Preparing your bees for winter in summer

While we are relaxing on a hammock in summer, the bees are starting to prepare for winter

Agenda

- What's happening post nectar flow with your bees
- What the mites are doing during this time
- In-depth look at impact of Varroa mites on how bees overwinter
- What you can do now (in July) to get your bees prepared for winter
- Q & A

What are the bees doing during the post nectar flow?

Starting June/July: Bee population decreasing as the queen lays fewer eggs in preparation for winter

The workers start reducing drone population by not raising additional drones

Bees experiencing the summer dearth

What happened to my sweet bees?

They become more protective of their resources

“What gloves”?

Robbing can start during summer

Indications of robbing

Bees coming into the hive without pollen

Bees flying in a zig zag pattern in front of the hive

Guard bees in defensive posture

Notice position of front legs

Fighting on landing board

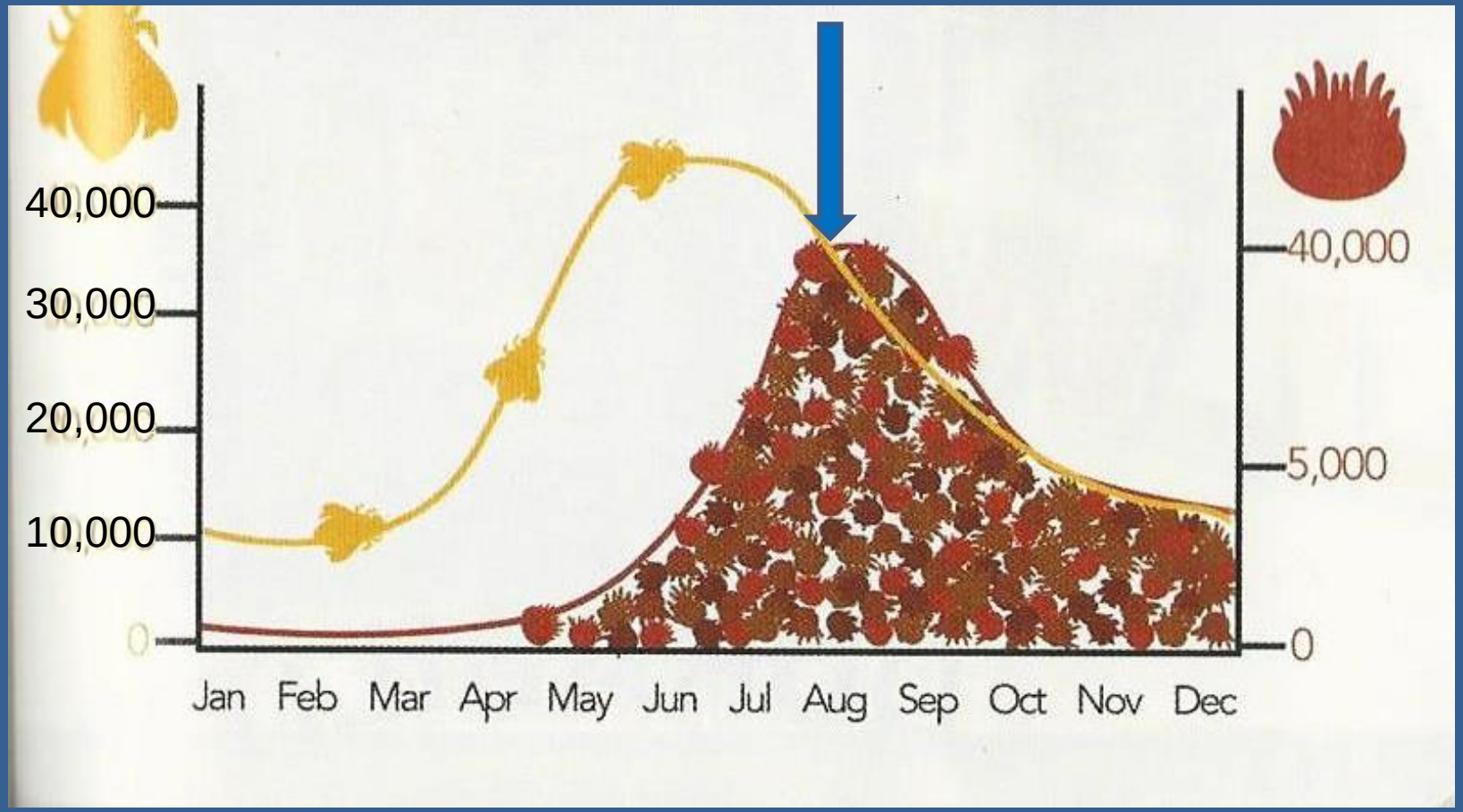
Dianne McAllister

Robbers looking for anyway in

Result of robbing

What are the mites doing during the post nectar flow?

Mite ratio to bees is increasing

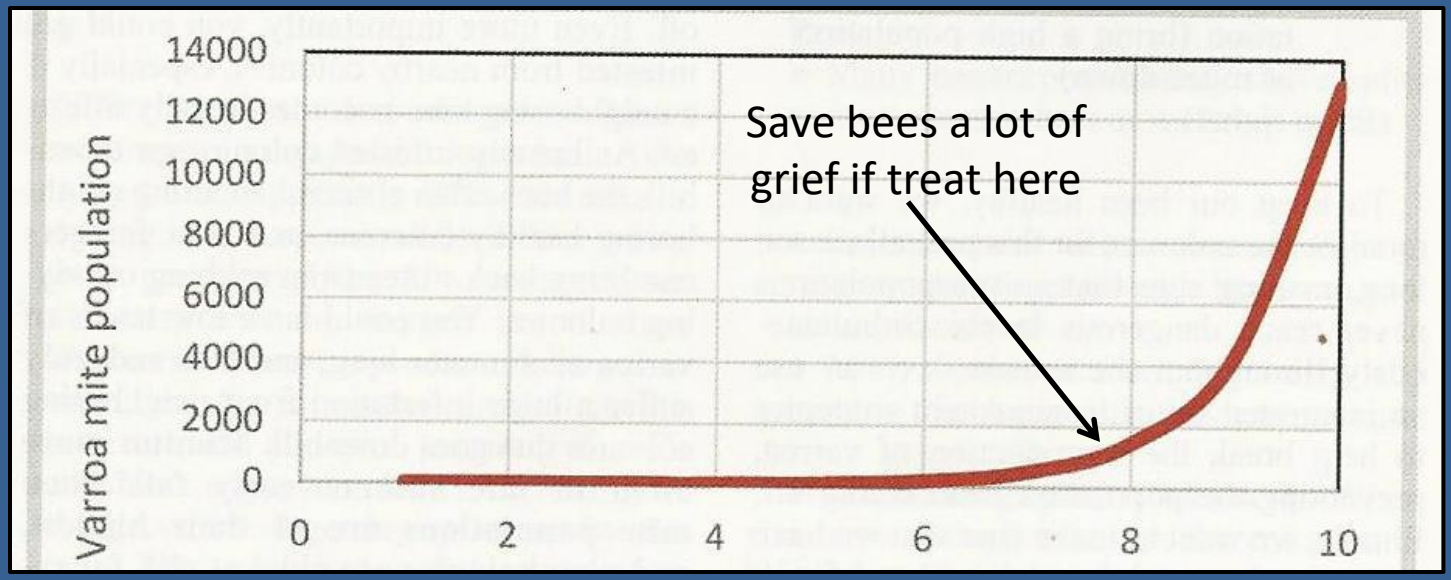


What do Varroa mites and Tribbles (think Star Trek) have in common?

They multiply astronomically

- At least **1.45 new female mites in worker (female) brood**
- At least **2.2 new female mites in drone (male) bee brood**

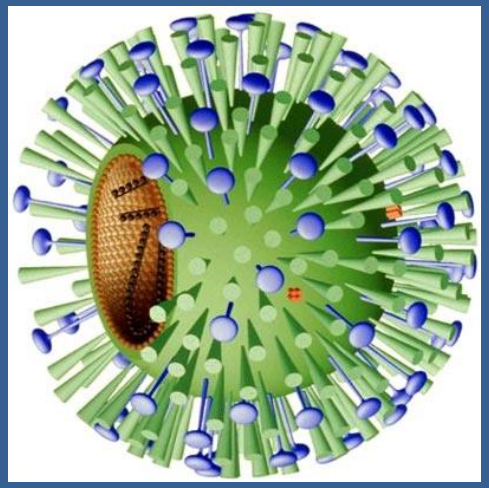
Varroa exponential growth



Brood cycles
(24 days for drones)

Meghan Milbrath

Why do we care?



Short term: Varroa vector viruses that can shorten their lives; DWV

It is easier to control the mites than to control the viruses.

In depth look at how Varroa mites affect the bees' ability to overwinter

Varroa mites interfere with the bees' ability to produce "fat" winter bees

What is a “fat” winter bee?

Non-winter and winter Bees

Non-winter Bee: few fat bodies

Winter “fat” Bee: lots of fat bodies

Vitellogenin = “fountain of youth” that prolongs bee lifespan

- Vitellogenin = molecule the bees make consisting of proteins, fats and carbohydrates
- Bees make Vitellogenin just like they make royal jelly
- Vitellogenin allows winter bees to survive for months rather than weeks

Vitellogenin allows bees to be young again: come out of metabolic retirement

- Raise Babies
- Care for Queen
- Maintain Hive
- Build Comb

- Protect Hive as Guard Bee

- Collect Nectar
- Collect Pollen
- Work Until Their Wings Wear Out

Varroa infestation

- Worker bees infected with Varroa mites DO NOT MAKE Vitellogenin

- Without Vitellogenin the colony does not overwinter well if at all

Why start in July to get ready for winter?

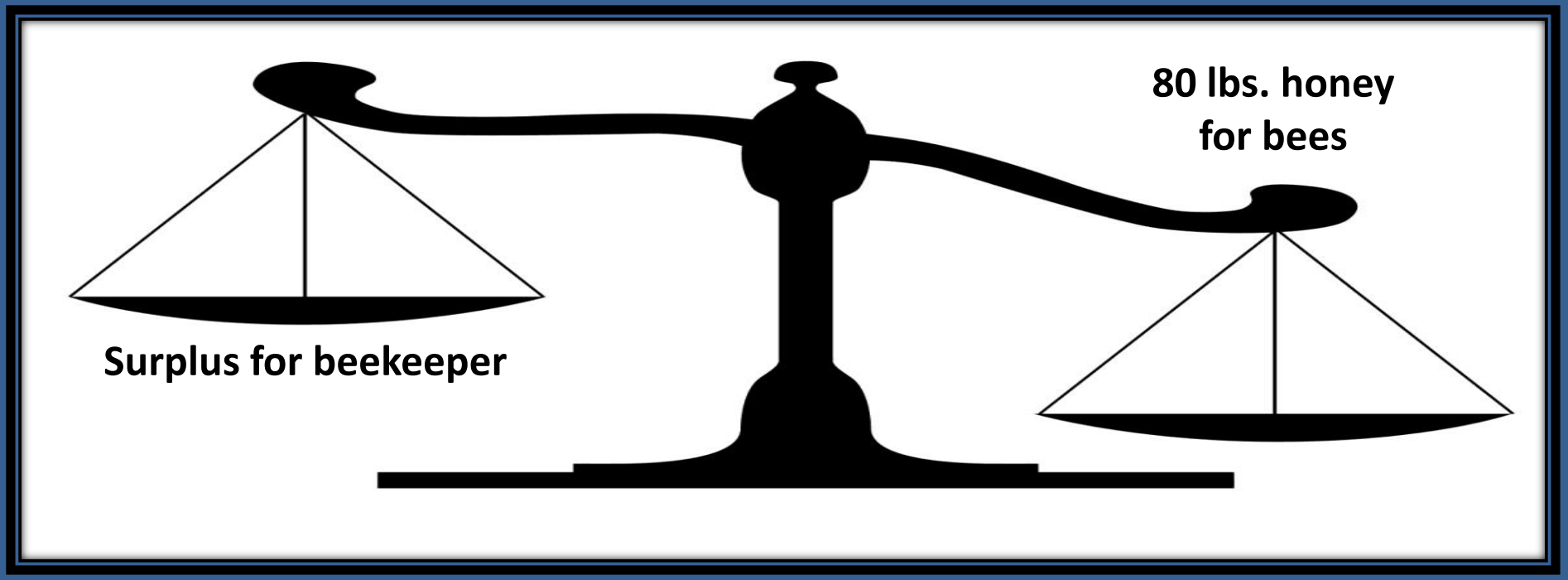
- Bees need this time to store energy as honey

- Beekeepers need time to get the Varroa population below 3% or less

- Bees need time to raise multiple generations of bees “So what we want to do here is take care of the bees that take care of the bees that go into winter.” Kim Flottum

What you can do now (in July) to get your bees prepared for winter

Continue feeding the bees



How do you know when to stop feeding?

Stocking winter stores

Carbohydrates

- Take advantage of summer weather and feed sugar syrup
- Beware of robbers when feeding
- Use caution when using HBH
- Goal = 80 pounds of carbohydrates going into winter

Syrup recipe

Two to one ratio is primarily for food storage

- 2 parts sugar + 1 part water

Stocking winter stores

Proteins

- Use protein supplements if not enough pollen is available
- Look at landing board in the morning to help determine if bringing in pollen
- Protein patties
  - Pre-made with
  - Make you own and add 10% real pollen

Reduce robbing

- ✓ Reduce entrance
- ✓ Robber Stopper
- ✓ Correct weak hive problem
  - combine hives
  - equalize (think Robin Hood)

Robber Stopper

It’s not about knocking mite levels down- the trick is to never allow them to get high in the first place.

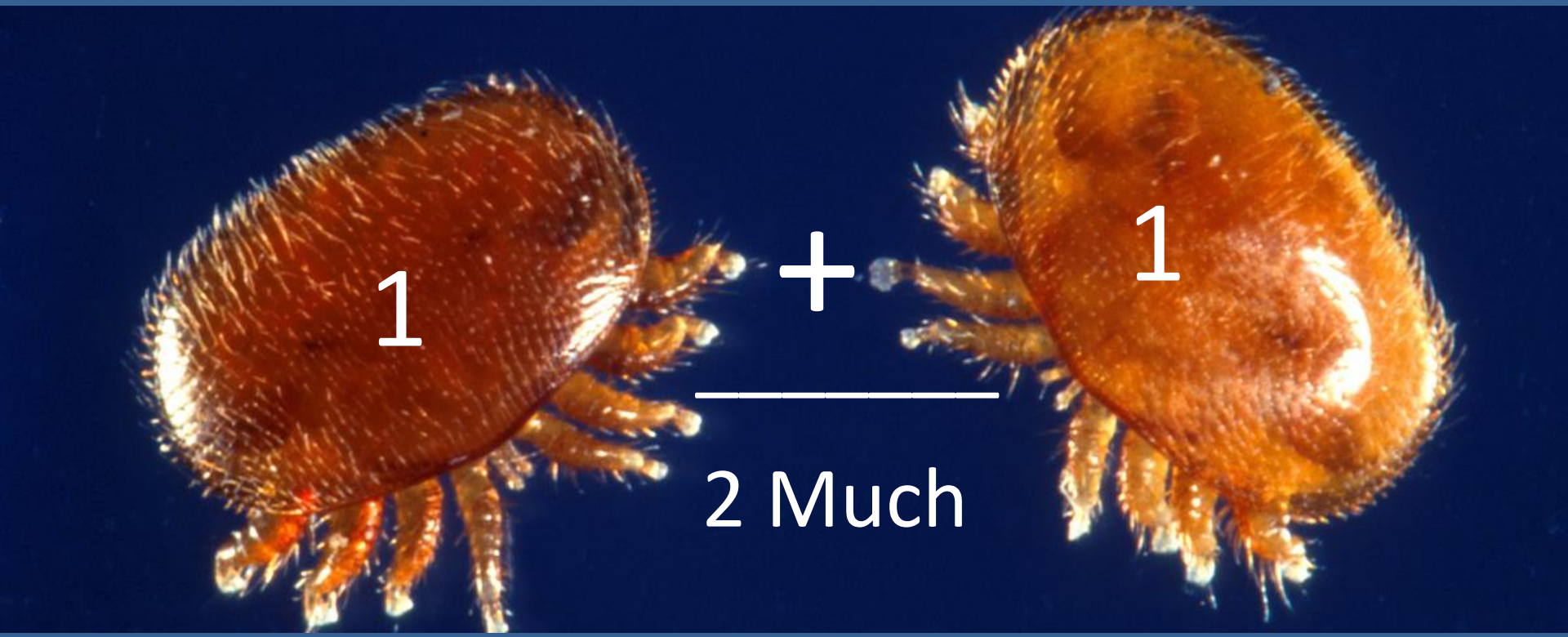
Randy Oliver Scientific Beekeeping

How many mites =Treatment threshold

- Point at which the level of infestation is too high and it is time to treat
  - Alcohol Wash = 3%
  - Sticky Board = What is the trend?

- The goal is to keep the numbers below the treatment threshold <1%

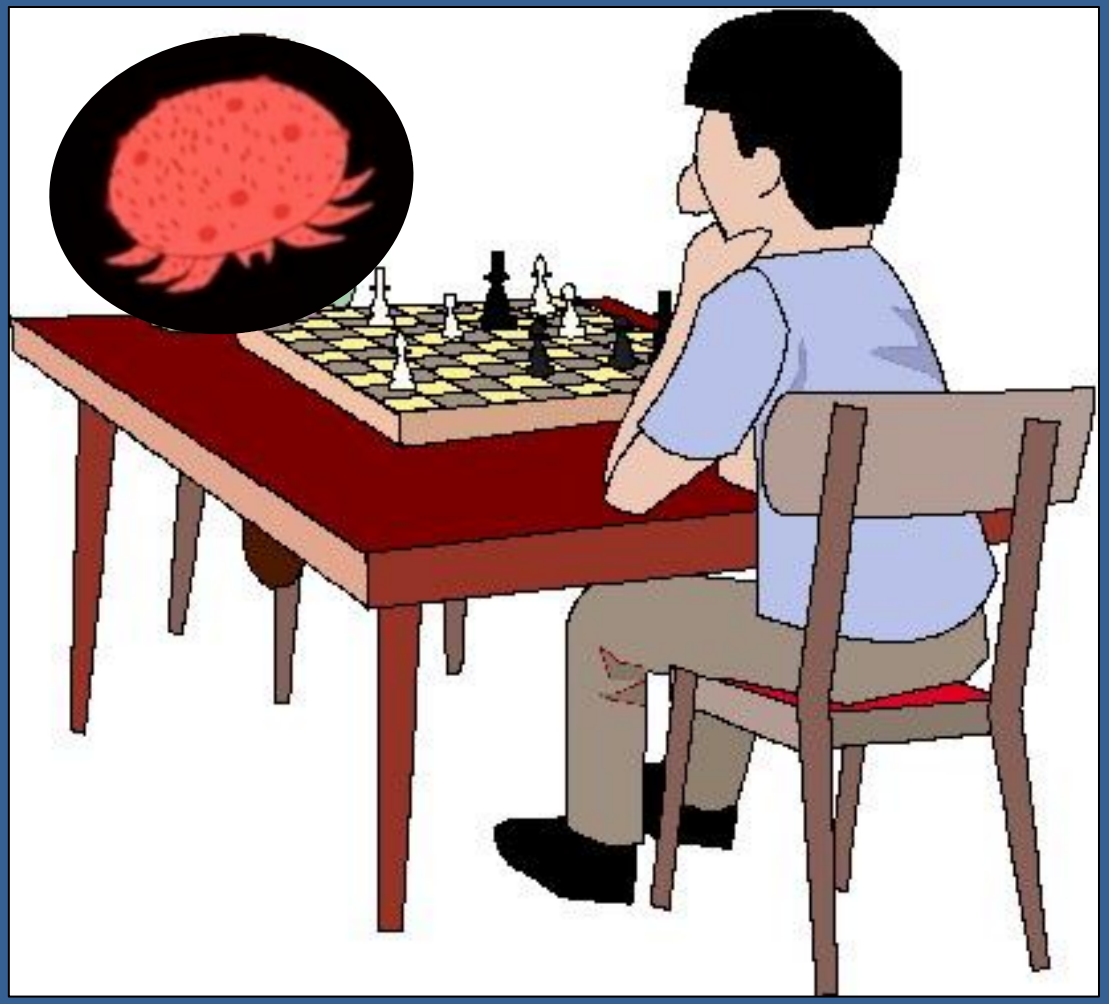
Maintain Varroa below the economic threshold: Do a Varroa Count



You MUST manage Varroa mites!

What are your pre treatment numbers?

Strategies for managing Varroa mites



Wouldn’t you treat your dog if it had Mange mites?

If you treat one colony, treat them all

- Varroa mites are like cigarette smoke
- Both can kill and
- Both spread by drifting

Restrictions, considerations, advantages?

Is this the right time?

Is it necessary to treat at all?

TOOLS FOR VARROA MANAGEMENT

A GUIDE TO EFFECTIVE VARROA SAMPLING & CONTROL

HEALTHY BEES · HEALTHY PEOPLE · HEALTHY PLANET™

http://honeybeehealthcoalition/org/varroa

HONEY BEE HEALTH COALITION™

Plan A

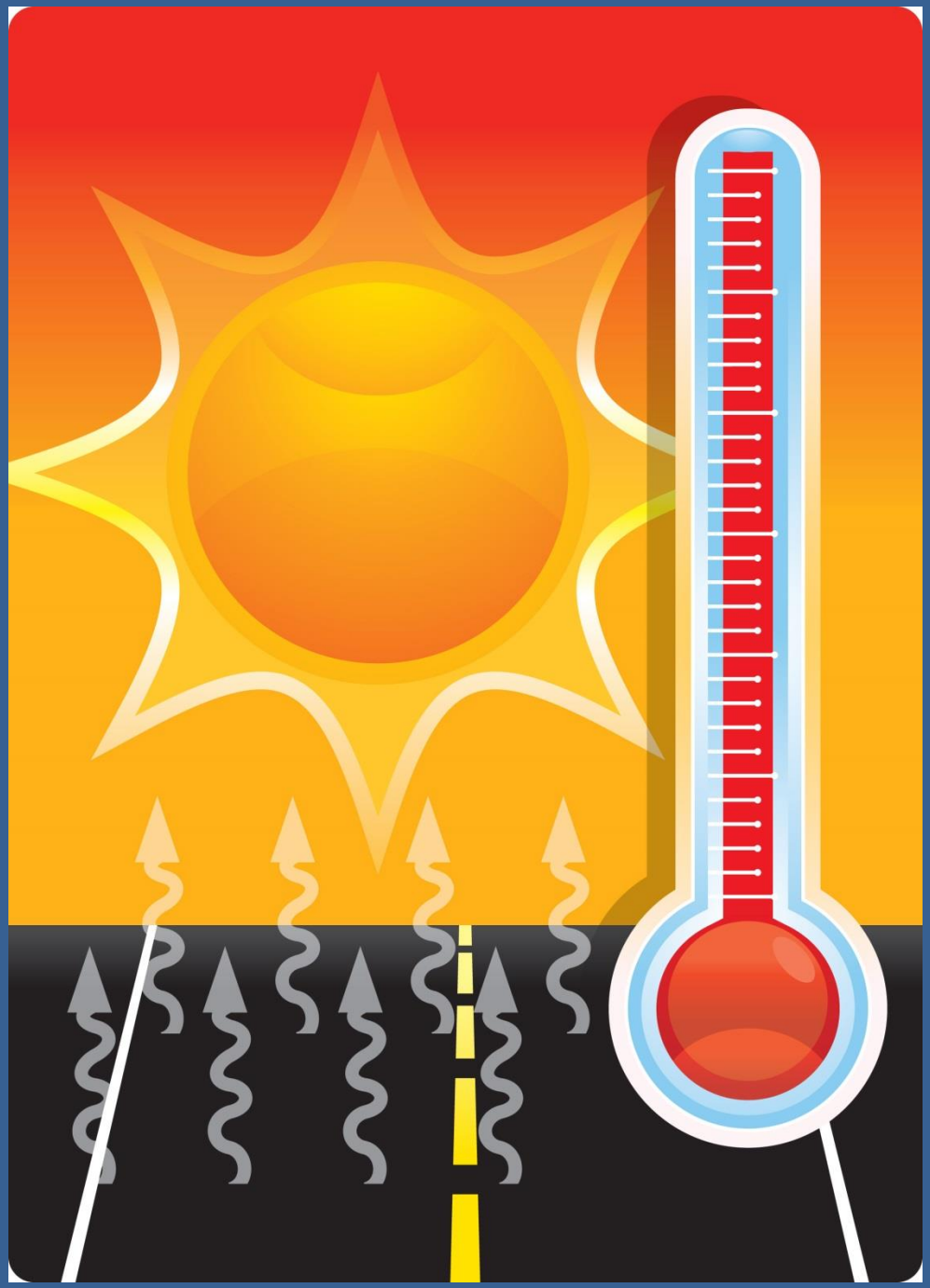
Apiguard® / Thymovar®	
Name	Apiguard® (USA) and Thymovar® (Canada)
Active Ingredient	Thymol (essential oil)
Formulation	Apiguard gel - individual hive dose or bulk tub; Thymovar - individual dose as wafer
Mode of Action	Fumigant
Treatment Time/ Use Frequency	**Apiguard:** Twice at 2 week intervals, apply individual dosage tray or 50 gm per for double hive (remove or spread remaining gel over frame top bars at end of 4th week) **Thymovar:** Twice at 3-4 intervals, 1 wafer for single hive and 2 for double hive, remove excess materials at end of 2nd application.
Time of Year	**Population Increase:** Only if colonies will not be supered within 6 weeks **Population Peak:** Only if bees are not storing honey & not during pollination rental if temps are elevated **Population Decrease:** Post-honey harvest or approaching dormancy
Effectiveness	74 to 95% (more effective with warmer temperatures)
BIP Results	26 to 31% fewer overwintering colony losses with use in 4 consecutive survey years
Restrictions	Temperatures >59°F and <105°F (15 to 40°C)
	Do Not use when colonies are supered for honey.
Advantages	Naturally derived; no known Varroa resistance to Thymol, easy to use.
Disadvantages	May reduce queen egg-laying activity; may increase adult and young larvae mortality; works best under warmer temps; may cause bees to beard in hot weather; human skin irritant.
Considerations	Use Gloves; Effectiveness reduced for light mite infestations; requires closed screen bottom board; do not feed sugar syrup during treatment; consider using spacer rim above brood nest for individual gel trays. (Thymovar – spacer rim is not needed)
Video	Watch our Apiguard video: http://bit.ly/controls-apiguard

1st treatment: start right after take off honey

- Naturally occurring found in thyme and catnip
- Wide temperature range 59 to 104 F
- Safe to use
- No signs of resistance by Varroa

Unexpected change in the weather

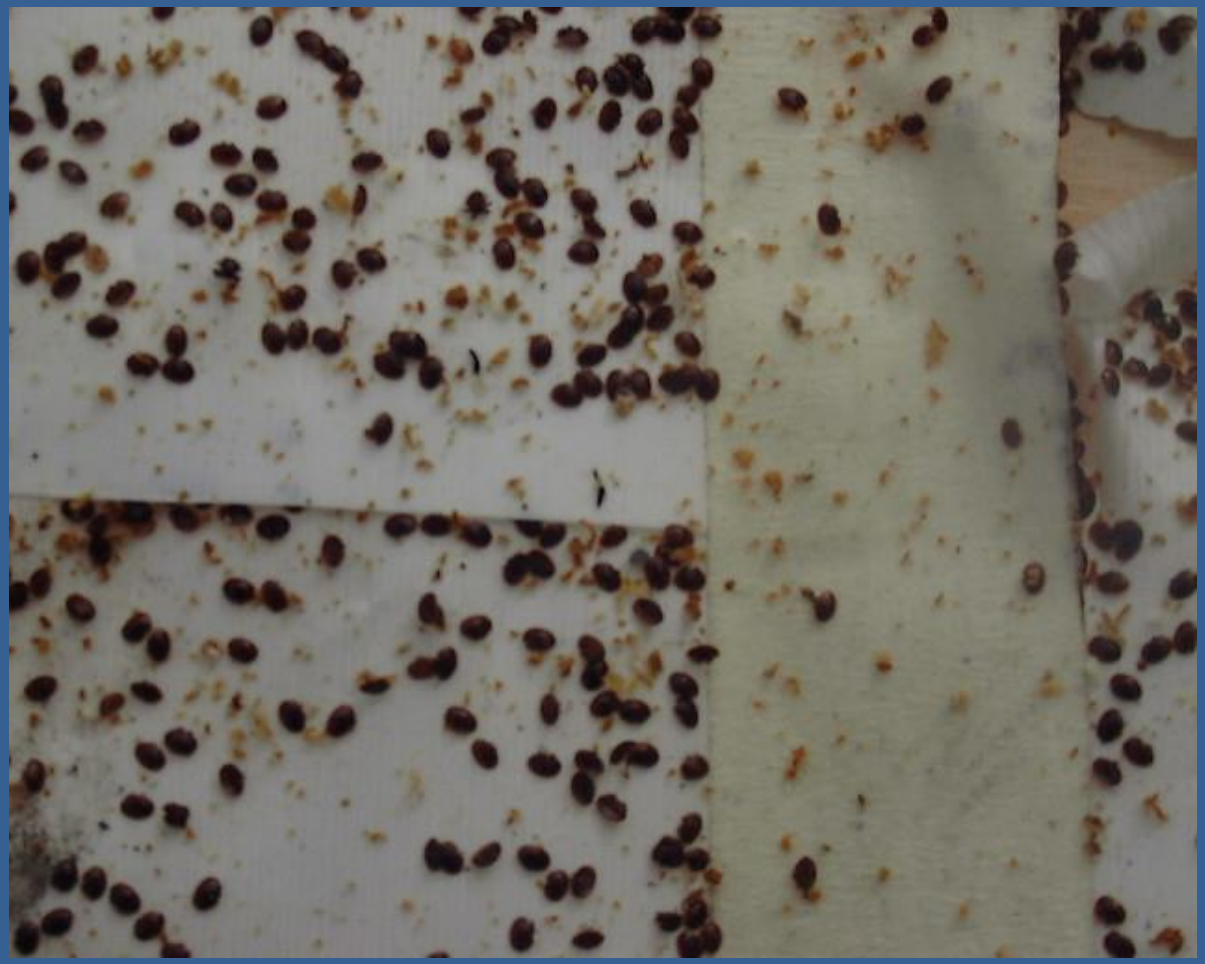
Remove medication



Can the bees use the honey after the colony has been treated?

What are your post treatment numbers?

What if the mite count is still too high?



Why are your post treatment numbers too high?

1. Bees are using a second entrance
2. You forgot to put the sticky board in place
3. Did you read and follow the manufacturer's directions

What can you do about your high post treatment numbers?

You have still have time to implement B:
You can treat again

Plan B: 3rd treatment of Apiguard

Starting early gives you a chance to implement a back up plan and sometimes a back up to a back up

Winter Bee Survival at OSU
Studies over several years

OSU Study shows that the bees need

- Time to start raising winter bees
- Mites below 3% threshold
- Adequate carbohydrate and protein stores

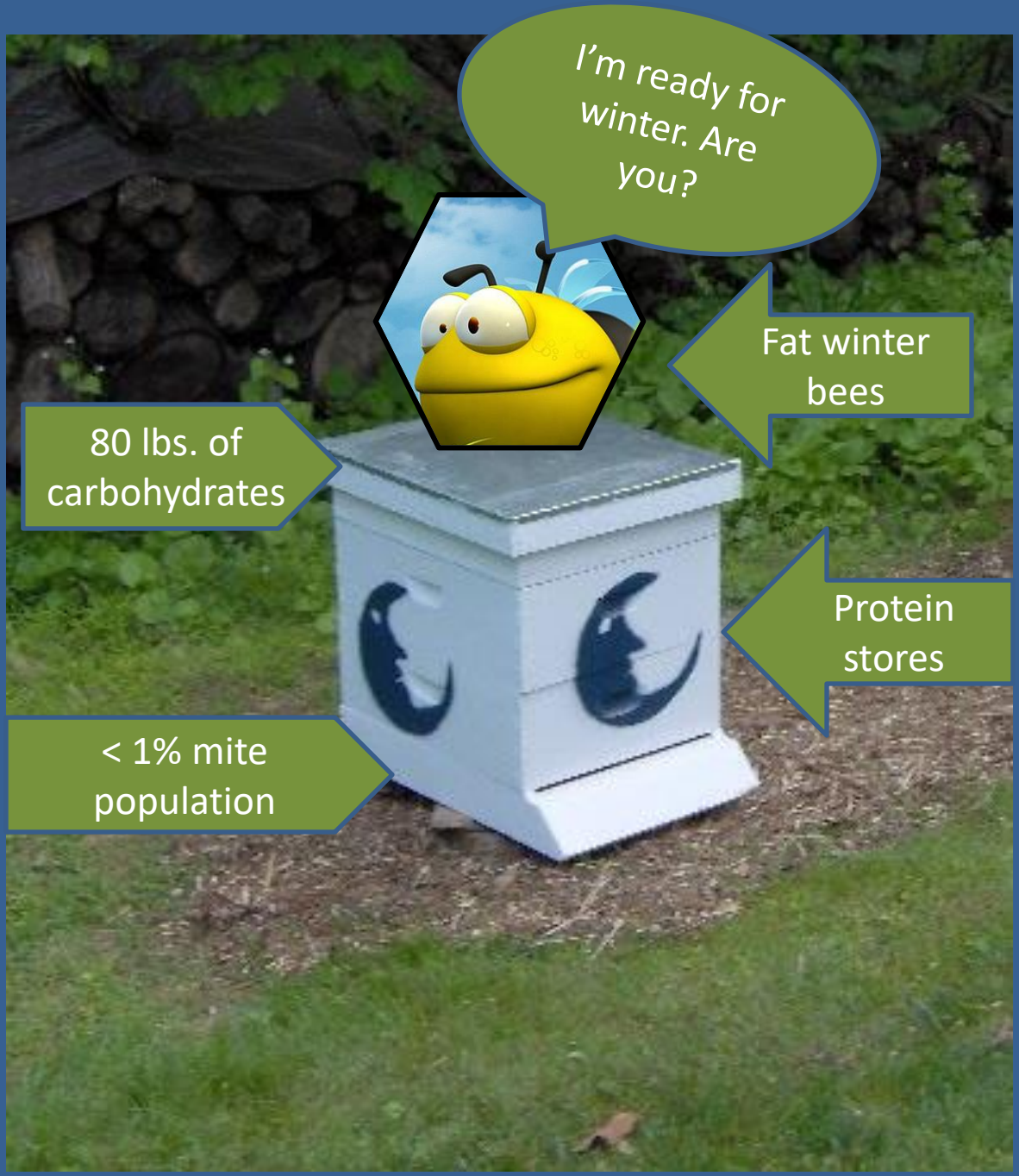
The bees raised during October are present in higher proportions during the final count in March.

Multiple Generations

The bees raised during October are present in higher numbers in March. They are the bees that have come out of metabolic retirement.

Take home message

Bottom line: successful overwintering


I'm ready for winter. Are you?
Fat winter bees
80 lbs. of carbohydrates
Protein stores
< 1% mite population

The End

Questions?