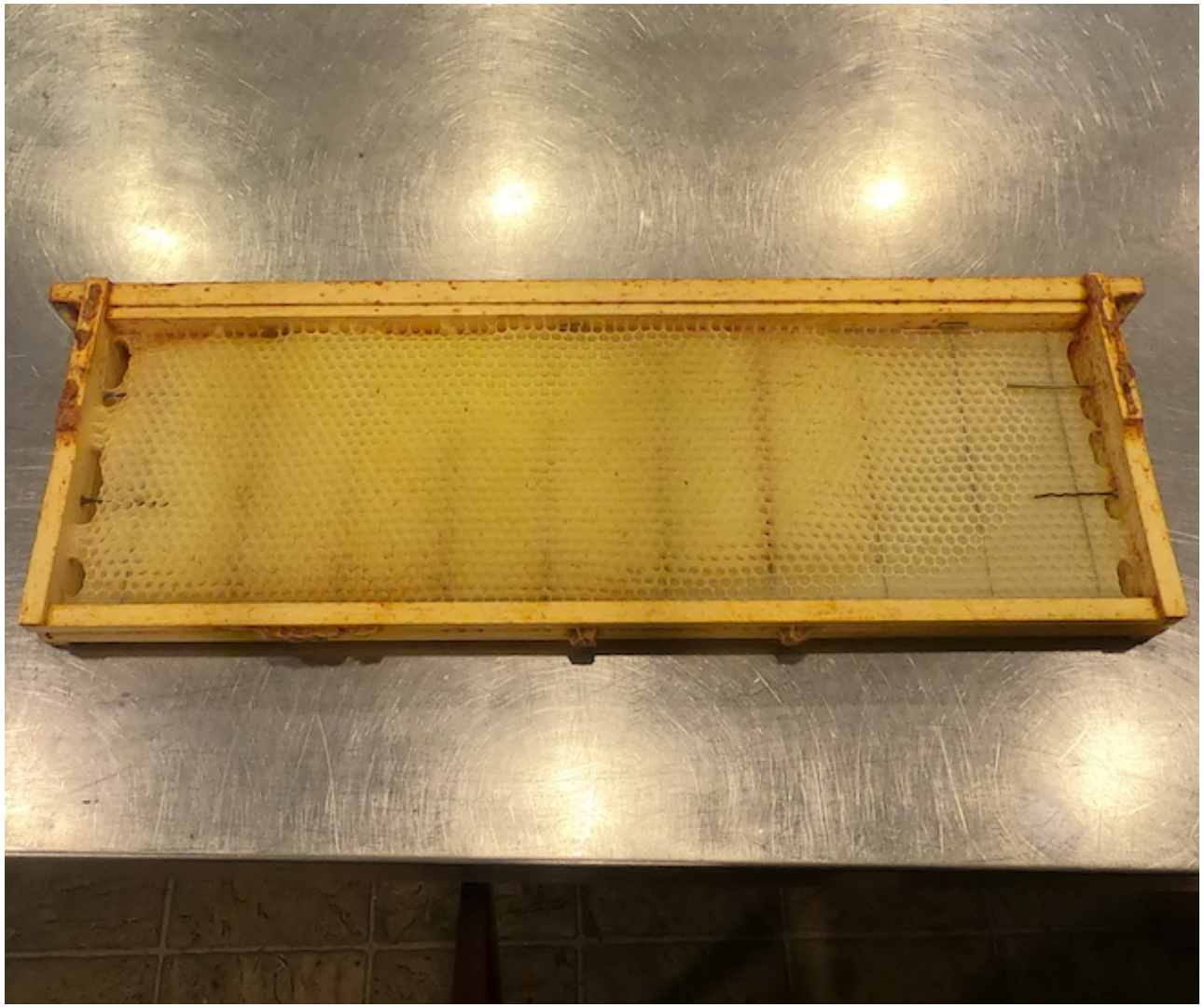
# Beginner Beekeeping Class #3

Spring and early Summer Management

# Early Summer Management

- Add the next hive body once comb is drawn out on 6 of 8 (or 8 of 10) frames
- Continue feeding 1:1 syrup until comb is drawn out on 2 deep or 3 medium hive bodies
- If all hive bodies are 80% built with comb, remove syrup feeder and add a honey super



# Inspecting the hive – How to:

Start thinking about an inspection before you go to the hive

- Look at your notes from the last visit
- What do you want to learn from the hive today?

Smoker, hive tool, and a veil

- If you don't have all three, turn around and go home

Take notes as you go or as soon as you finish an inspection

- Most important – how much brood is in the hive?
- Is the number multiplying?
- How fast?
- Is the colony building comb and storing resources?

| COLONY: | | | QUEEN FOUND? | EGGS FOUND? | FEED/ MEDS | the honey exchange NOTES: |
|---|---|---|---|---|---|---|
| DATE: | #F BROOD | #F HONEY | | | | |
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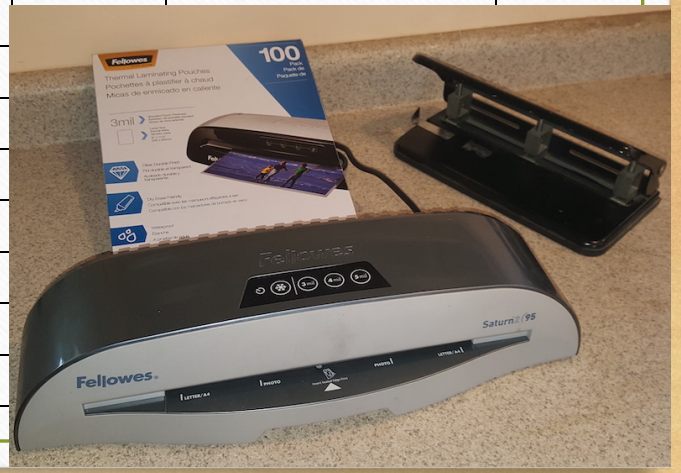



Laminate the sheets, or punch 3 holes and keep them in a binder

# Inspecting the hive – How to:

➢see:  Video of  a full hive inspection

**Watch the bees at the entrance for a while**

➢ See: Watch the bees a while

# Inspecting the hive – How to:

➢ See: Start from the bottom box

Disassemble down to the bottom box,
then inspect from the bottom up

- Place boxes on a hive stand

  -or-

- Place boxes on their short sides on the ground

# Inspecting the hive – How to:

Start with the second frame in from either side

- See: Start with the second frame in

# What am I doing here?

- Watching for changes and abnormalities
- Pay attention to smell and sound
- Study the brood pattern and queen productivity (eggs/larvae)

# Then it's time to close it up

- Inspect honey supers last
- Knock bees from the inner cover onto the entrance
- It's okay to get some bees on the ground
  - They'll find their way back in

See: Closing up the hive

# Challenges you might face

## ✓ A hive that is too healthy

Swarm cells appear on the bottom and sides of a frame

Vigorous, healthy hives want to reproduce

Textbooks often advise "give the hive more space" but adding new frames with foundation does not make the hive feel less crowded, yet.

**This queen cell is a swarm cell →**

# Solution:

- Sorry, that's Sophomore Beekeeping
  - It's okay to cut queen cells from a hive that is still building comb
  - Be certain to see either the old queen or newly-laid eggs before cutting out cells
- Get your mentor involved
  - Somebody out there wants your queen cells

# ✓ A hive that lacks vigor

Supersedure cells appear on the top or center of a frame

Sometimes a colony wants to replace an inferior queen

Sometimes we damage the queen during hive inspections

New package bees often want to supersede their queen. It's surprisingly common

# Challenges you might face

Emergency supersedure cells are made from very young brood cells →

**This queen cell is a supersedure cell →**

# Drone laying queens

- A poorly mated queen may turn into a drone layer
  - She will lay unfertilized eggs. The bees will try to build queen cells which will fail because they have drone eggs in them.
  - This can happen with packages when the weather down south is bad for queen mating

➢ The symptom is lots of drone brood but still single eggs on the center of a cell *not* a lot of multiple eggs in a cell.

**Drone cells**
vs. Worker cells →

# Solution:

- Remove supersedure cells or a drone laying queen
- Buy a queen in a cage.
  - They are usually available from May through July

# ✓ If they sneak one past you

New virgin queens are not marked and can be hard to find

Virgin queens are fast. When I look for them I look for the one bee who is running away from me.

If you add a queen in a cage, a virgin queen will kill her most of the time.

If you can't find the new queen it's best to just let things work themselves out

# Challenges you might face

**Hatched queen cells look like a torn paper bag →**

# Challenges you might face

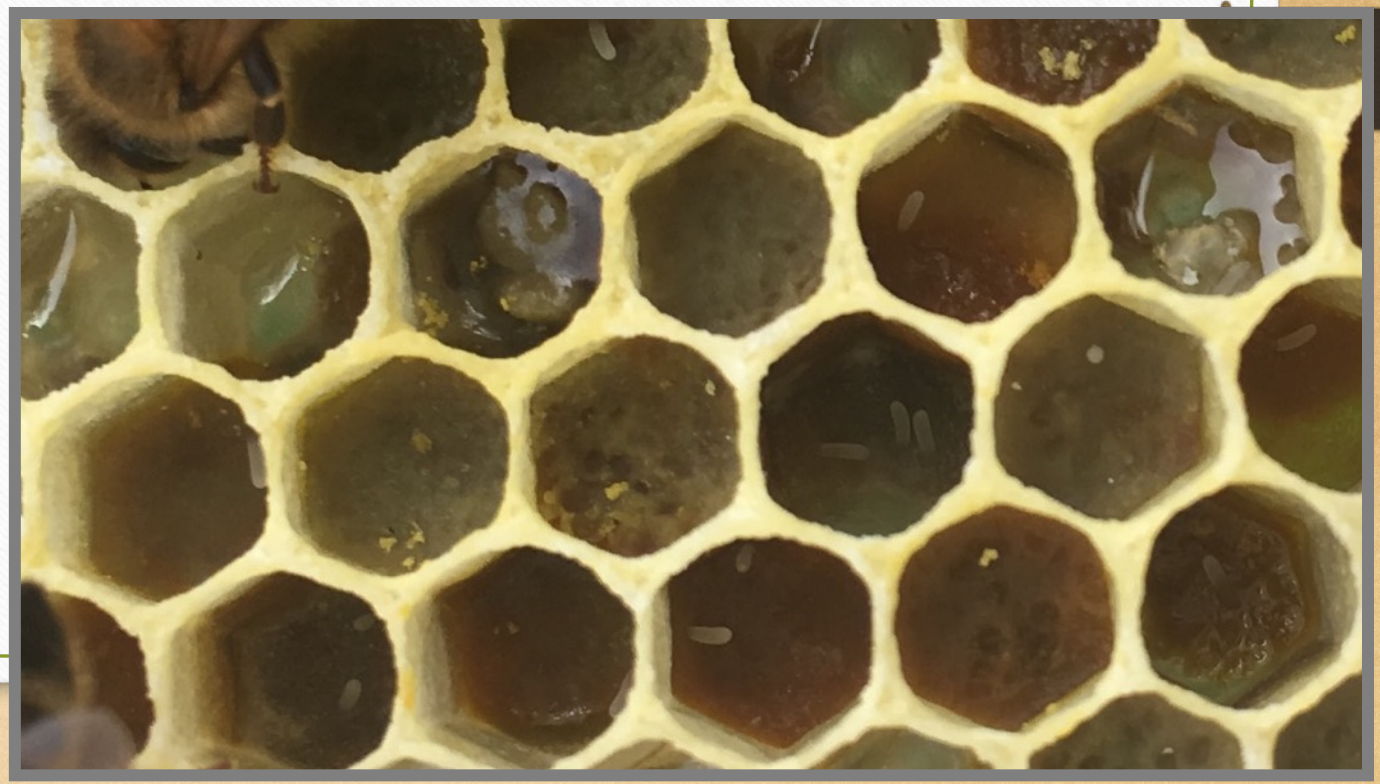
## It's rare, but if it all goes wrong: Laying Workers

**Cause:**

- When the hive lacks queen pheromone and brood pheromone for several weeks the workers begin to lay eggs.
- Eggs laid by workers will all develop into drones.

**Symptoms:**

- Multiple eggs in cells, often three or more in each
- Eggs on pollen and larvae
- Eggs on the sides of the cells
- Spotty brood, abundance of drone cells



# Solution:

- The colony won't accept just a caged queen
- Best odds are to add a frame of brood one day then a caged queen the next
- (It's never a sure thing.)
- Get help from an experienced beekeeper

# Challenges you might face

## Chalkbrood

- Open larva become desiccated and chalk-like
- House bees will clean out "mummies" to the bottom board

- **Weakens the hive: reduced population of nurse bees, reduced foraging**
- **Consider relocating the hive to a sunny, dry spot**
- **Add bees, or capped brood, consider requeening**
- **Remove mummies and infected comb – destroy**
- **Give the hive chicken soup and a day off**
  - **(Syrup feeder & a pollen patty)**

# Challenges you might face

## European Foulbrood

- Healthy larvae should be pearly white, fat, & shaped like a "C"
- Larvae are discolored and misshapen –
  - ~~die in the open larvae stage~~

- **Re-queen**
- **Feed syrup and pollen**
  - **Especially in a cloudy, wet spring**
- **Feed, then send a sample to be tested**
- **If positive, consider antibiotics**

# American Foulbrood

- Sunken, perforated cappings
- Larvae die after being capped – sunken caps
- Larval remains look like melted milk chocolate
- Have toothpicks handy – check for a "ropy" consistency
- Unpleasant "rotting meat" smell
- Disease goes dormant and forms 100's of millions of spores that remain viable for 80+ years

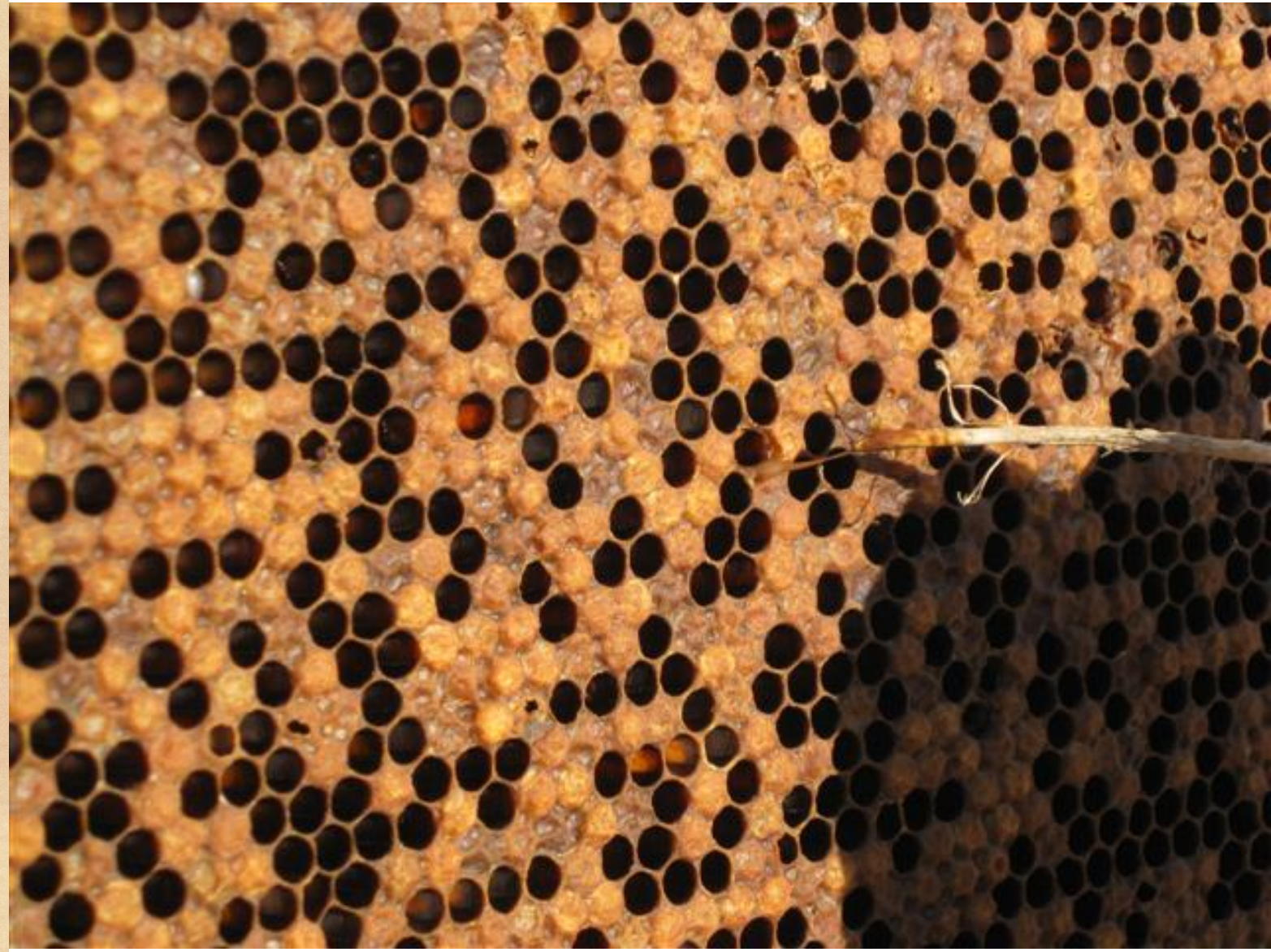
✓ DON'T BUY OLD EQUIPMENT

- ALWAYS HAVE SOME TOOTHPICKS IN YOUR KIT

**IF YOU'RE NOT SURE**

**CALL SOMEBODY!**

Challenges you might face
(this one is rare, and bad)



*If your hive has foulbrood it has to be burned.*

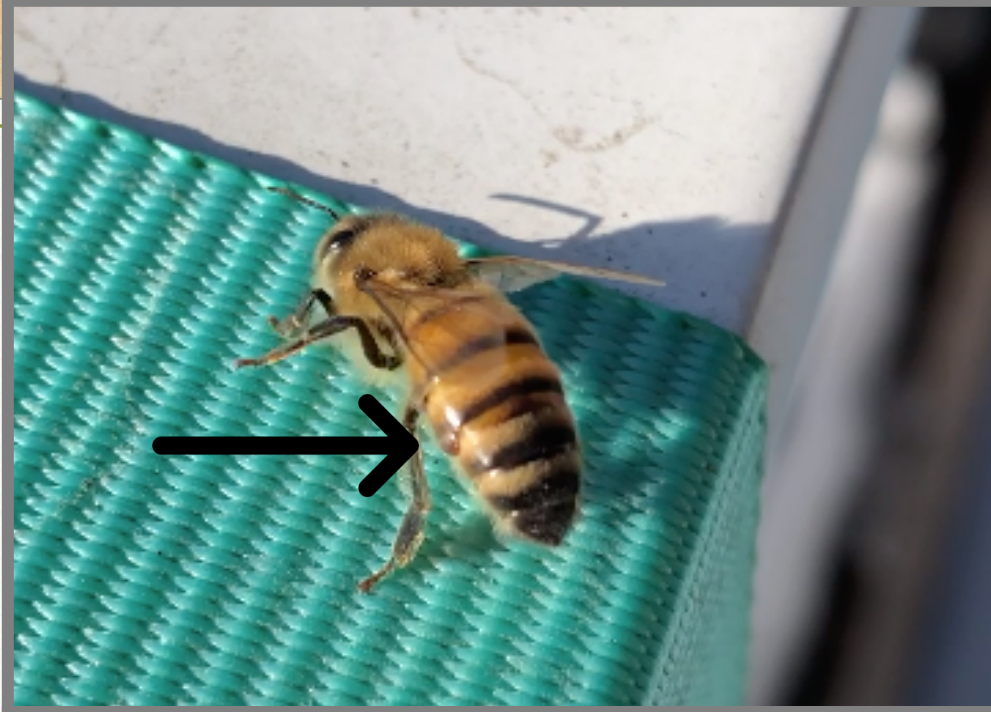
## Small Hive Beetles

- ✓ Not a problem yet, but we are keeping a *close* eye on their spread.

# Varroa Mites

## A challenge you will CERTAINLY face

- We don't search for mites visually
  - They can be very difficult to see:



➢ If you get to this point, Varroa mites have gotten ahead of you and the problem may be beyond repair

# Viruses from Varroa mites.

- Viruses are transmitted to larva when they eat the "worker jelly" produced by infected nurse bees
  - General symptoms – darkened bodies; greasy, hairless bees; smaller size (shrunken abdomens)

- **Sacbrood**
  - Larvae fails to pupate and turns dark & leathery
- **Acute Bee Paralysis Virus**
  - Infected pupae die before emerging. The decline in emerging bees causes a colony to dwindle towards collapse.
- **Israeli Acute Paralysis Virus & Kashimir Bee Virus**
  - Symptoms include trembling, darkened hairless bodies, paralysis and decreased longevity.
- **Deformed Wing Virus . . .**

# The Never-Ending Battle against Varroa mites:

- Use every tool available, throughout the season, to keep colonies healthy.
  - Hygienic bees, screened bottom boards, sunshine, and natural mite treatments
- The goal is to hold harm at manageable levels
- Hives that don't receive routine treatment are unlikely to survive the winter.

✓**We will talk about how to treat in next week's class**

# Varroa Mites – the challenge you will certainly face

## Why we treat **healthy looking** hives in the summer:

- In late summer the number of mites is rising while the colony population is declining
- Infestation levels will reach a maximum
- Late summer larvae become the nurse bees that will feed your winter population
- Now is the time to combat the viral load

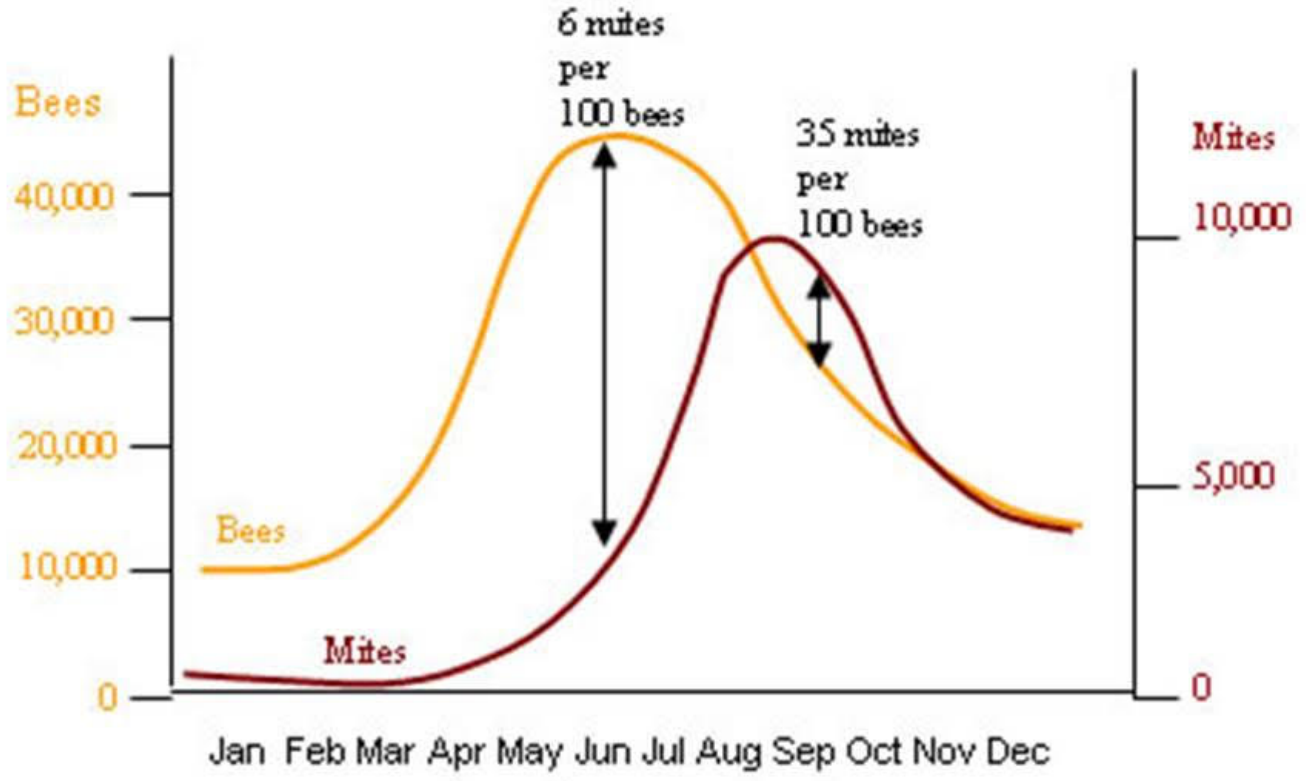



Figure 1. Simplified bee and mite population growth curves for a temperate climate. The mite growth curve lags behind the bee curve. Note how the number of mites per hundred bees greatly increases in fall. A colony is unlikely to survive a fall infestation rate this high.

# Monitoring your mite levels

- Cut a piece of hardware cloth the size of a mason jar lid
- Alcohol is best – blue windshield washer solution is a cheap option
- A powdered sugar test is far less accurate, but the method is the same for either

➢See: Powdered sugar test for Varroa Mites


## Meet The Varroa Mite…

The Varroa Mite, *Varroa destructor*, is an external parasite that attacks adult and immature stages (brood) of honey bees. These mites weaken bees and can transmit viruses during the feeding process.

Common signs of mite damage include:
1) open or damaged pupal cells;
2) holes in pupal cappings;
3) emerging adult bees with deformed or missing wings; and
4) visible mites on bees/brood.

Unmonitored and untreated infestations of Varroa mites can result in colony death. Colonies should be routinely monitored so informed management decisions can be made about population levels, treatment methods and efficacy. To obtain the best results, incorporate a range of the chemical and cultural Integrated Pest Management (IPM) methods listed in this brochure.

## 10 Steps To Doing An Alcohol Mite Wash

**MATERIALS NEEDED:**

- dishpan
- ½ cup measuring device
- ½ cup 70% rubbing alcohol
- mite wash jar

**DIRECTIONS:**

1. Inspect honey bee colony to remove a single frame that contains open brood and adult bees. Make sure the queen is not on the frame.
2. Shake worker bees from this frame into the dishpan.
3. Quickly scoop ½ cup of worker bees (~ 300 bees) from the dishpan and put into provided mite wash jar filled half-way with 70% alcohol.
4. Shake leftover live bees from the dishpan back into the hive.
5. Put the solid and mesh lids on jar and tightly seal.
6. Shake jar vigorously for 1-2 minutes to dislodge mites from submerged bees. Let jar sit for a few minutes to let mites dislodge.
7. Remove solid lid from jar, leaving mesh lid and tightly seal.
8. Pour the mixture of dead bees, mites and alcohol through the mesh lid over the empty dishpan to remove the mites and alcohol. Vigorously shake jar contents while pouring to ensure mites are dislodged.
9. Sift through the liquid debris to count the total mites. If the total number of mites ranges from 3-9, consider treatment options.
10. Discard bees. Alcohol can be re-used if mites are removed. Wash all re-usable materials after use.

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Division of Crop and Pest Services

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# Varroa Mite IPM

# Next Week

**Late Summer and Fall Management**

✓ Treating for Varroa Mites

✓ Assessing Honey Stores

✓ **Getting the hive ready for the arrival of winter**