

Introduction to Beekeeping - Session Two

Brown County Beekeepers Association





Welcome

Last Time

- First Year Beekeeping
- Equipment
- Getting Bees
- Bee Biology

Housekeeping

- Restrooms
- Breaks
- Questions ??

Today

- Hive Location
- Install Bees
- Hive Inspection
- Mite Management
- Fall and Winter (if time permits)

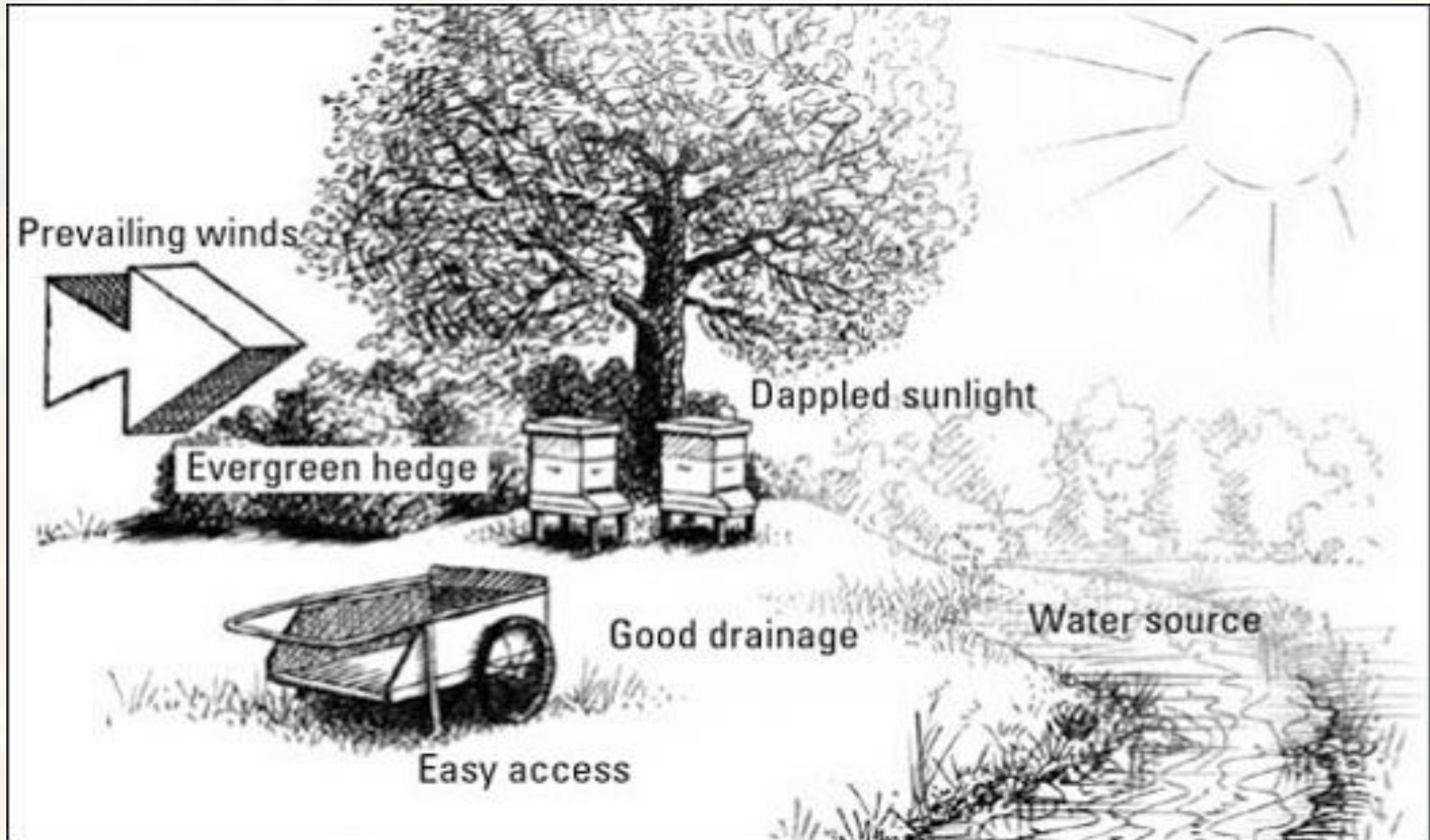
Hive Location

Chris Groth





Where to put your hive



Adapted From: [Beekeeping For Dummies](#)



Where to put your hive

Location

- South facing is optimal - early morning wake-up to start foraging and warmth in winter
- Shade in PM - so the hive doesn't overheat in summer
- Access to water - needed to make honey and cool the hive
- Good air ventilation - so the hive doesn't get damp
- Wind block - man-made or natural, helps survive the winter



Where to put your hive

Bee Needs

- No obstruction in front of hive - bees like to exit and fly up
- Slight lean to the front - so rainwater can drain out
- Pollen and nectar sources - for honey production
- Level side to side - bees don't care but could hurt honey production

Human Needs

- Accessible by vehicle or cart - honey and equipment are heavy
- Permission - check local ordinances and neighbors
- Accessible from the back of hive - best to work from the back of hive
- Weeds and mowing - keep the hive weed free and trimmed

Installing Bees

Wayne Steigleman



Installing the Package into the Hive

Recap of a package bees

2-3lbs of worker bees with a newly mated queen not introduced to the colony.

Pros:

Most Economical - Shipper is not supplying frames of comb

Less spread of pests & diseases - no comb in involved

Readily available – earlier than nucs & can be mailed

Cons:

Slower to build up - Queen needs to be accepted, No eggs/brood until queen lays, Need to be feed to drawn comb & more time to install



One package is 3lbs or about 10,000 bees



Installing the Package into the Hive

3lb. Package of bees



~10,000 worker bees



Metal can with 50% sugar syrup



Queen with 2-3 attendees bees



Installing the Package into the Hive

Materials Needed

1. **Spray bottle of 1:1 sugar to water**
2. **Supplemental feeding to provide food for package (1:1) sugar syrup**
3. **Hive Tool**
4. **Entrance reducer**



Installing the Package into the Hive

Prep the Packaged Bee Cage and Brood Box

Remove 2-3 Frames from Brood Box for working room and gap. Install entrance reducer.



Remove the cover over the hole in the top of the package cage.





Installing the Package into the Hive

Continue to Prep the Packaged Bee Cage

- Spray the package with sugar water only if outside temperature is above 55 degrees.
- One shake to cause the bees to fall to the bottom of the cage.
- Remove the syrup can and queen cage from the package and cover opening.



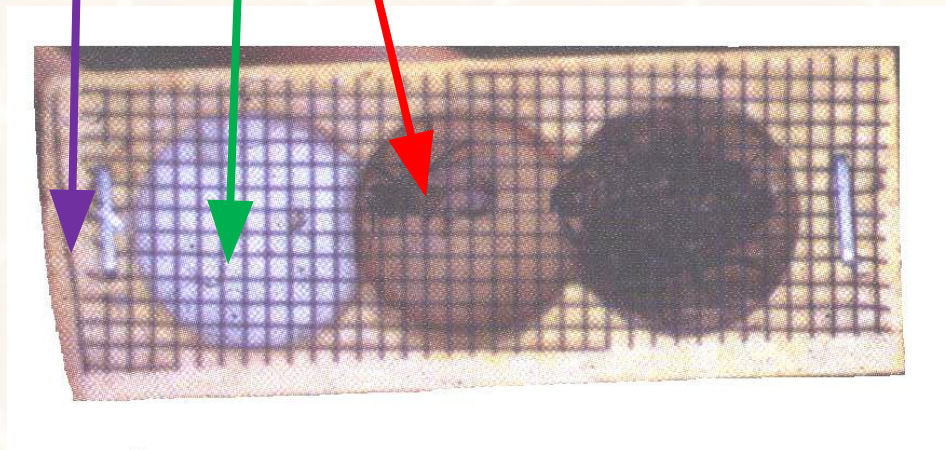
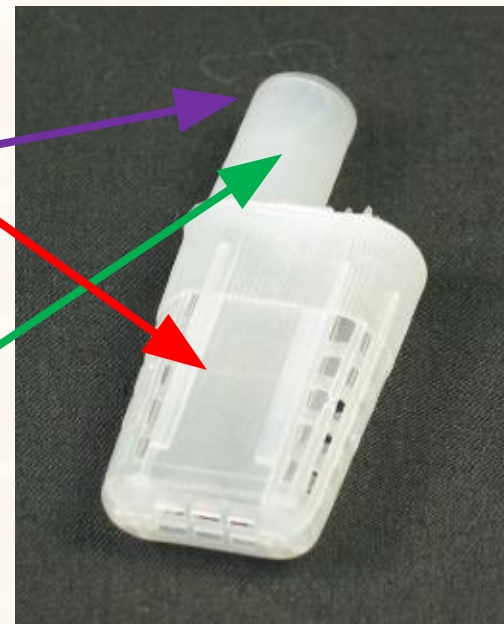
The wings of a honey bee carry the insect through the air at 15 miles per hour



Installing the Package into the Hive

Prep the Queen Cage

- Check the queen cage to make sure your queen is alive and well.
- Find the white candy end blocking the queen escape hole.
- Remove the cork, cap, or metal cover from the candy end of the queen cage.
- If no candy is in place, insert a piece of marshmallow.
- Poke Hole in Candy





Installing the Package into the Hive

Prep the Queen Cage and Brood Box

- Place or hang the queen cage between two frames in the middle
- **Candy side up**
- The **bees must become acquainted with the queen before she is released** (*bees will eat through the candy in order to release her once she is accepted*). This can take several days.
- Come back in a few days to ensure the queen is released. If still in cage, release her.



It will take about 45 days for the new population of bees to exceed the original package population.

Installing the Package into the Hive

Release the Packaged Bees into Brood Box

- Remove cover from package
- Shake bees over gap in Brood Box
- Replace frames – gently
- Install inner cover and telescoping cover.
- Feed 1-1 Syrup for 3-4 weeks.



Honey Bee is the only insect that produces food eaten by man

Installing the Nuc

Recap of a Nuc

A “nuc” is short for nucleus colony. This is a colony of bees that is relatively small in comparison to a larger production hive.

Pros:

Faster Build Up - Already an established hive. Laying queen, bees in various stages of development & resources.

Availability – Arrives later in spring.

Installation - Easy

Cons:

Greater chance of pests & diseases – Old comb & equipment. Could carry mites.

Cost – Approximately \$50 more than a package.

Equipment: May not fit your hive.





Installing the Nuc

- Place entrance reducer on hive opening
- Open nuc hive and gently smoke your bees.
- Transfer frames of bees in the same order as in the nuc
- Feed the bees until the bees have drawn out all the frames of foundation.



Smoker vs Sugar Water Spray





Installing the Nuc

Ready For TAKEOFF!!



Hive Inspection Mite Management

Julie Mazzoleni



You have the perfect location

You have your bees installed....

NOW
WHAT?





Why Monitor Your Hives





Integrated Pest Management (IPM)

Inspecting / Monitoring the Hive





One Definition

**“a conscious, purposeful, focused and
timed method of inspecting HIVES to maintain
*HEALTHY BEES***

Keeping them disease free with low/no mite levels”





Inspection - Rules of Thumb

When to inspect

- Sunny, warm, and wind free days - 65 to 95 degrees
- Mid-day is best - when bees are out foraging

Inspect from the back or side of the hive

- Standing in front prevents foragers from returning
- Irritates the bees

Frequency

- Monitor periodically
- Usually every 7 to 14 days

Understand what should be happening

- By time of year
- Based on weather conditions

For each inspection

Why are you
HERE?



Create a plan-know what you want to accomplish

Prepare before opening the hive-have tools and equipment ready, clean, and accessible

Lite the smoker-helps to calm the bees

Keep records-it's hard to remember week to week / year to year

WHAT SHOULD YOU LOOK FOR?

In a nutshell

1. How well is the **QUEEN** doing? Is she strong and laying nicely? Are they trying to replace her? Or planning to swarm? Is she ALIVE?
2. Do they have the **NUTRITION** they need? Do they look healthy - (from eggs to larvae to bees).
3. Are there any signs of **PESTS/DISEASE**? do you need to treat for mites or other diseases



Examine Your Hive from the outside first.....

What do you notice??

For example:

- Are the bees bringing in lots of pollen?
- What do you hear?
- What is the activity at the entrance look like?
- Crawling, hopping, twitching
- Is there a lot of bee excrement on or around the hive?



Opening the hive...

Inspection - What to look for

- What do you see when you look down at your frames?
 - How many frames of bees do you see? A strong hive will usually have bees on the top of the frames and/or packed between.
- Are they storing nectar and pollen like they should? Plenty of food?

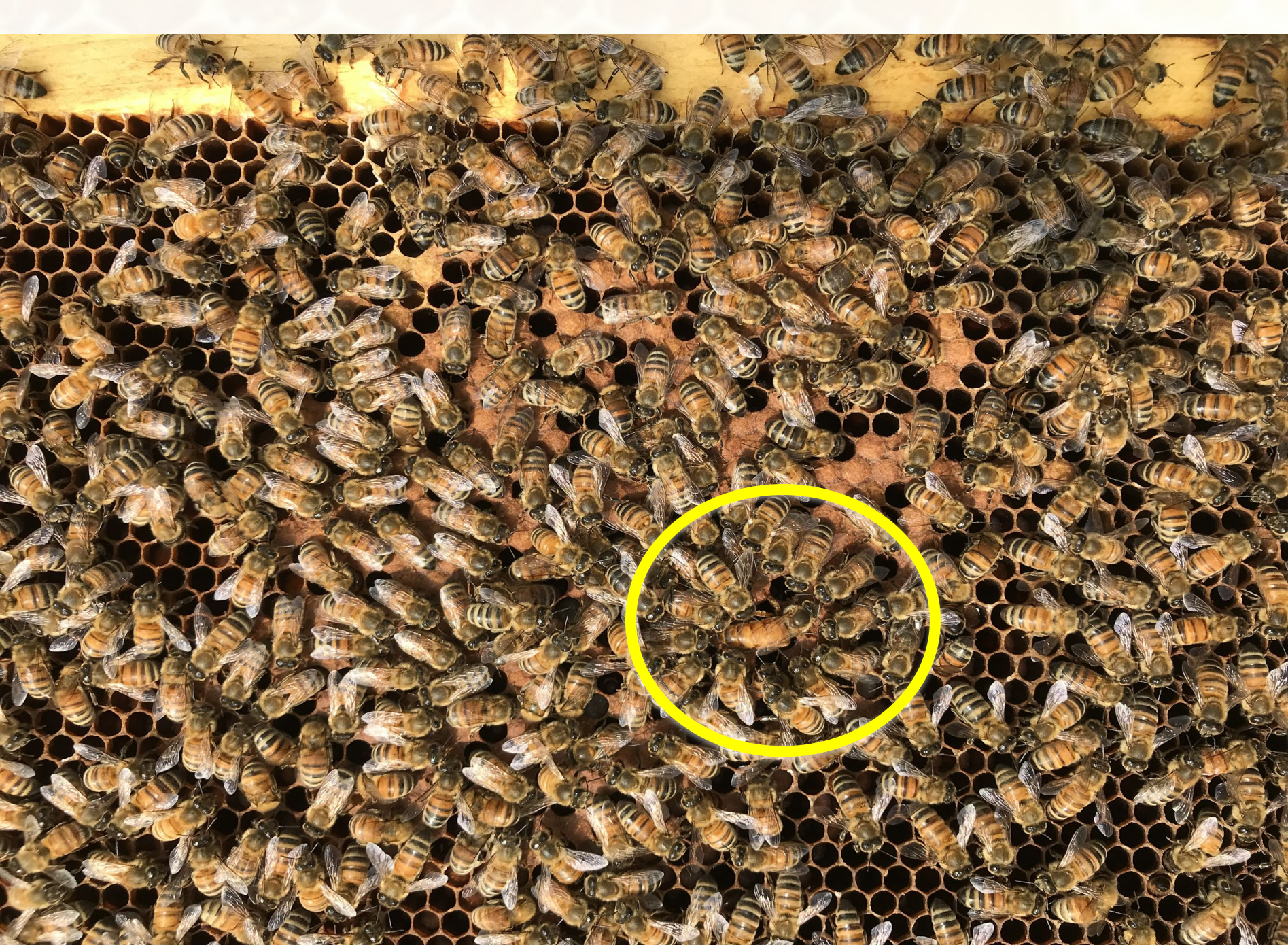


Pull frame 1, 2
inspect and
remove, slide
frame 3, inspect
and slide over.





FRAME 5 (AUGUST)



CONTINUING THE INSPECTION:

- Is there a QUEEN in the hive? OR are there signs of her?
 - Eggs, larvae, capped and uncapped brood?
- How many frames of brood?
 - Healthy hives will have lots of nurse bees covering brood
 - How does the larvae look? they should be swimming in royal jelly.
 - What does the brood pattern look like? it should be solid, in the center of the frames.





Larvae should be pearly white and curled into a C shape. They should be swimming in royal jelly, light cream colored.

Dry larvae are suffering from malnutrition or disease and show colony stress.



This frame from a medium brood chamber is close to ideal.

Honey and pollen is stored at the top of the frame

Capped brood fills much of the rest of the frame.



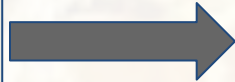
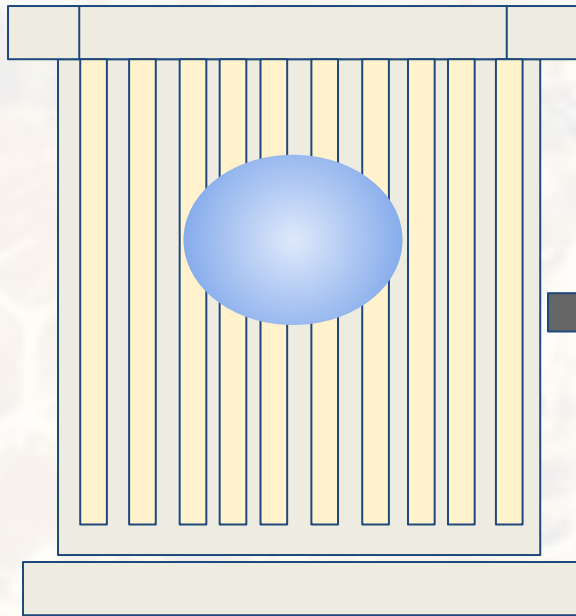
CONTINUING THE INSPECTION:

- Are there signs of OVERCROWDING? If bees need more space to perform normal functions, they will have a tendency to **SWARM**.
 - Add another deep, medium or honey super
- Note: consider addition equipment to have on hand

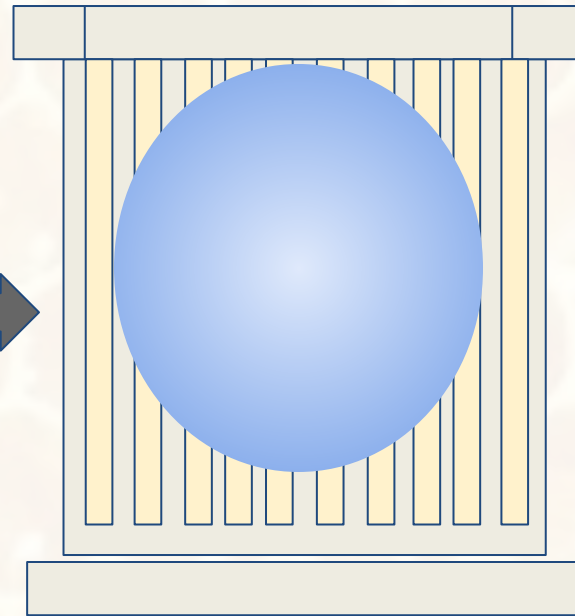


MANAGING BOXES

Small cluster of bees-
4 to 5 frames no issues

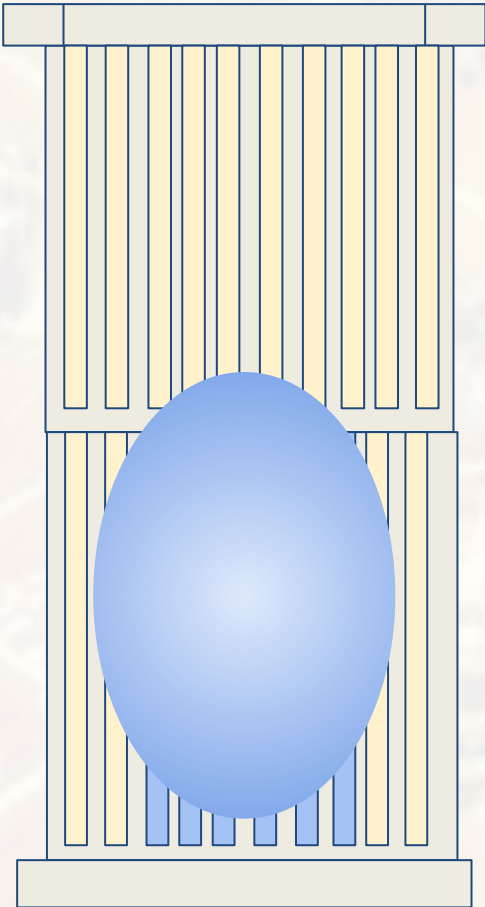


Large cluster of bees-
7 to 8 frames **time to
add a box to give more
space**



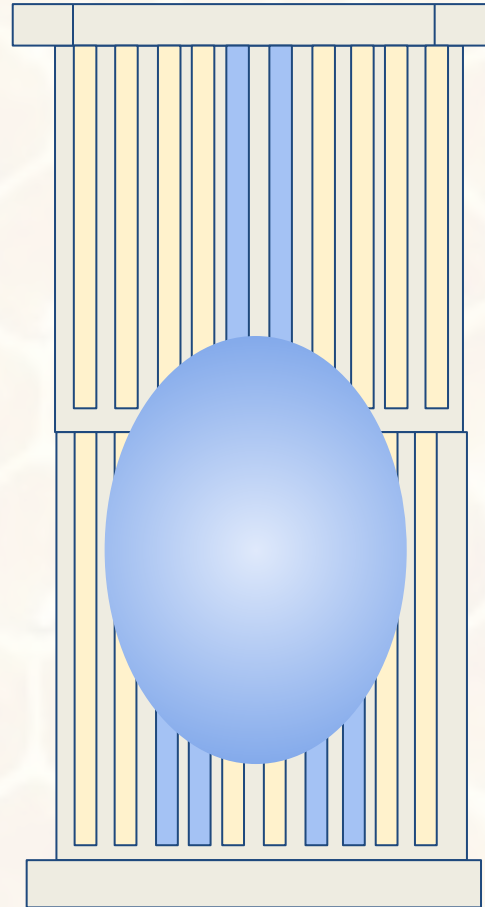
MANAGING BOXES

ADD ANOTHER brood chamber /deep



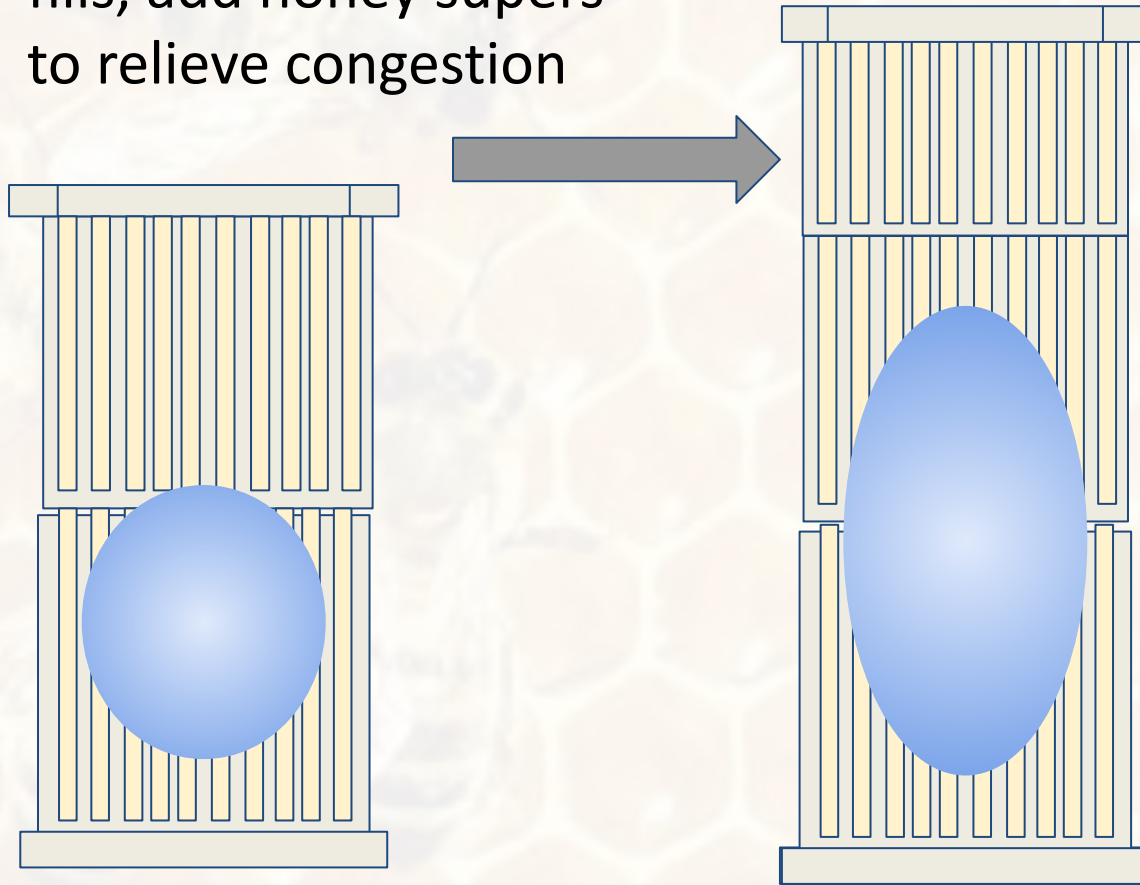
OR

ADD ANOTHER brood chamber AND pull a few brood frames up to encourage bees to move up for more space below and above



MANAGING BOXES

as brood chambers
fills, add honey supers
to relieve congestion



CONTINUING THE INSPECTION:

- Are there QUEEN CELLS
a sign they are preparing to swarm - also called
“SWARM CELLS”
- Are there SUPERSEDURE cells (queen cells)? a sign
of an ill, aging or missing queen



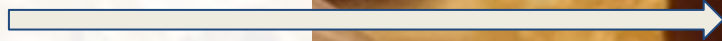


quick NOTE: Queen CUPS vs Queen CELLS

QUEEN CUPS are normal - peek in to check to see if there is are eggs or royal jelly, but don't be alarmed.



EGG



NEW QUEEN Cell



Stings Happen

Honey bees:

- Do not want to sting
- In general, are not aggressive
- Sting as a form of defense
- Die after stinging

Prevention:

- Be gentle and respectful
- Be methodical and avoid crushing bees
- Know why you are going into the hive
- Wear protective veil and clothing
- Use a smoker – disguises emergency pheromones and causes the bees to go into the hive and gorge on honey

When Stings Happen:

- Remove stinger
- Have Benadryl available



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

Mite Management

Julie Mazzoleni



CONTINUING THE INSPECTION: MITE CHECK

Varroa Destructor

Varroa Mites



Most significant single driver of colony losses world wide.

- Parasite that feed off of Honey Bee fat bodies
- Transfer viruses
- Diminish the immune system
- Reduces tolerance to pesticides
- Impair pupal lifespan



SICK BEES

When to check:

- EARLY spring in overwintered hives until late fall



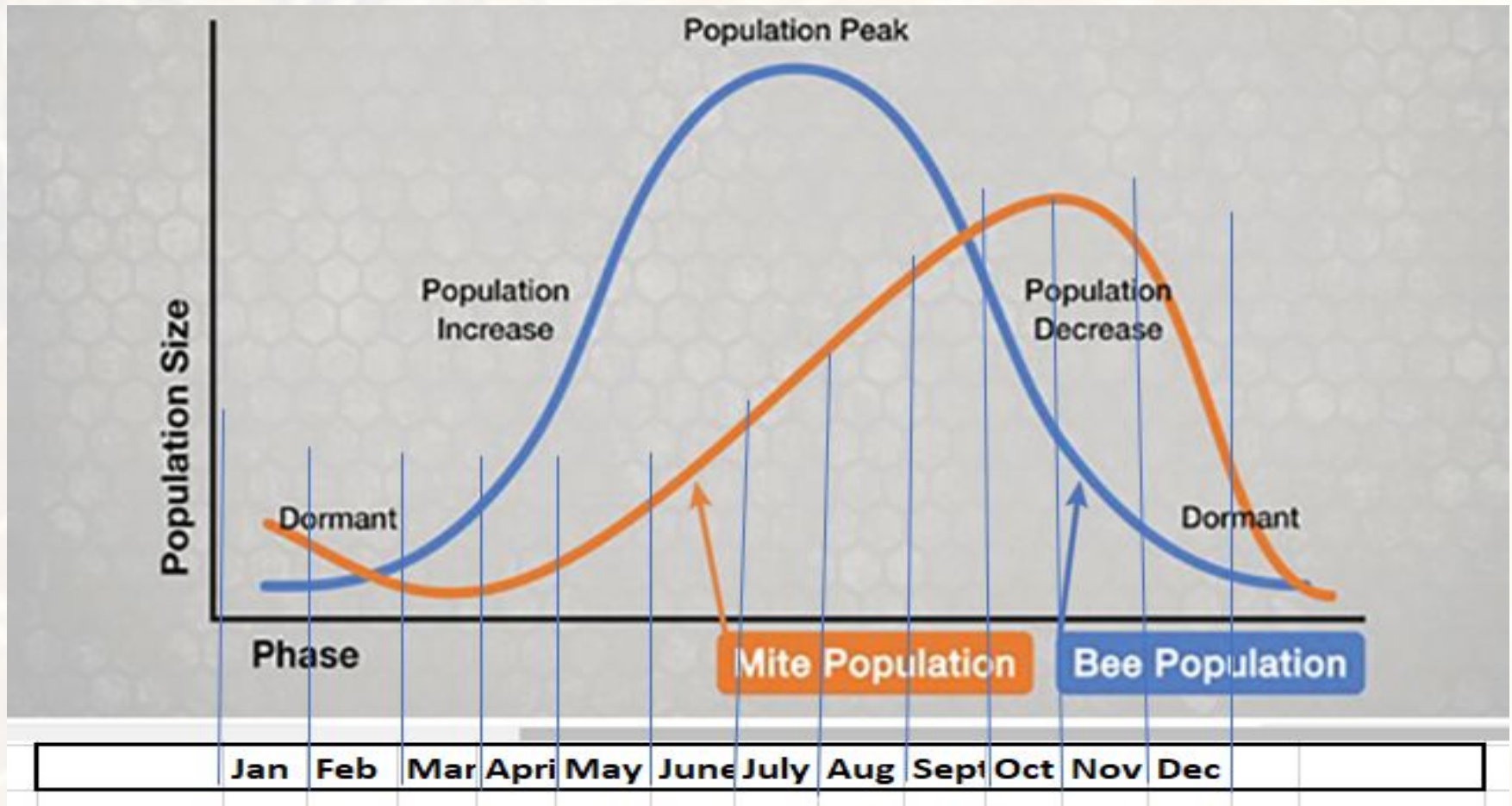


Randy Oliver





Honeybee population phases



Approximate timing - depends on weather, queen, bee health, nutrition etc



ITS CRITICAL TO HAVE A MITE MANAGEMENT PROGRAM

Effective mite control will reduce your colony loss and reduce the spread of infectious diseases.

Effective mite control will give you healthy bees that have a fighting chance to make it through the winter

Mite Check

[Watch Sugar Roll Video](#) - Minnesota Bee Lab





What's in the Mite Check Kit?

- White plastic tub.
- Powdered sugar. 3-4 tablespoons/jar.
- Mason Jar with 8 mesh on lid. (#8 mesh screen)
- ½ cup measuring cup.
- White paper plate.
- Spray bottle.



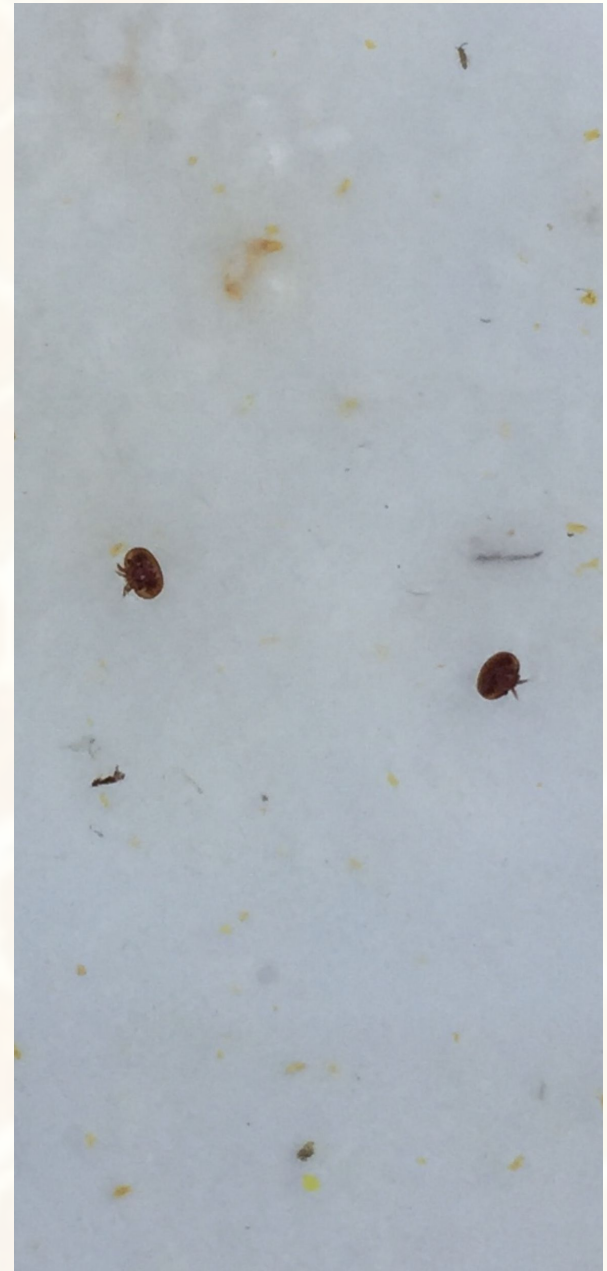
MITE CHECK

½ cup of bees is approximately 300 bees

2-3 mites per 100 bees is “acceptable”

IMPORTANT NOTE: time of year and amount of brood frames matter !

Mites reproduce under brood caps, more brood equals possibility of more mites.





Managing mites

Apivar – amitraz

Others

Apiguard -Thymol – essential oil

Api Life Va -Thymol, eucalyptus oil, menthol –

MAQS – Formic Acid – organic acid

MAQS/Formic Pro – Formic acid -65%

Hopeguard – Hopes Beta acid – Organic acid

Oxalic Acid -Oxalic acid dehydrate

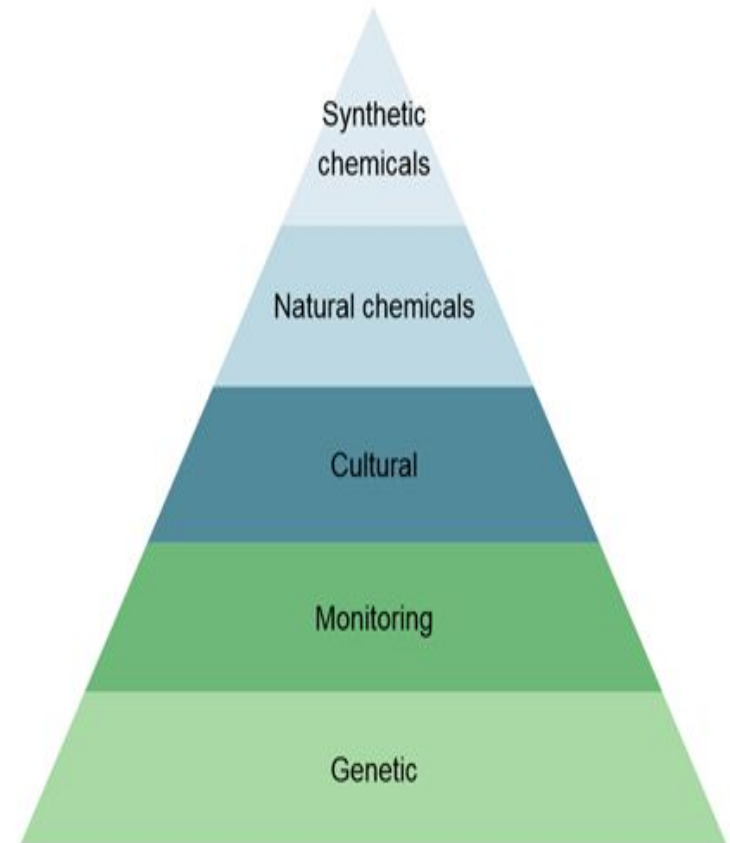
Drone removal

Screen bottom board

Requeening/brood breaks

Swarming

Pyramid of IPM Practices





Wisconsin treatment & disease guide

WISCONSIN HONEY BEE PEST MANAGEMENT OPTIONS 2021

Wisconsin Department of Agriculture, Trade and Consumer Protection
2811 Agriculture Dr. • Madison, WI 53718 • 608.224.4572
elizabeth.meils@wisconsin.gov • <http://datcp.wi.gov>

PEST	REGISTERED TREATMENT (Active Ingredient)	REGISTRATION #	APPLICATION	APP SEASON & TEMPS
VARROA MITE <i>Varroa destructor</i>	* Apistan (Fluvalinate)	EPA Reg No. 2724-406	6-8 weeks, apply in spring and fall. No more than 2 strips per brood box. Do NOT use when honey supers are in place.	Spring, fall Temps >50°F
	* CheckMite+ (Coumaphos)	EPA Reg No. 11556-138-61671	6-8 weeks, apply in spring and fall. No more than 2 strips per brood box. Do NOT use when honey supers are in place.	Spring, fall
*Widespread resistance of Varroa mites to above products. NOT recommended for Varroa control in WI.				
Synthetic chemicals	Apivar Strips (Amitraz)	EPA Reg No. 87243-1	Use 2 strips per brood box (or 1 strip per 5 frames of bees), hang each in bee cluster with 2 frames between strips. Leave strips inside hive for 42 days, then remove. 2 treatments per year max. Remove strips 2 wks prior to honey flow. Do NOT use when honey supers are in place.	Spring, fall
	HopGuard II HopGuard III (Potassium Salt of Hop Beta Acids)	EPA Reg No. 83623-2 EPA Reg No. 83623-2	Use 2 strips per brood box (or 1 strip per 5 frames covered with bees). Unfold strips and hang over a center brood frame with 1/2 the strip on each side of frame. Remove after 30 days. 3 applications per year max. –can also be used in packages and top bar hives– see label. Can be used during honey flow.	Spring, summer, fall Temps >50°F
	Formic Pro (Formic Acid)	EPA Reg No. 75710-3	Use 2 strips for 14 days (allow a minimum of one month between applications) –OR– 1 st strip for 10 days, remove and replace with 2 nd strip for additional 10 days. Lay flat across the top of lower brood box. Do NOT disturb hive. Close screen bottom board, open entrance fully. Can be used during honey flow.	Spring, summer, fall Temps 50°F-85°F
Organic acids	Mite Away Quick Strip (MAQS)	EPA Reg No. 75710-2	Place 2 strips (staggered) on top of the bottom brood box for 7 days (allow a minimum of one month between applications).	Spring, summer, fall



ALWAYS READ LABELS and FOLLOW INSTRUCTIONS

Some treatments can not be used with honey supers on

Some treatments will not penetrate brood cells

Some treatments should only used within specific temperature zones

Additional Resources

<https://pollinators.msu.edu/keep-bees-alive/>

Meghan Milbrath – 3 videos on monitoring
Several links about Integrated Pest Management

<https://honeybeehealthcoalition.org/>

Best management practices for bee health

www.scientificbeekeeping.com

Randy Oliver - First year beekeeper section



Mite kit example

Fall and Winter

Wayne Steigleman



Fall Feeding

Begin after removing honey supers (mid-August)

Feed 2 x 1 (sugar/water) until mid-September

Feeding later may result in uncapped honey

- Potential moisture issue

August 2020 						
Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					
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September 2020 						
Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			
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Note : Bees will not take sugar water after temp in hive is below 52 degrees

Get Ready for Winter

- Healthy Bees
 - Active Mite Management
Pgm to Reduce mite load
- Resources
 - Honey (100-120#s)
 - Pollen
- Young Queen
 - 3 year old queen, might not make it
- Take Your Losses in the Fall. Combine weak hives!
- Install Mouse Guards
- Remove Queen Excluder



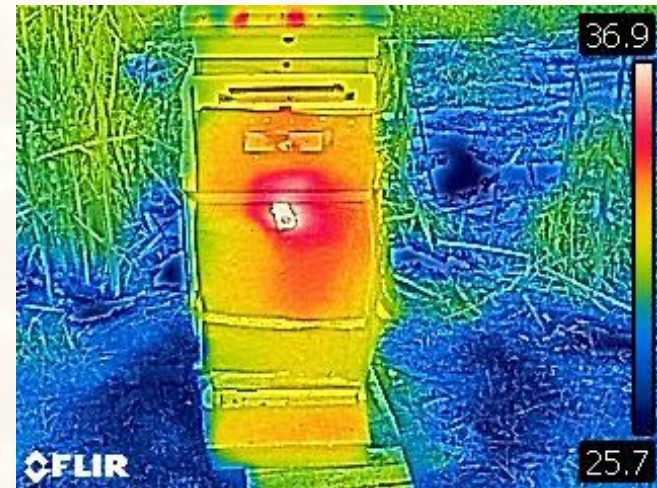
Get Ready for Winter

- Keep Hive Dry / Tilt Forward
- Add Insulated Top Cover and Optionally Insulate or Wrap Hive
- Create a Wind Block
- Add an Upper Entrance



Winter

- Periodically Check Hive and Monitor Resources
- Keep entrance free from snow
- Winter Feeding



Sponsors - Thank You!





Wrap up / Questions

**Thank You For Attending
and
Investing in Bee
Education**

**Next Session:
May 21, 2022**

At the hive, weather dependent

