Unique Products of the Hive

Dr. Robyn Underwood and Kevin Inglin



The Pennsylvania State Beekeepers Association's Fall Conference & Honey Show

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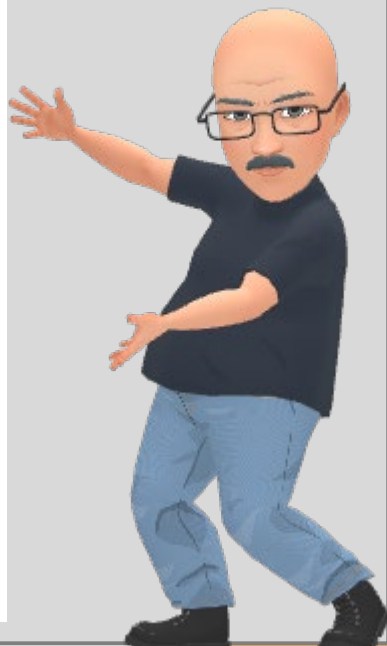
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Royal Jelly

Lucious Honey Caramel







Royal Jelly Overview

- **A honeybee secretion that is used in the nutrition of larvae and adult queens**
  - Characteristics of Royal Jelly
    - It is secreted from the glands in the hypopharynx of nurse bees, and fed to all larvae in the colony
      - Contains about 60% to 70% water, 12% to 15% proteins, 10% to 16% sugar, 3% to 6% fats, and 2% to 3% vitamins, salts, and amino acids
      - Composition varies depending on geography and climate
  - Royal Jelly is less studied than honey or propolis
    - Positive effect seems to come from its unique proteins
      - Specifically beneficial: Royalactin and amino acids
    - Touted as “the fountain of youth and beauty”







Touted Uses of Royal Jelly

- High cholesterol
- Inflammation
- Kidney disease
- Obesity
- Diabetes
- Improvement in average blood sugar and blood insulin levels
- Asthma
- Symptoms of menopause
- Premenstrual Syndrome (PMS)
- Slows aging by eliminating free radicals

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ROYAL JELLY HARVESTING

ACCOMPLISHED ONE CELL AT A TIME

- Create a strong queenless colony
  - The queen is removed
  - Without a queen, worker bees are highly motivated to raise new queen
- Graft very young larvae into artificial queen cups
  - Larvae less than a day old are transferred into plastic or wax queen-cell cups
  - The colony treats these larvae as potential queens
- Nurse bees flood the cells with royal jelly
  - Workers deposit large amounts of royal jelly into the queen cells

- Harvest after abou
  - Around the third day cell is near its peak
  - Waiting longer allow it
- Remove the larvae
  - The queen larvae are
  - Extract the royal jelly
- A small spatula, sp extractor is used to
  - Thousands of queen operations
- Immediate refriger

ROYAL JELLY HARVESTING

ACCOMPLISHED ONE CELL AT A TIME

- Harvest after about 68-72 hours
  - Around the third day, the amount of royal jelly in each queen cell is near its peak
  - Waiting longer allows the growing larva to consume more of it
- Remove the larvae
  - The queen larvae are lifted out individually with a special tool
  - Extract the royal jelly
- A small spatula, spoon, suction device, or vacuum extractor is used to collect the jelly from each cell
  - Thousands of queen cells may be harvested in commercial operations
- Immediate refrigeration or freezing

PSBA Fall Beekeepers Conference

Pennsylvania State Beekeepers Association



Brood Larvae (Apilarnil)

Drone Brood Homogenate

NOVEMBER 8th, 2026

OLD WORLD: TYPICAL EUROPEAN BEEKEEPER

BROOD IN THE COMB IS SQUEEZED OR GROUND, THEN FILTERED

- **Drone Brood "Milk"**
  - This video shows an Romanian Beekeeper making Drone brood milk at home
    - He squeezes it by hand through a filter
      - This nets a milky white slurry that has a thick consistency similar to a light cream
    - This would be **further filtered**, kept chilled, and used quickly for best results as it is highly perishable
  - How it is used
    - **It is not consumed like milk**
    - It is typically parsed for consumption in small quantities
      - Mixed with honey, taken in small sips or by the spoonful, and even frozen and consumed in ice cube form



Apilarnil Therapy

Healing by use of Drone Brood Larvae

- The larvae of the honeybees has a long history of use in various cultures
  - Apilarnil therapy, also known as bee larva therapy, is an alternative healing approach that harnesses the therapeutic potential of bee larvae
- Homogenate
  - Drone brood homogenate is created from 9 to 10 days old drone larvae
    - Homogenate includes nutrients (larval food, honey, bee bread) are also sometimes used when creating products for consumption
    - Considered the “Male” equivalent of “Royal Jelly”

- Traditionally uses for chil
  - Health and Vitality
    - Poor/ delayed growth in infant
    - Loss of appetite, states of de-n
    - Marked improvement in exerci concentration; physical and int premature ages
    - Nocturnal enuresis – improves and treats urinary tract infectio
    - Epilepsy
    - Improves concentration and m

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- **Traditionally uses for children**
  - Health and Vitality
    - Poor/ delayed growth in infants; Delayed puberty
    - Loss of appetite, states of de-nutrition; anemia
    - Marked improvement in exercise capacity and concentration; physical and intellectual fatigue in premature ages
    - Nocturnal enuresis – improves control of sphincter and treats urinary tract infections
    - Epilepsy
    - Improves concentration and memory

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concentration and memory



Traditionally uses for adults

- Health and Vitality
  - Hepatoprotective: treats hepatic diseases like liver insufficiency, acute or chronic viral hepatitis, cirrhosis
  - Severe fatigue in workaholic people
  - Corrects deficiencies of aging, especially those related to the immune system, hormonal balance and emotional self-adjustment.
  - Antiviral properties: respiratory infections, measles, rubella, chickenpox, mumps.
- Health and Vitality
  - Increase muscle mass in men as an anabolic stimulant
  - Optimizes sexual function and enhances fertility, especially in men
    - Drone bees are well-known as genuine “sex-machines” and human males can take advantage of their contributions
      to their male stamina and performance
    - Kind of like “Viagra” but from bees
  - Stimulates the pituitary and supra-renal gland.

HARVESTING DRONE BROOD

FOR OPTIMAL BENEFIT, HARVEST AT THE RIGHT AGE

- **Collect 10 Day Old Larva**
  - When collecting drone brood, to make apilarnil, choose larva that are nine to ten days old
    - This ensures that the larva contribute the optimal nutrition
    - The larvae will be approximately 70% water
    - It will also contain:
      - Protein, lipids, sugars, minerals, amino acids, vitamins and hormones



HARVESTING DRONE BROOD

GETTING THEM OUT OF THE COMB

- **Removal Process to get it out of the comb**
  - Slice off / Remove the cappings
    - You can use a bread knife to slice off the cappings or use a capping scratcher
    - If you want to go through the trouble, some beekeepers are using depilation strips
  - Extracting the Larvae
    - Option 1 | Use the capping scratcher, pluck the larva out
      - This does damage the larva and gets the milk all over but it can work
    - Option 2 | With the cappings clear invert the frame and bang it
      - Set something down and bang the frame against an object with enough force to dislodge the larva out of the cells
  - Crush and strain
    - Leave the larva in the comb and follow the process from the video

POWDER FORM APILARNIL

WATER IS REMOVED AND IT IS TRANSFORMED INTO A POWDER

- **Methods to dry**
  - Freeze Drying
    - A premium method, often done in a lab
  - Vacuum Drying
    - Dried under pressure at cold temperatures
  - Spray Drying
    - Atomized into tiny drops and exposed to heat to evaporate the moisture
  - Milling
    - Dried naturally in common air, then ground

Drying is more a pharmaceutical path and not so much done in the home

Freeze-drying (lyophilization)
This is generally considered the premium method.
The homogenate is:

1. Frozen solid
2. Placed under a vacuum
3. Ice is removed by sublimation (solid directly to vapor)

Advantages:

- Better retention of proteins and heat-sensitive compounds
- Less oxidation
- Better shelf life

IF YOU VENTURE, USE CAUTION

FOLLOW GOOD PRACTICES – CONSIDER THE FOLLOWING



- **This is just an introduction**
  - Do consider **food safety** if you plan to give it a go
    - Because it contains large amounts of water, protein, and fat, it can support microbial growth if not refrigerated or frozen promptly after harvest
    - Consider the following cautions:
      - Harvest only from healthy colonies
      - Avoid brood from colonies recently treated with medications or chemicals
      - Process under sanitary conditions
      - Maintain a cold chain **from harvest** through storage
      - Freeze promptly if not consumed immediately
      - Discard material showing off odors, discoloration, or signs of spoilage.

This Beekeeper we encountered in Malawi was all to pleased to make a **midday snack** out of this section of comb that we took from one of the top bar hives we were working that day

"Tastes like Coconut"





Bee Bread

Understanding Bee Bread and it uses

What is Bee Bread

Pollen Processed by Bees

- Bee bread is fermented pollen that honeybees store in comb cells
  - It is primary protein source for the colony, especially for feeding young larvae and producing royal jelly
  - Bees mix the pollen with small amounts of nectar, honey, and glandular secretions
  - They pack and compress the mixture tightly into the cell, reducing air spaces
  - The surface is sealed with a thin layer of honey
  - As it ages, it ferments naturally through the beneficial microbes, primarily lactic acid bacteria.



Honey Caramel

Lucious Honey Caramel

Ingredients

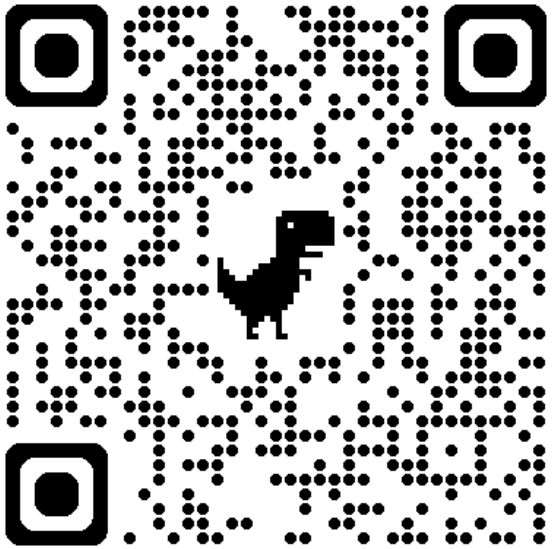
- **1 cup Honey**
- **3/4 cup Heavy Cream**
- **1 1/2 teaspoons Pure Vanilla Extract**
- **2 Tablespoons Unsalted Butter**

PREP STEPS / EQUIPMENT

- **Prep an 8×8 pan**
  – Line a 8-inch by 8-inch pan with parchment paper
  – Melt some butter and lightly brush the parchment paper
- **Use a tall heavy bottomed pot with a silicone spatula**
- **Measure the temperature with a probe or candy thermometer**

- [ ] **1 cup Honey**
- [ ] **3/4 cup Heavy Cream**
- [ ] **1 1/2 teaspoons Pure Vanilla Extract**
- [ ] **2 Tablespoons Unsalted Butter**

Detailed Recipe Instructions



Prepare the Caramels

1. Combine the honey and heavy cream in a heavy-bottomed pot over medium heat. Cook, stirring continuously, until the mixture reaches 255-260°F.
2. Remove the caramel from the heat and stir in the butter until completely melted and incorporated.
3. Stir in the vanilla extract.
4. Pour the caramel into the prepared pan. Use a spatula to spread it evenly and press it into the corners.
5. Loosely cover the pan and allow the caramel to cool to room temperature.
6. Transfer the pan to the refrigerator and chill until completely firm.

Cut and Enjoy

- Remove the chilled caramel from the refrigerator and transfer it to a cutting board.
- Cut the caramel into individual pieces using a sharp knife.
- Wrap each piece individually in wax paper to prevent the caramels from sticking together.



Whipped Honey

Whipping crystalized honey

WHIPPED HONEY VS. CREAMED HONEY

TWO DIFFERENT PRODUCTS

Creamed Honey

- Creamed honey is made by inoculating liquid honey with fine honey crystals
- The fine honey crystals spread and create a creamy, thick luscious honey
- A well know process to follow is the Dyce Method for making creamed honey
- If kept in a cool place, it will maintain its creamed consistency

Whipped Honey

- Whipped honey is created by beating crystallized honey
- This can be done with a hand mixer or in a stand mixer fitted with a paddle attachment
- Beating crystallized honey causes the crystals to work against each other, breaking them down in the process – it also incorporates some air
- It yields a white fudgy soft honey that has more viscosity

Whipped Honey Particulars

Good Consumer Tip?

- Something to do with crystallized honey for consumers
  - In lieu of explaining how to warm honey to melt the crystals, this is another option to tell them about how they can do this with there honey if they so desire

The Whipped Honey Experience

- The texture and color experience
  - The more you whip the lighter it gets (incorporating more air)
  - It often results in an ivory color and not white – especially starting with dark honey
  - The texture can be a bit 'fudgy' if not whipped sufficiently to incorporate air
    - In time it might separate due to the way the crystal content and water content situate in the mix
- Mix ins: a touch of cinnamon, pumpkin spice, vanilla as you are whipping



Essence of the hive

Cappings Cocktails

Infusing alcohol with the essence of the hive

AN ALTERNATIVE TO CLEANING YOUR CAPPINGS

STEEPING CAPPINGS IN ALCHOL

- **More than Honey Liquor**
  - Place your cappings in a pitcher
    - Collect your honey covered cappings and put them in a gallon pitcher
    - Pour over your libation of choice
      - Rum, Vodka, Bourbon – all good choices
    - Allow it to soak for 24 hours (or longer)
  - Strain and Bottle
    - Pour it through a fine strainer and return it to the original bottle
      - Filter with a coffee for a cleaner final product
    - Enjoy straight, or mix in your favorite cocktails

- **Cappings Clean Up**
  - After filtering…
    - The alcohol strips off errant honey
    - You can place the cappings outside
    - Honeybees will come and rifle through them, cleaning them of any residual
    - When they finish you have clean cappings wax



"Tears of the trees" – this sonorous name was used to describe propolis by Aristotle (350 BC).

NOVEMBER 8th, 2026

Propolis

Collect, Process, and transform Propolis
Into a product of the hive



WHAT IS PROPOLIS?

Propolis Resins

Collected Plant Resins

- Bees retrieve propolis from the **exudate** of tree resins
- The resins are gathered from leaf buds, bark, and tree sap
- From that they create propolis: a sticky, resinous substance used inside the hive
  - Bees do not collect finished propolis
  - They knead the resin with their mandibles
  - Like nectar, they enhance it with salivary secretions and mix it with beeswax
    - The bee's enzymatic secretions can modify some of these compounds
    - The β-glucosidase activity is particularly interesting because it can hydrolyze certain plant glycosides.

Exudate An exudate is a fluid emitted by an organism through pores or a wound, a process known as exuding or exudation

What happens step by step

1. **In the field**: A specialized forager bee scrapes or bites off bits of plant resin with her mandibles, softens it a little with saliva, and packs it into the pollen baskets (corbiculae) on her hind legs.
2. **Back at the hive**: Other bees help unload the sticky resin (the forager can’t easily remove it herself).
3. **Processing**: The hive bees knead and blend the resin with beeswax and their own salivary enzymes. This mixture is what we call propolis — the finished “bee glue.”

Common Sources of Propolis

Propolis collection depends upon your local region as to what resins the bees can collect

Some of the common trees and plant resins for Propolis

- Poplar (Populus sp. L)
- Ash (Fraxinus sp.)
- Willow (Salix sp.)
- Birch (Betula verrucose)
- Chestnut (Castanea sativa)
- Pine (Pinus sp.)
- Beech Trees (Fagus spp.)
- Bee-Balms (Monaras spp.)
- Rosemary (Rosmarinus offinalis)
- Plum (Prunus domestica L.)
- Redwood (Sequoia)
- Elm (Ulmus sp.)
- Oak (Quercus sp.)
- Alder (Alnus glutinosa)

Honeybees collecting propolis resins from a seam in a tree trunk



Antimicrobial and Antifungal:

- **Bees deposit propolis on hive surfaces**
  - Usage creates a barrier that helps prevent the growth of bacteria, fungi, and other microorganisms.

- **The antimicrobial properties can penetrate the cell walls of bacteria, fungi, and other microorganisms.**
- **This makes it harder for pathogens to establish themselves and grow within the hive.**

Antimicrobial and Antifungal:

- **Bees deposit propolis on hive surfaces**
  - Usage creates a barrier that helps prevent the growth of bacteria, fungi, and other microorganisms.

- **The action is particularly effective against a wide range of microbes.**
- **This leads to leakage of a cell contents and ultimately cell death.**

Antimicrobial and Antifungal:

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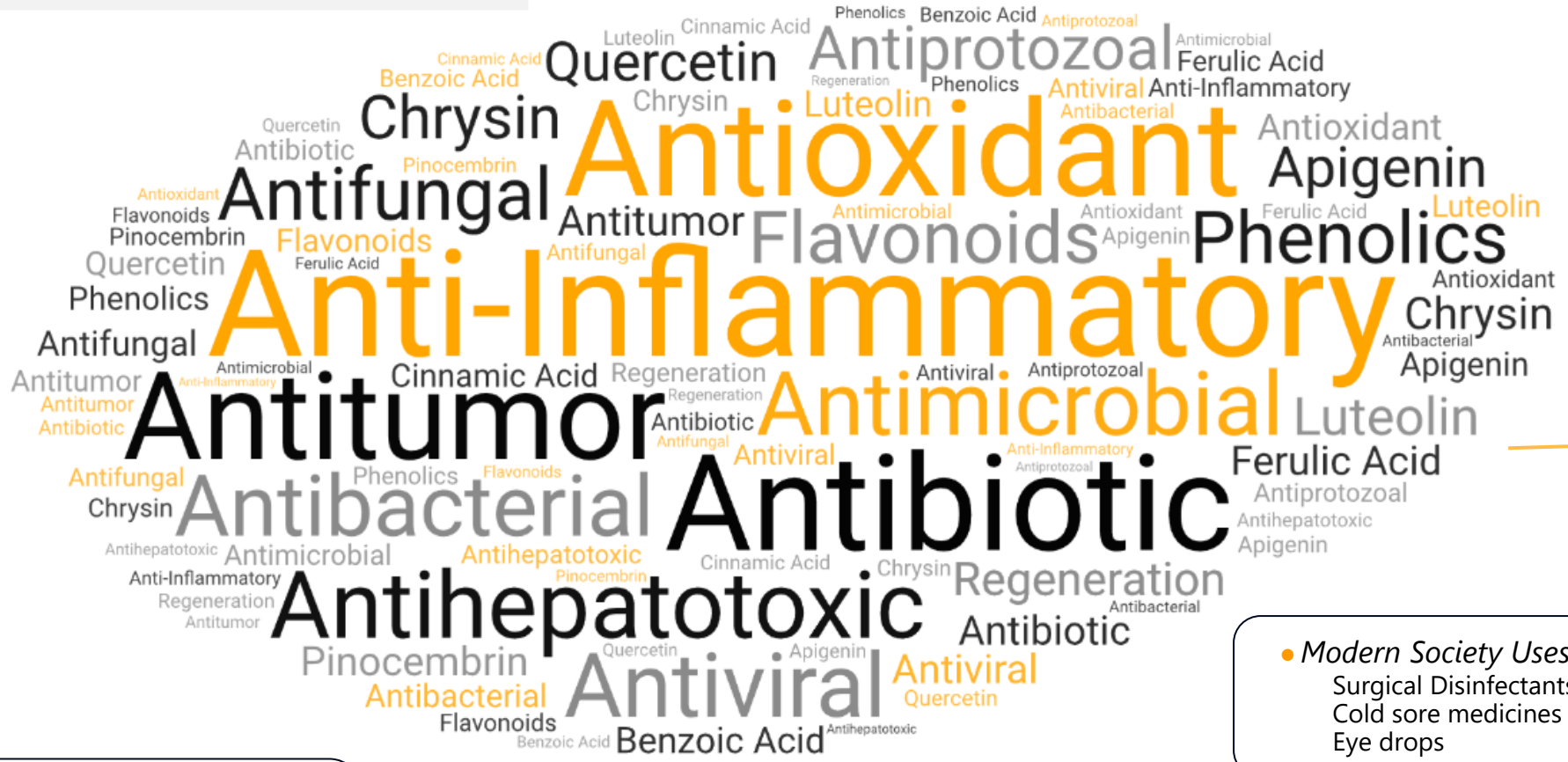
- **The complex mixture of bioactive compounds in propolis makes it challenging for microorganisms to develop resistance mechanisms.**
- **These properties contributes to the overall hygiene and health of the bee colony.**

Propolis Benefits

The word cloud contains just some of the purported attributes and qualities….

Cumulative evidence suggests that propolis may have:
Anti-inflammatory, antibiotic, antioxidant
Additionally. **Antihepatotoxic**, and antitumor properties.

Hepatotoxicity:
Toxicity that damages the liver



Alcohol Extracts of Propolis Include:

Flavonoids,
Chrysin,
Apigenin,
Quercetin,
Pinocembrin,
Luteolin,
Ferulic acid,
Benzoic acid,
and Cinnamic acid

- *Modern Society Uses*
  - Surgical Disinfectants
  - Cold sore medicines
  - Eye drops

- General Purpose Propolis Uses
  - Adhesive
  - Sealers, Varnishes, and Stains
  - dozens of other applications

Ethanol extracts of propolis ***have been shown to promote the regeneration of bone, cartilage and dental pulp***.

This may have been a property of the flavonoids which have been shown to be anti-inflammatory and able to stimulate the formation of collagen.

PROCESSING PROPOLIS

Creating Propolis Tinctures

TYPICAL STEPS IN THE PREPARATION PROCESSES

GATHER YOUR PROPOLIS FOR EXTRACTION

- ☐ **Collect and Clean**
- ☐ **Freeze**
- ☐ **Break Up** (as required)
- ☐ **Pulverize to Powder**
- ☐ **Extract, Filter, and Bottle**

- ☐ **Confirm the propolis to be used is fresh**
  - Check for some signs of deterioration;
    - Signs include changes in color, texture, smell, or taste.
    - Most beekeepers are familiar with the consistency and appearance of propolis.
    - If your propolis product looks and smells normal, it is probably safe to use.
      - ☐ If you notice any of the degradation signs, consider sourcing fresh propolis

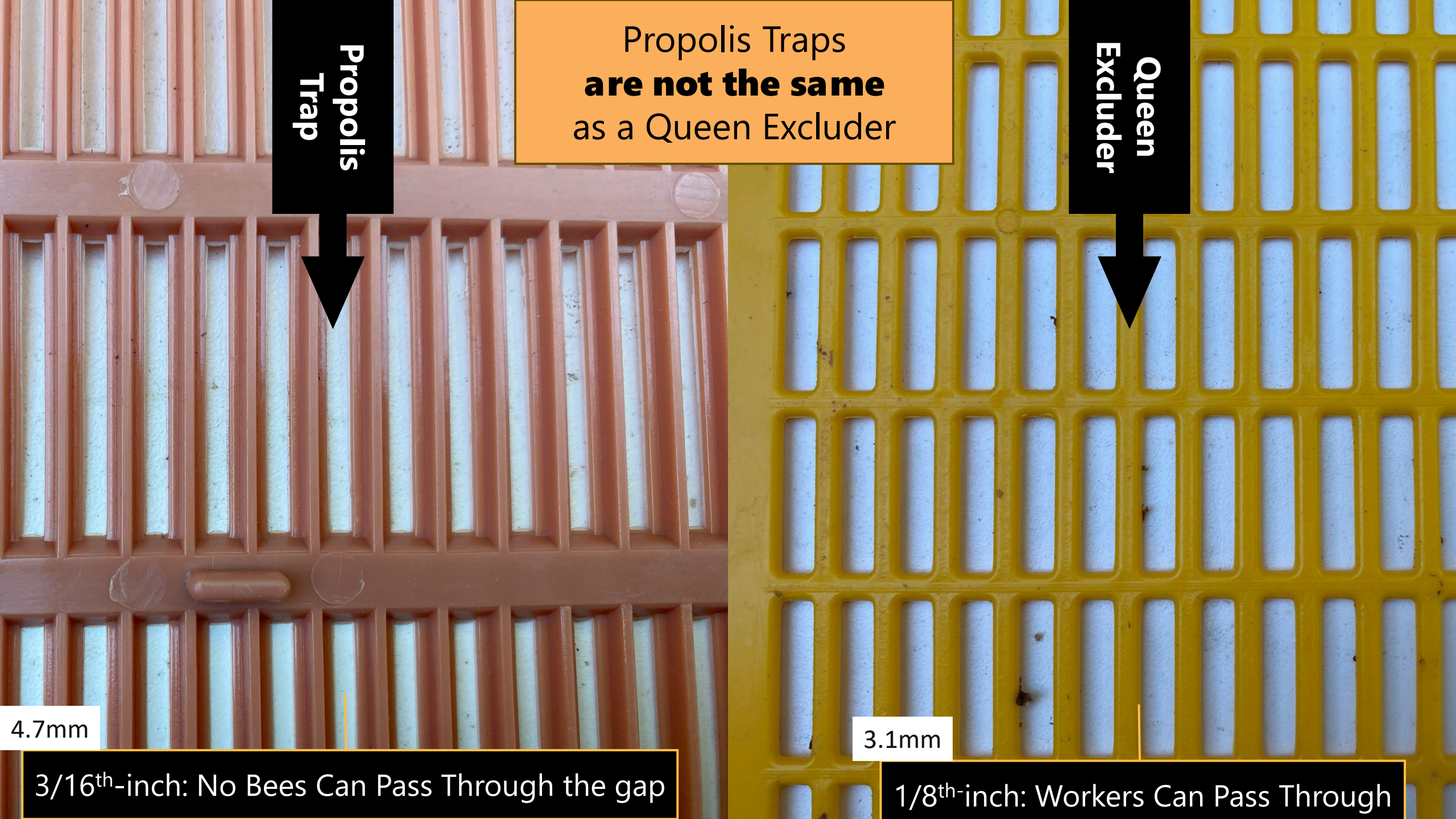
TYPICAL STEPS IN THE PREPARATION PROCESSES

GATHER YOUR PROPOLIS FOR EXTRACTION

Propolis Trap Equipment

- *Deploy Propolis Traps*
  - A trap is affixed at a Periodic Times of the Year
  - It is typically harvested over a period of a single season
    - It can be collected over different parts of the yar
    - Spring Nectar Flow
    - Summer Dearth
    - Fall to Winter Period
    - It is an equivalent of collecting it over a season of hive inspections

- *The best time to collect*
  - Collect propolis early in the spring, and during the fall
  - Look for times when bees are actively foraging and performing nest building activities
  - Fall is more typical as bees are preparing for winter
  - When the leaves are changing color is a good marker
  - Days should be warm enough for bees to work the resin, but nights cool enough to trigger sealing activity.


Propolis Traps
are not the same
as a Queen Excluder
Propolis Trap
Queen Excluder
4.7mm
3/16th-inch: No Bees Can Pass Through the gap
3.1mm
1/8th-inch: Workers Can Pass Through

Collection of Propolis from hive equipment

- **Collection Options**
  - Collect as you go
    - Scrape bits off during the season
    - Keep them in a container until you have enough
  - Collect during Equipment Maintenance
    - End-of-season cleanup of hive boxes often yields propolis scrapings
      - This may include material from multiple seasons
      - It is unknown whether age affects propolis quality or its antimicrobial properties, even when protected inside the hive. More research is needed



It might be best for extracts to seek a fresher collection process

CLEAN PROPOLIS OF ANY FOREIGN DETRITUS

Collected Propolis can have debris (detritus)

- Dirt, Wood Fibers, Wax

- Some beekeepers forgo cleaning
- They extract without cleansing it of foreign materials
  - They assume the extraction process will negate the need to separate out the wax and other detritus.
  - This is up to you and personal preference.
- Others take the extra step (like we will show) to clean it of debris



Image credit: https://www.miel-paris.com/

CLEANING PROPOLIS

WHAT YOU WILL NEED



A VESSLE

A clean, disposable heatproof container

I used a Chinese takeout container – *or glass*

Utensils

I use smooth chopsticks

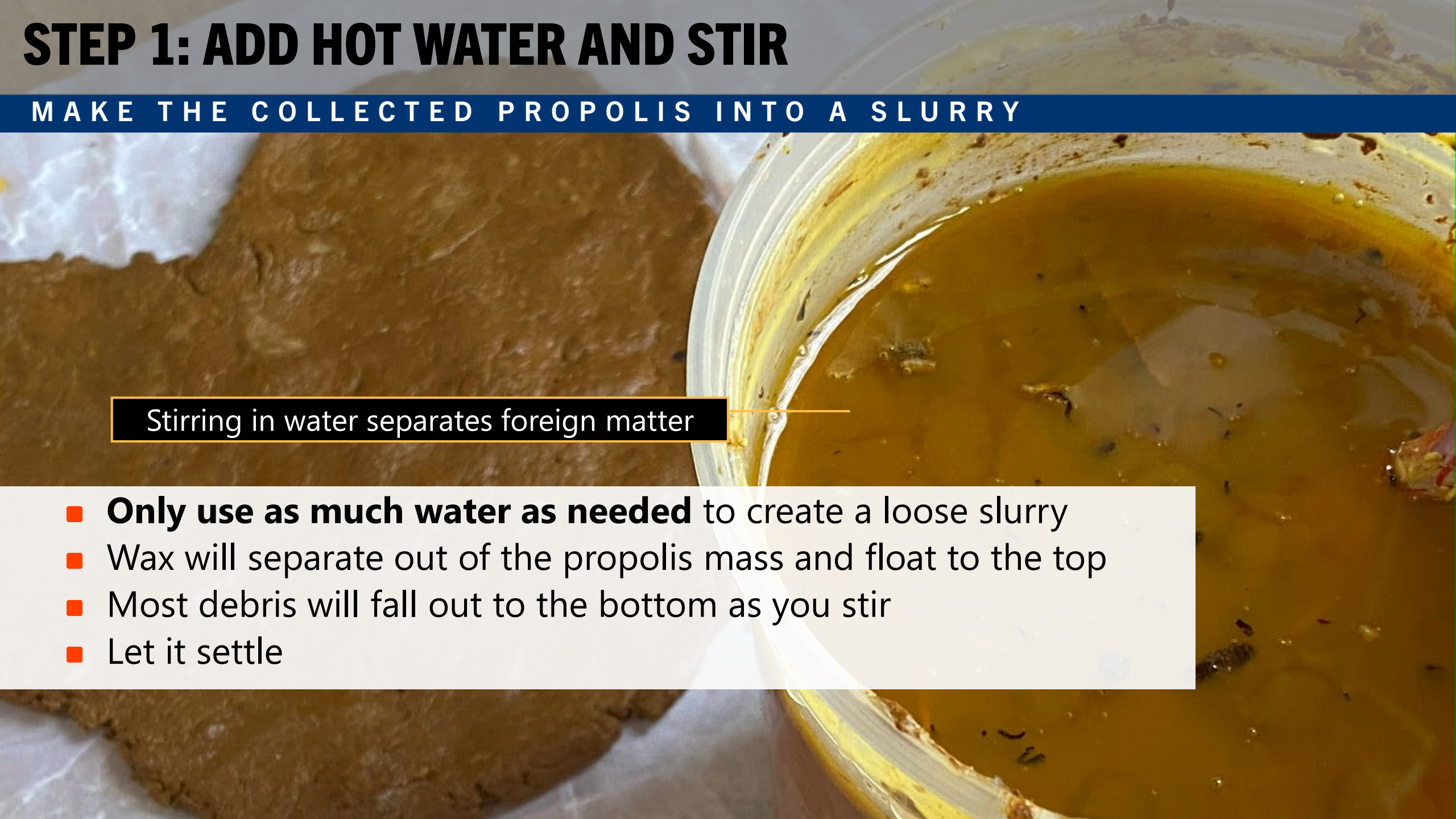
HOT WATER

Water heated to **80-90°C (176-194°F).**



STEP 1: ADD HOT WATER AND STIR

MAKE THE COLLECTED PROPOLIS INTO A SLURRY



Stirring in water separates foreign matter

- **Only use as much water as needed** to create a loose slurry
- Wax will separate out of the propolis mass and float to the top
- Most debris will fall out to the bottom as you stir
- Let it settle

STEP 2: LET IT COOL

THE HOT WATER WILL RELEASE RESIDUAL WAX



STEP 2: LET IT COOL

THE HOT WATER WILL RELEASE RESIDUAL WAX



STEP 3: REMOVE THE FOREIGN OBJECTS AND WAX

THE HOT WATER WILL RELEASE RESIDUAL WAX

- **When it cools, pour off the water***
  - Separate the propolis from the strata
    - It is somewhat like cleaning wax, if you are familiar, but on a smaller scale
  - If it still contains foreign elements, repeat the process
  - Keep this up until the wax is separated
    - You will know you are close on your separation when little **dots of wax** appear across the top of the propolis after cooling.
    - This happens after only a few rounds of mixing the slurry



*Note: Reserve the water; this is after all an aqueous extraction



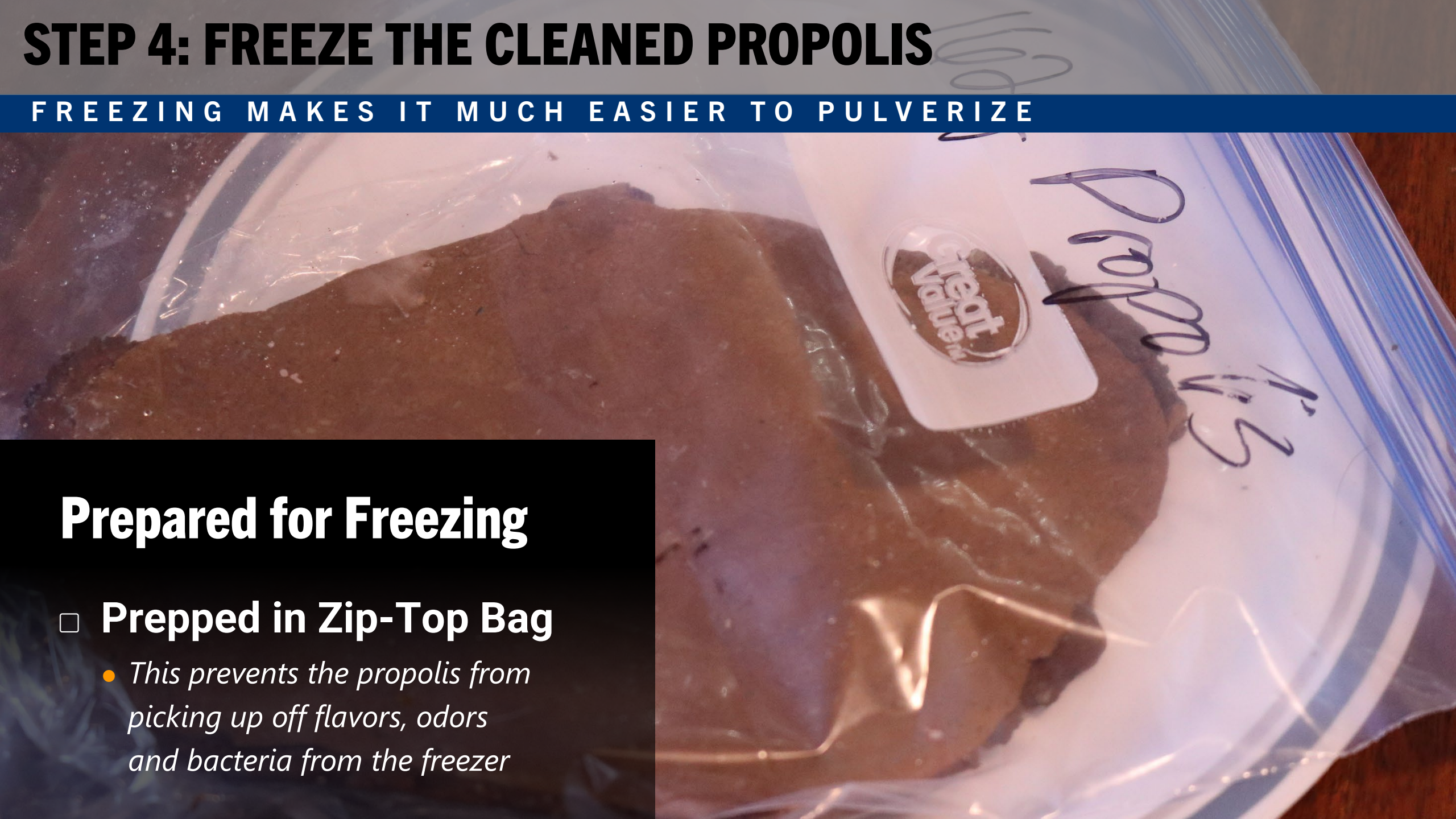
Thin ‘Pancakes

- **TIP**
  - ***When the Propolis is clean; Flatten it into a pancake and freeze***
    - *This makes it easier to make it into a powder*
      - If you leave it in a large ball, sometimes it is difficult to break up

There are several thin sheets here separated by plastic wrap

STEP 4: FREEZE THE CLEANED PROPOLIS

FREEZING MAKES IT MUCH EASIER TO PULVERIZE



Prepared for Freezing

- ☐ **Prepped in Zip-Top Bag**
  - *This prevents the propolis from picking up off flavors, odors and bacteria from the freezer*

STEP 5: PULVERIZE INTO A POWDER

POWDERS ARE BETTER FOR LATER USE AND EXTRACTION



Once Frozen-Pulverize

- ***Fracture the pieces into small shards***
- ***Use a Smooth Mortar & Pestle to convert to a Powder***
  - *You can use a small coffee grinder too*

STEP 5: PULVERIZE INTO A POWDER

POWDERS ARE BETTER FOR LATER USE AND EXTRACTION



Alternative Option

- ***Freeze the propolis in small marble forms***
- ***Once frozen, tap it flat with a hammer until it is flattened into powder***
  - *It takes a little more work; if the chunks are not too big, it goes quickly*



Propolis Powder

- ***Once it is in powder form…***
  - *You can use alcohol to make a propolis extraction*
  - *You could blend it into other products (creams, lotions, food)*

Rough Mortar and Pestle

- ***If you choose a coarse M&P***
  - *Propolis will get stuck in the nooks and crannies*
    - If you want to dedicate a piece of equipment, that is an option.
    - It is likely that you will not be able to use it for other purposes though





A word on Coffee Grinders

- ***They can work, but…***
  - *The grinding action works well until heat builds up due to friction.*
    - During operation, the friction causes heat.
    - Once the heat gets to a certain level, it will melt the propolis. The propolis becomes super sticky and it will get stuck on the blades
  - *Many use this approach with success*
    - It is easier but you have to do it with care.
    - Your mileage may vary, but it is a lot easier than the elbow grease needed with a Mortar and Pestle

BEYOND POWDER: FURTHER EXTRACTION

RATIONAL FOR PERFORMING AN EXTRACTION

- **Breaking powders down with Extraction**
  - Extraction will deconstruct the powder and break down (unlock) its constituents
    - This leads to improved consumption or contact in the case of topical applications
    - Different extraction methods will yield different elements extracted from the propolis
  - Create a shelf stable product
    - Processing the propolis into a tincture or extract with alcohol or other preservatives extends its shelf life.

Definition

Extract: a product prepared by extracting

Especially: a solid or liquid substance containing the essence of a food, plant, or drug in concentrated form

ALCOHOL EXTRACTION

USING ALCOHOL TO MAKE A PROPOLIS TINCTURE

- **Alcohol Options**
  - Alcohol is likely the most common approach for creating tinctures*
    - The alcohol chosen impacts the extraction power of the extract
    - Common choices for the extraction
      - Grain Alcohols - Ethanol (e.g. Everclear 95%)
      - Distilled Spirit (e.g. Vodka 70%)

Note: As a point of order, ilt is possible to do extractions with other mediums (glycol, water, vegetable oil, etc.)



Definition

Tincture
a medicine made by dissolving a drug in alcohol

EXTRACTION RATIOS

THESE SPECIFICAITONS ARE FOR A 30% CONCENTRATION

	Concentration	GRAMS	GRAMS	*Milliliters**	
3:7	30%	300	700	878	EVERCLEAR
3:7	30%	300	700	834	VODKA
		Propolis	Alcohol	Alcohol	

*Higher concentration alcohols have more density. This is why the milliliter volumes are different.

STEP 6: MACERATE THE POWDER IN ALCOHOL

FIVE STEP OVERVIEW OF THE EXTRACTION PROCESS



ADD
Add the propolis to a suitable container

1



POUR
Pour over the Extraction Fluid

2



STIR
Stir/Shake to combine.
Seal to steep; agitating occasionally

3



FILTER
Strain/filter into a container

4



STORE
Store in a proper way

5

Shake the jar vigorously **once or twice a day** the entire time. This is important for good extraction.
Hold the maceration in the sealed jar in a cool, dark place at room temperature for 3 weeks



*It can be said that **the longer the propolis is soaked in alcohol the more ingredients will be dissolved**.*

*However, soaking beyond two or three weeks **does not seem to increase the extent of extraction**.*

FAO AGRICULTURAL SERVICES BULLETIN

STEP 7: FILTERING

FILTER AFTER EXTRACTION

- **Filter Substrates**
  - Filtering removes particulate matter
    - The net result is the residual liquids from the extraction
    - Most common are paper filters, cotton shirt material, cheese cloth, etc.
- **Filter through Paper**
  - Rinse first recommended
    - Pour hot water over the filter
    - Allow it to sit until the water drains
      - A lightly damp filter is okay





Finer filtration, like a coffee filter for example, takes (hours and hours)
You may consider **several filters** for the process, rotating out filters that become clogged with propolis slurry

Unlike the photo, keep the liquids covered so they do not evaporate during filtration

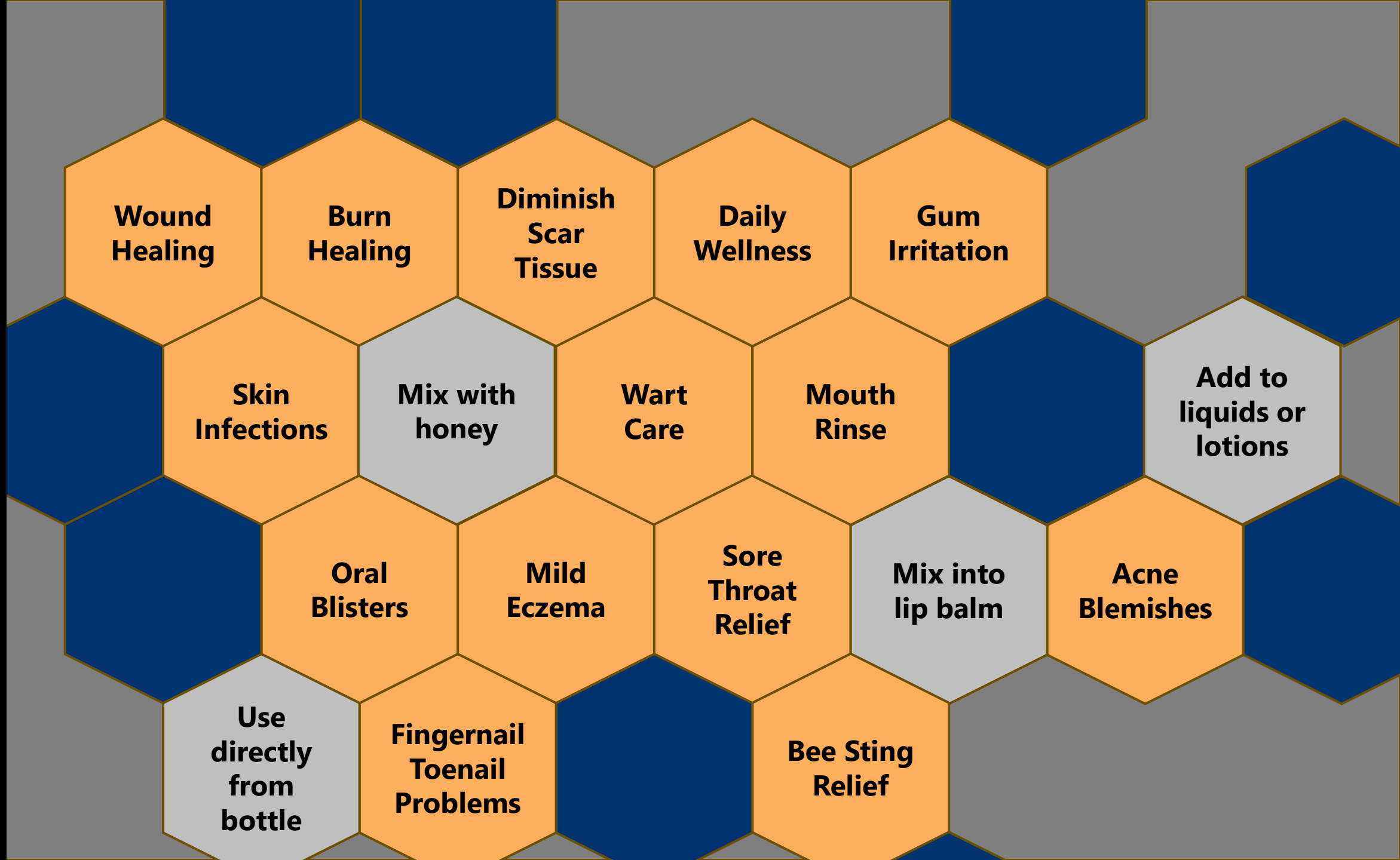
STEP 6: POUR INTO CONTAINERS

STORE IN CONTAINERS WITH A TIGHT SEAL

- **Fill the bottles:**
  - Carefully pour the propolis extract into the sterilized bottles or jars
    - Use dark bottles that do keep light out
    - Leave a small amount of space at the top to allow for expansion and prevent leakage when sealing
- **Seal the bottles:**
  - Tightly seal the bottles to thwart evaporation
    - Store the propolis extract bottles in a cool, dark place away from direct sunlight, heat, and humidity
      - This helps preserve the propolis extract and prevent contamination.



What are some Use Options?



Resources

QR CODE LINKS



Propolis | Bee Culture



FAO Value Added Products from Beekeeping



Gross Composition of Propolis



University of Minnesota Gary's Bees: Propolis Tincture



Antibacterial properties of propolis (bee glue)



Propolis: Wikipedia



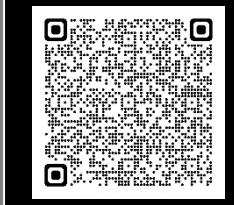
Propolis Tincture Procedure



ResearchGate: Propolis Science Topic



Processing Propolis: Part 1 | Bee Culture



Bee Propolis: A Comprehensive Review



QUESTIONS

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THANK YOU FOR YOUR TIME