wide mouth, and has a good lid, it goes into the cache*
 - Sometimes you come across a need for to bottle something and you simply need some jars. We always have a cache of oddballs in the wings
- *Glassware can be expensive, and we are not fussy about what we use around the house or what we hand out to family and friends*
 - We always sell our commercial product in proper honey glassware with a label

Save your glassware boxes

□ When we are done bottling

- *We keep our jarred honey (sans label) in the original boxes*
- *Be sure to keep the boxes, and the internal sleeves*
- *This provides a very efficient way to store what you bottled*



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



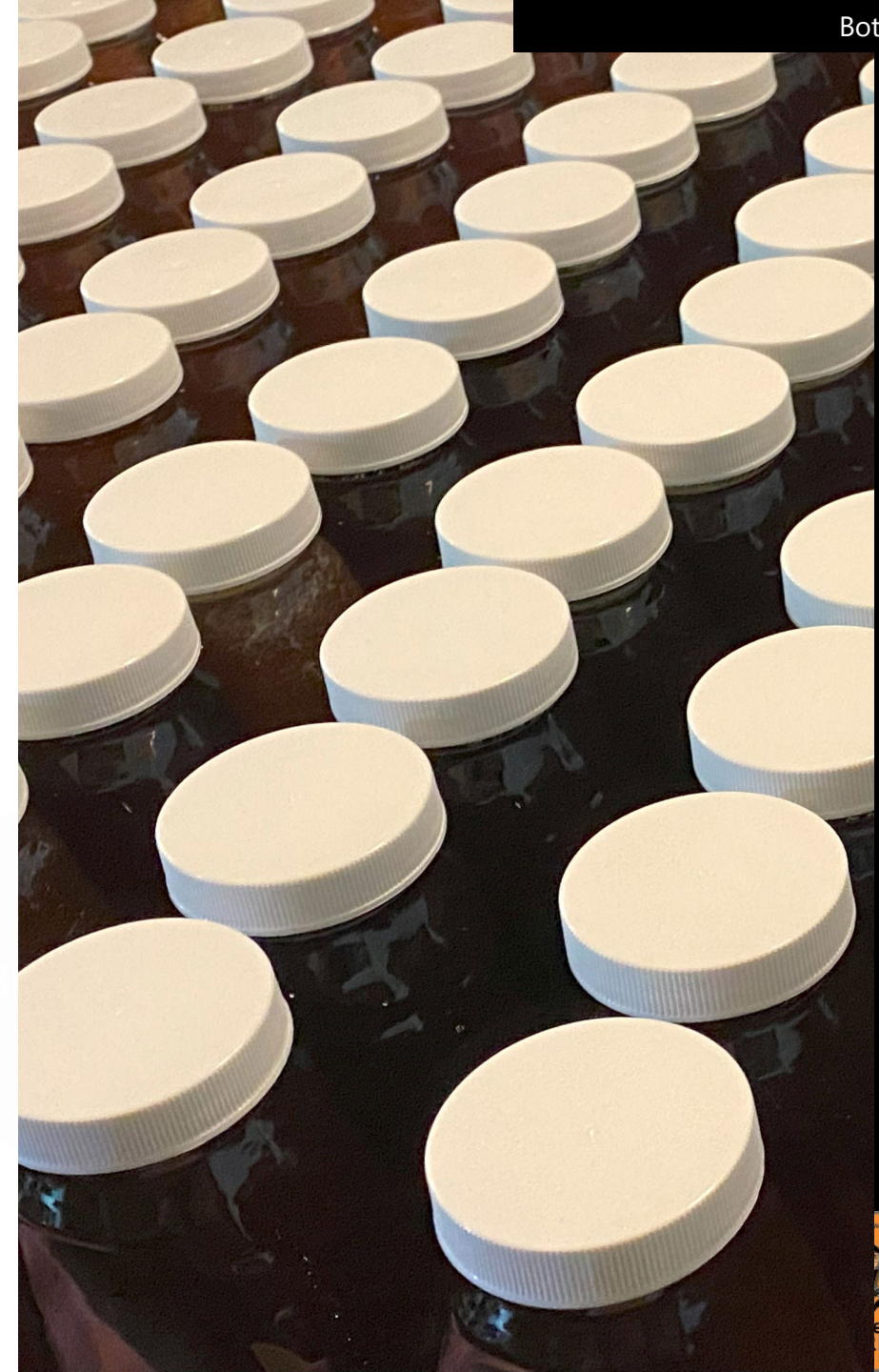
□ The '**Saran Wrap**' trick

- *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

❑ Make your station comfortable

- *Place the bucket up in front of you,*
 - You would be well served to **keep the gate at eye level for the best visibility** when filling
 - Never pour manually – it is so, so messy
 - Do it in good lighting
 - Fill the jar, and close the gate early; **Fill to the ring on the jar (Upcoming Slide)**



Bottling / Straining Stand

An optional piece of hardware to consider —

Optional Piece of Equipment we own

Use for Bottling



Use for straining/filtering



Filling

Fill to the top of this Ring



Filling



■ 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*

Avoid extracting altogether :-)



Questions

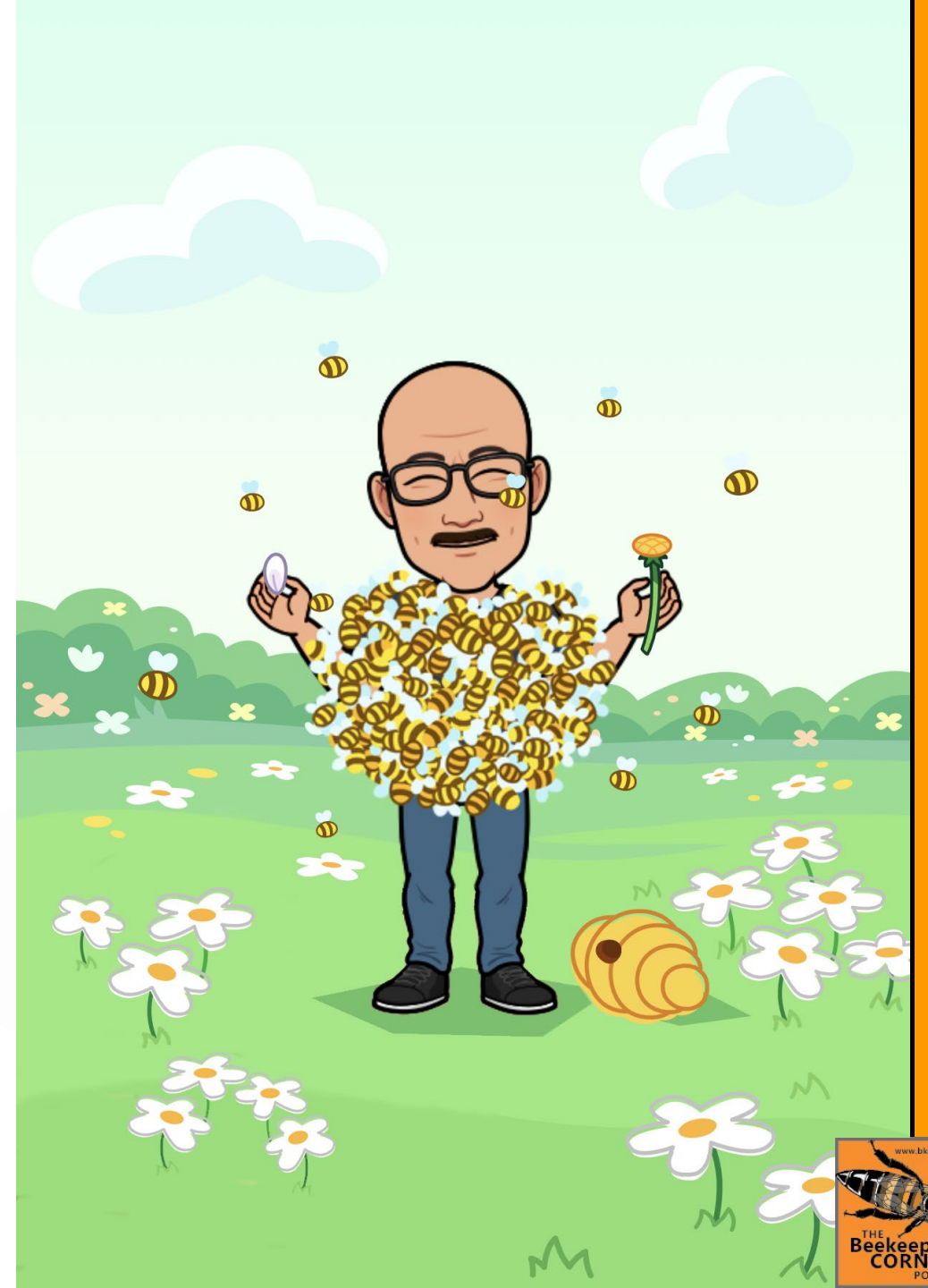
Note: This presentation is available for download

<https://www.bkcorner.org>

- *Search for presentations, it will appear in the search results*

Kevin Inglin

- *kevin@bkcorner.org*



A Small Bit of Humor



Look at you --folding laundry. And last night it was dishes. Just what part of, no your not buying a \$1500 extractor don't you understand?