

Protect Your Bees

Varroa Guide & videos



HONEY BEE
HEALTH
COALITION

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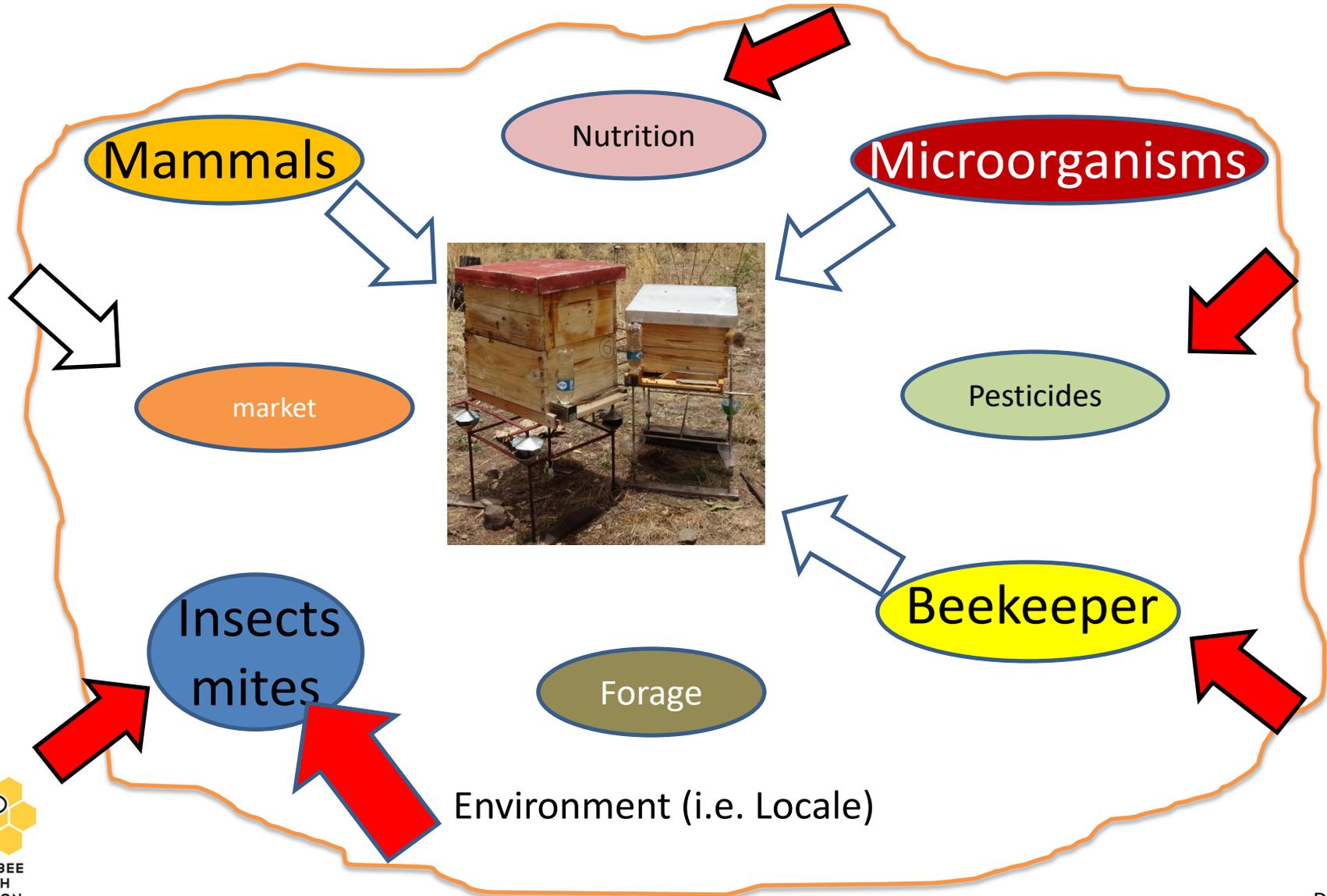


HEALTHY BEES, HEALTHY PEOPLE, HEALTHY PLANET.™



We ALL! NEED bees

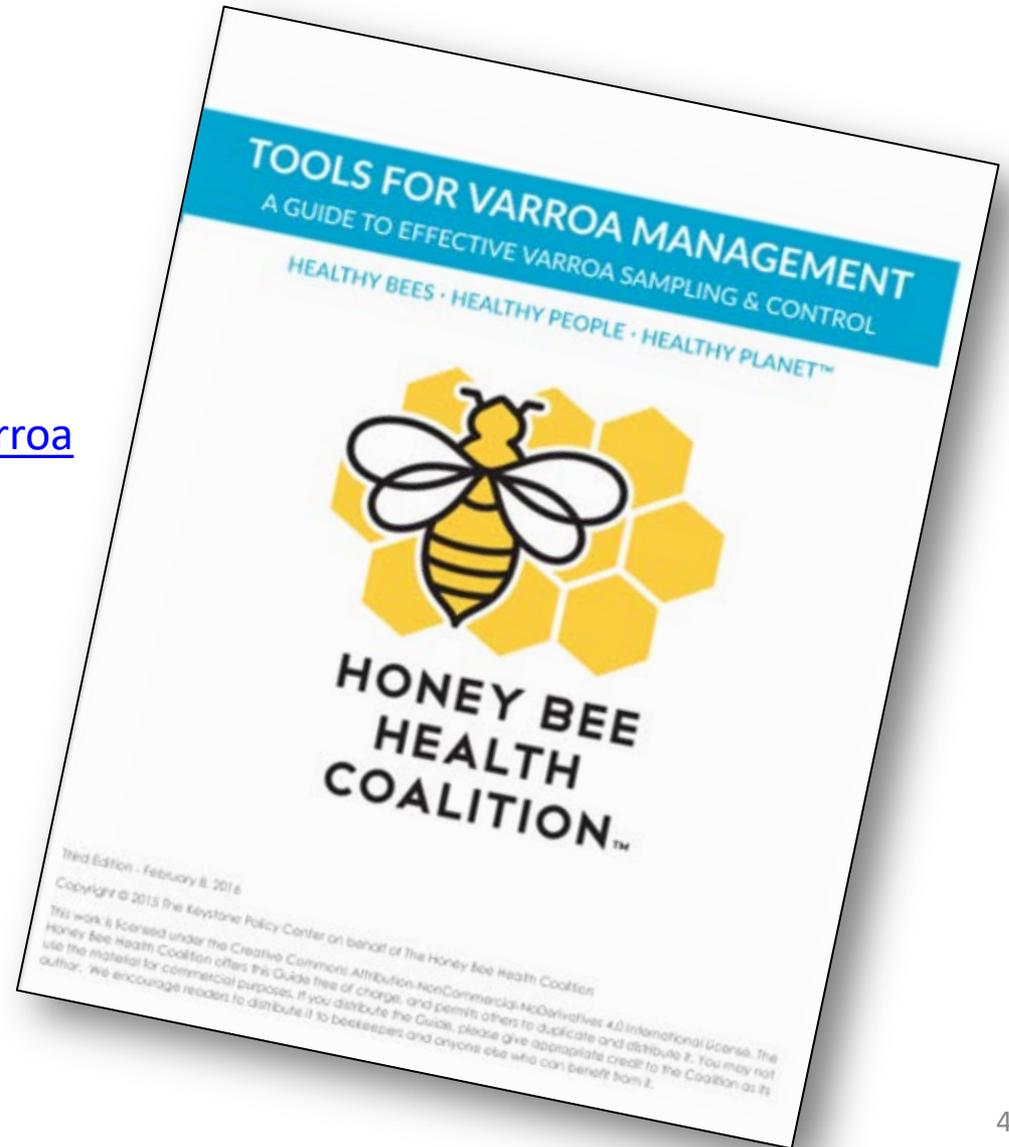
BUT...Many Ecosystem Pressures on Honey Bees



Resources: HBHC Tools Guide

Download the Guide:

www.honeybeehealthcoalition.org/varroa



Resources: Videos



Will Varroa kill my bees?



IPM



Sampling methods



Essential oils



Apivar



Apistan or Checkmite+



Formic acid



HopGuard



Oxalic Acid



Sanitation, screen bottoms



Drone brood removal



Requeening

Watch the Video Series: Search YouTube for “Tools for varroa management Honey Bee Health Coalition”

Resources: Sampling and Control Spreadsheet



Varroa Integrated Pest Management – Sampling & Control Tracking Worksheet

Inspection Date	Apiary	Colony #	# of Sampled colonies	Initial Sampling Results	Action/treatment taken	Treatment date applied	Treatment date completed	Follow-up Sampling Date	# of Sampled Colonies After Treatment Completed	Sampling Results After Treatment	Notes (i.e. observations, batch number if chemical used, follow-up treatment if any, etc.)

Download the Spreadsheet:
www.honeybeehealthcoalition.org/varroa



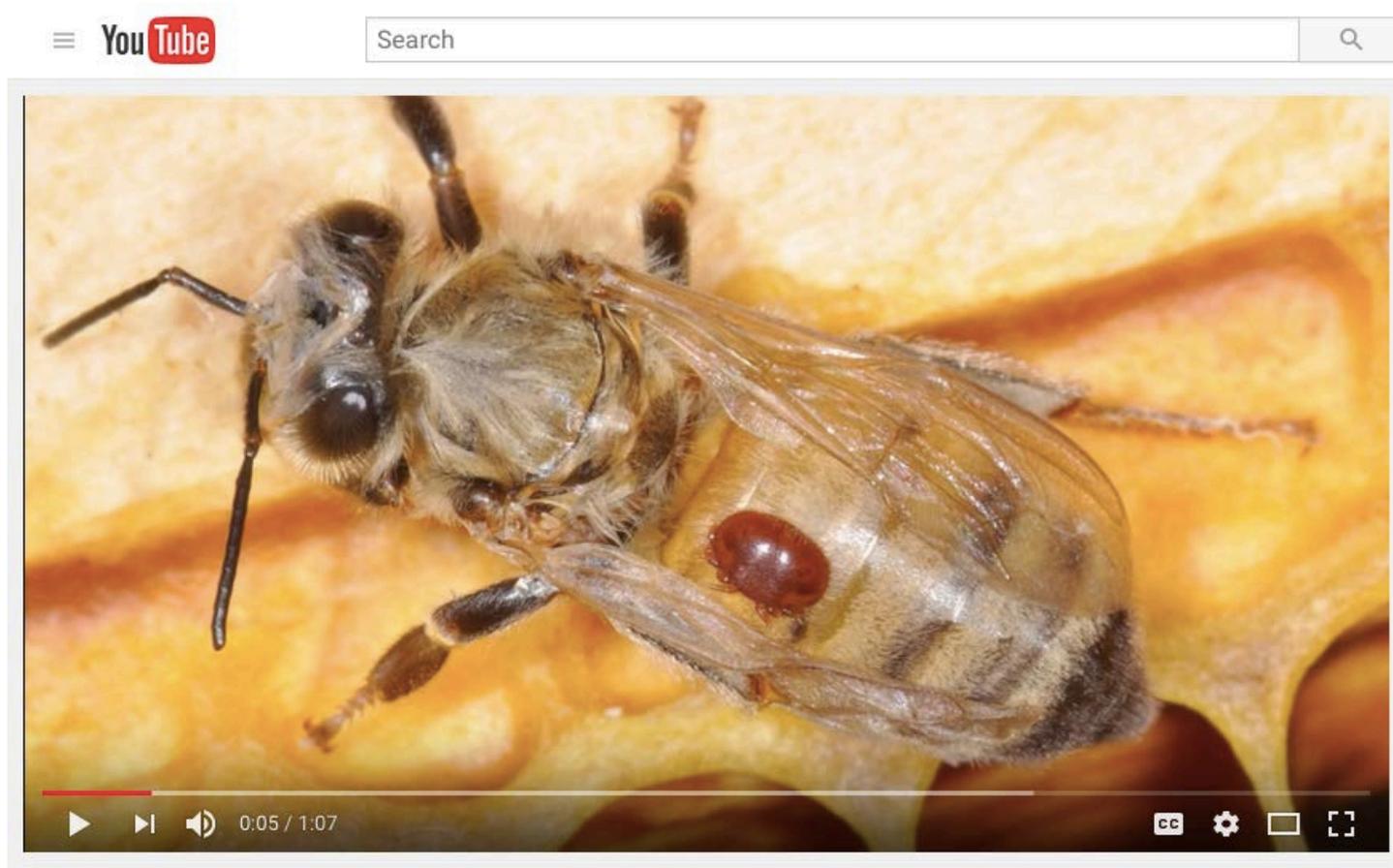
Additionally this power point with notes on each one



**HONEY BEE
HEALTH
COALITION**

NOTE: In addition, the Honey Bee Health Coalition has developed a Sampling and Control Spreadsheet which provides a handy tool for beekeepers to track their varroa mite populations, their individual control strategy and the effectiveness of applied controls. Careful measurement and tracking are important to successful implementation of Integrated Pest Management (IPM). It is also a free download.

Will Varroa Mites Kill My Bees?



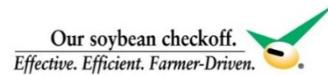


WHO, WHAT & WHY is the Honey Bee Health Coalition?

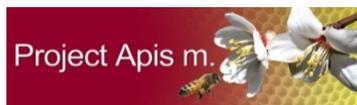
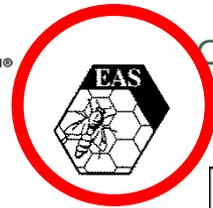




WE ARE the Honey Bee Health coalition



Bayer CropScience



United States Department of Agriculture





Questions And Answers



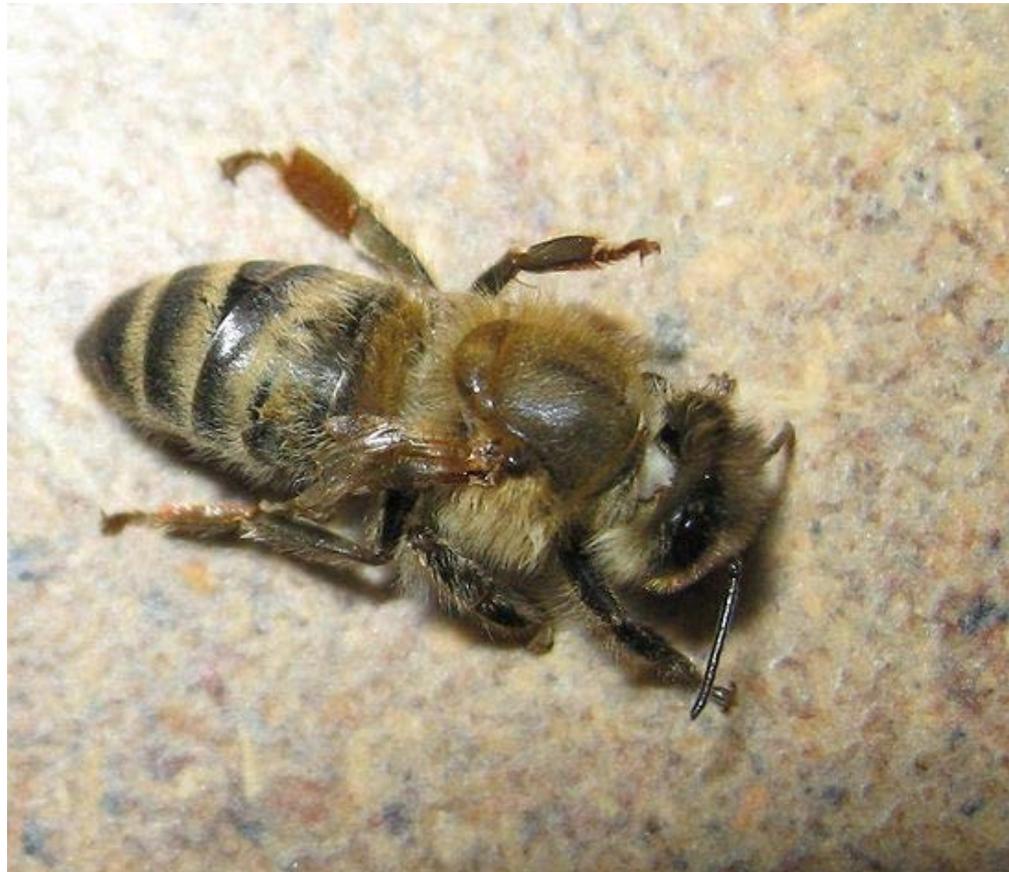
What is a Varroa Mite?

- *Scientific name=Varroa destructor*
 - Originally a pest of Asian honey bee
 - Introduced to U.S. in 1987
 - In all beekeeping countries except Australia
 - Parasitizes larva and adult bees
 - Vector for virus diseases (such as DWV)



Truth in advertising

- Its not the mites – it's the **VIRUS**



DWV
Infected
As larva

**Another
TRUTH!**

**ONLY “real”
SOLUTION**

is

STOCK

Questions And Answers About Varroa Mites

Every
State



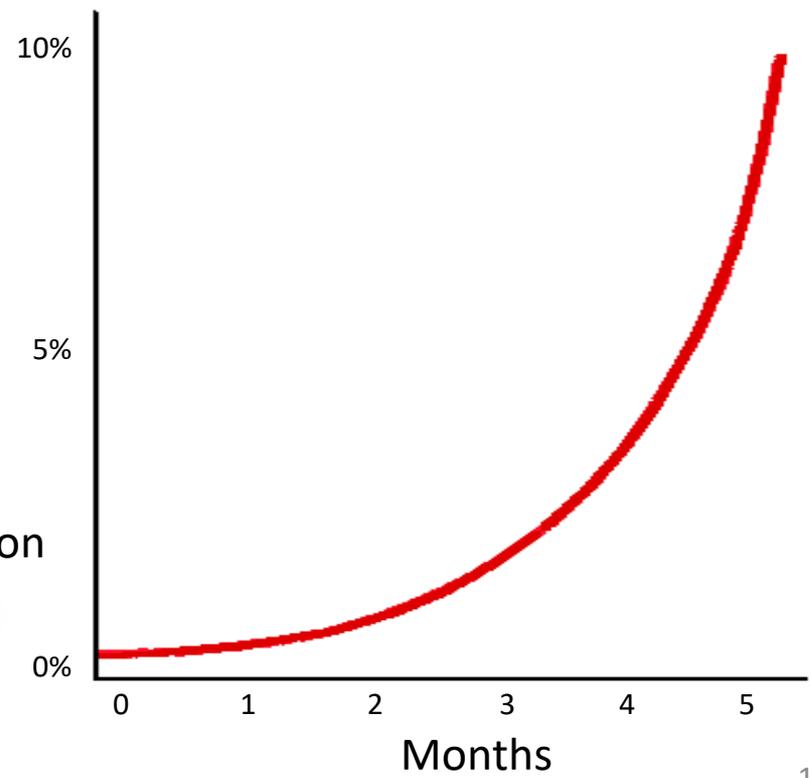
or

TRUE

Every honey bee colony in the continental United States and Canada either has Varroa mites today or will have them within several months. Doing nothing about varroa mites is not a practical option for most beekeepers.



Mite
station





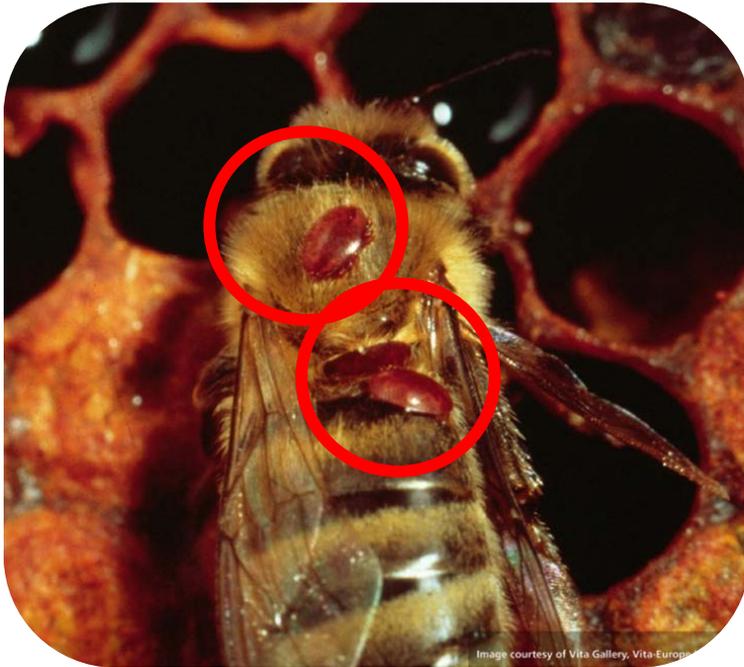
Questions And Answers About Varroa Mites

BEE MATH

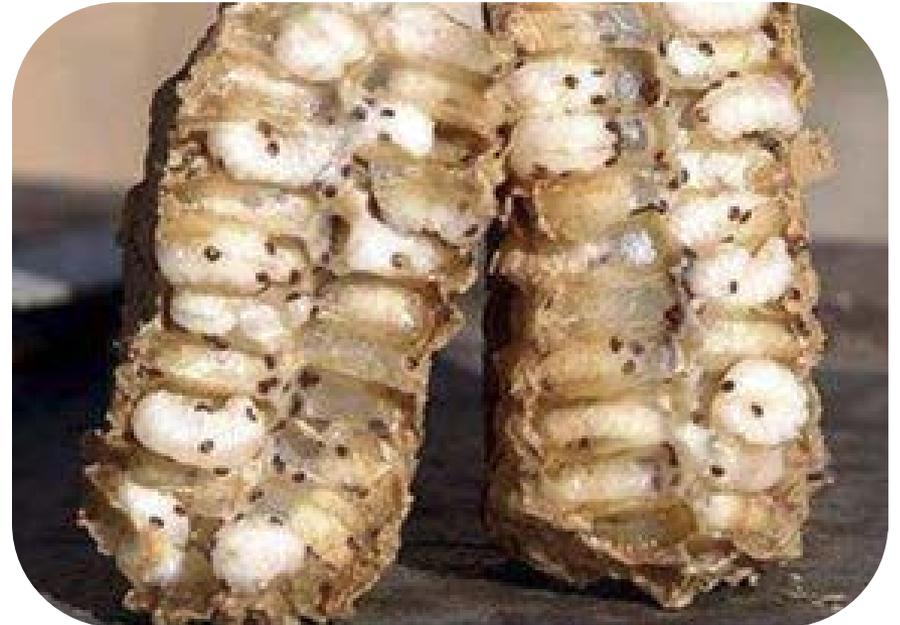
How many places/phases do
Varroa mites exist in a colony?

How many places are Varroa mites found in a colony?

2



Phoretic mite on adult (worker)



Varroa mites reproducing under capped brood cells



Questions And Answers About Varroa Mites

Fill In

Successful varroa control is
_____.





Successful varroa control is **PROACTIVE.**

We need to control varroa before the mites reach levels that threaten colony productivity and survival.



Integrated Pest Management (IPM) is the recommended proactive strategy.



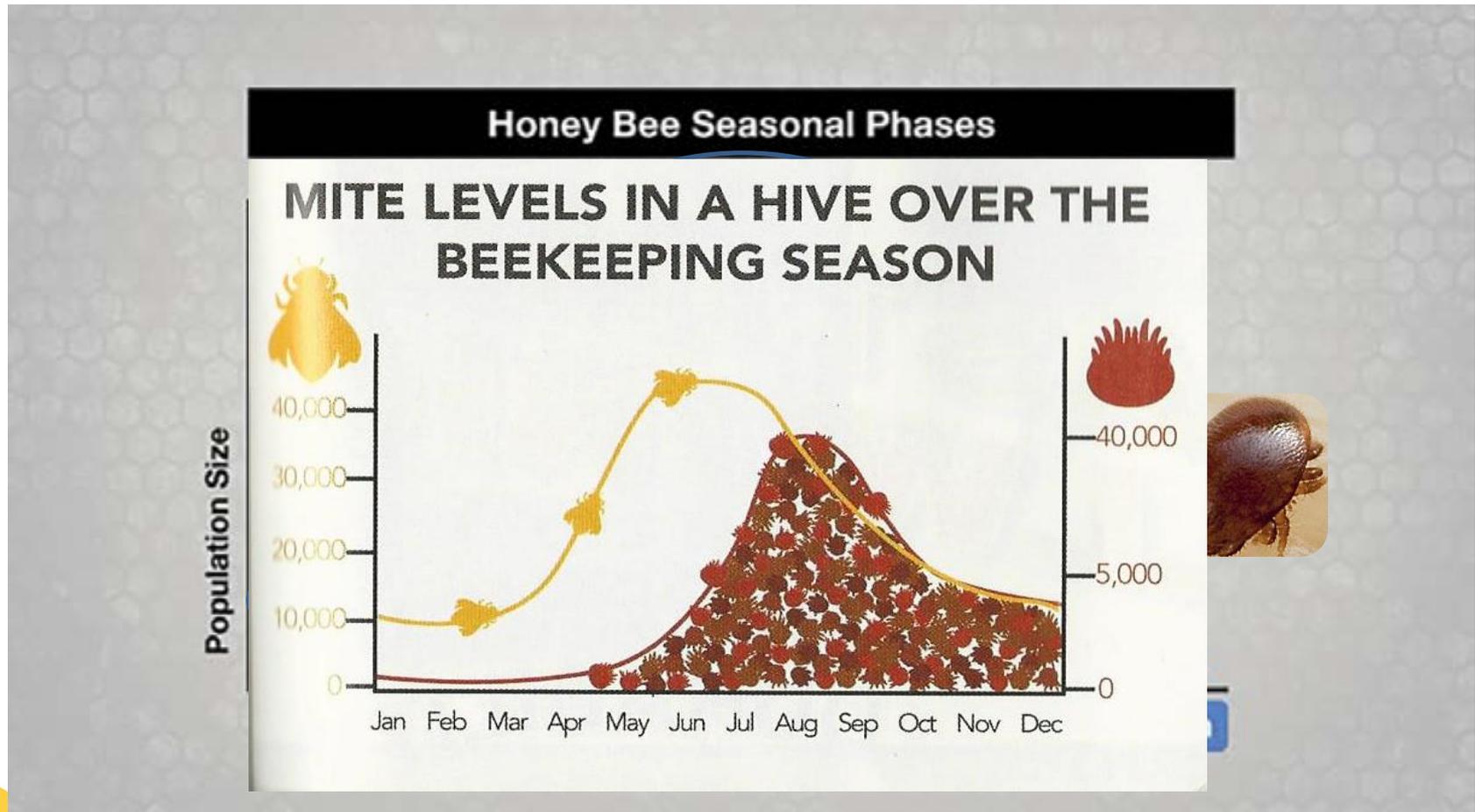
Questions And Answers About Varroa Mites

Essay question

What are the four inter-related population phases of the honey bee/varroa mite seasonal cycles?



The four population phases of the honey bee/varroa mite seasonal cycle are **dormant**, **population increase**, **population peak** and **population decline**.



Another BEE Math question

%

%

%

What percentage of mite infestation is considered potentially harmful?

%

%

%

%



What percentage mite of infestation is considered to be potentially harmful?

It depends on the seasonal phase.

Colony Phase	Acceptable Further control not needed	Caution Control may be warranted	Danger Control promptly
Dormant with brood	<1%	1-2%	>2%
Dormant without brood	<1%	1-3%	>3%
Population Increase	<1%	1-3%	>3%
Peak Population	<2%	2-5%	>5%
Population Decrease	<2%	2-3%	>3%

Acceptable: Current mite populations are not an immediate threat.

Caution: Mite population is reaching levels that may soon cause damage; non-chemical control might be employed; chemical control may be needed within a month. Continue to sample and be prepared to intervene.

Danger: Colony loss is likely unless the beekeeper controls varroa immediately.

Post treatment sample percentage should be < 2-3%





Questions And Answers About Varroa Mites

MOST CRITICAL ?

Why is sampling important to
controlling varroa?



NOT IF

BUT

HOW MANY



LAST BEE Math question

What sampling methods best provide
the HOW MANY ANSWER?

1 2 3 4 5

Sticky (Debris) Board



MOST USEFUL POST-TREATMENT

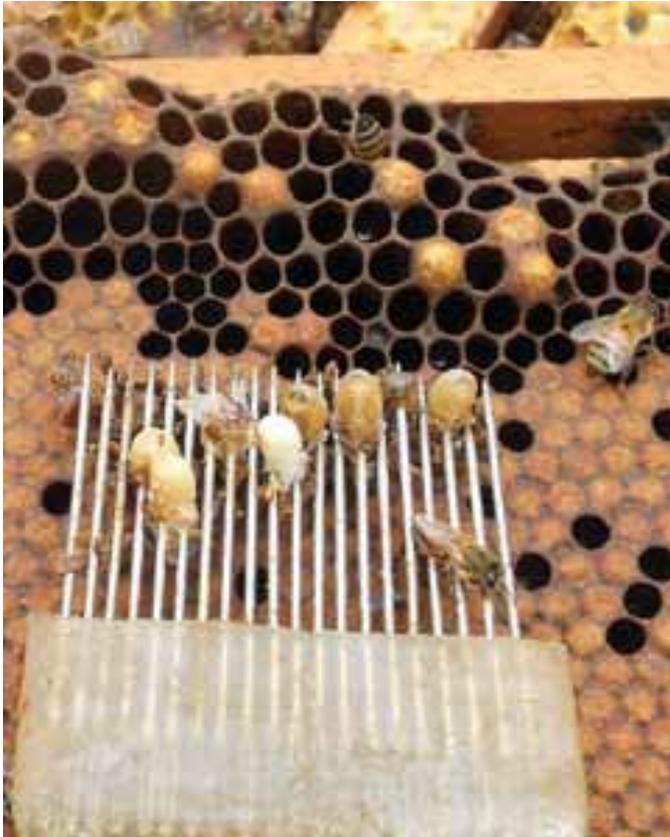


LAST BEE Math question

What sampling methods best provide
the HOW MANY ANSWER?

1 2 3 4 5

Visually “sampling”



IF “SEE” then do “reliable” sample



LAST BEE Math question

most reliably

What sampling methods best provide
the HOW MANY ANSWER?

1 2 3 4 5

The 2 most reliable sampling methods



Powdered Sugar Shake



Alcohol/Soap Wash



These sampling methods are accurate and easy to perform. See the *Tools for Varroa Management Guide* and/or the *Sampling Methods* video to learn how to use them.



LAST TRUE/FALSE question

True or False?

While mite densities may vary across colonies, all colonies in an apiary should be treated at the same time with the same chemical or non-chemical technique.

TRUE

While mite densities may vary across colonies, all colonies in an apiary should be treated at the same time with the same chemical or non-chemical technique.



Colonies with high mite numbers act as “mite bombs”

In Summary



- The Varroa mite is a formidable foe.
- Virtually all colonies have or will have mites.
- A large percentage of colonies will not survive if the mite population exceeds 3%.
- High varroa populations (mite bombs) often result in virus epidemics that weaken or kill colonies.
- Some resistant stocks are helpful but temporary fixes are still needed to keep mite populations lower.

What Controls Work?

See the *Tools for Varroa Management* guide and videos for more information on non-chemical treatments and chemical controls that work.



Screened bottom board



Apivar®
(synthetic miticide)



MAQS formic acid



Drone brood removal



Apiguard - thymol

There is no “magic bullet”
No one technique/chemical works
for everyone in all instances



Non-Chemical or Chemical Treatment?



Non-chemical Cultural & Mechanical-Physical Controls

More Effective

- Drone brood removal
- Brood interruption
- Requeening



Drone brood removal



Requeening

Minimally Effective

- Screen bottom board
- Comb culling
- Powdered sugar
- Apiary site
- Colony ID/configuration
- Basic sanitation



Screen bottom board



Colony configuration

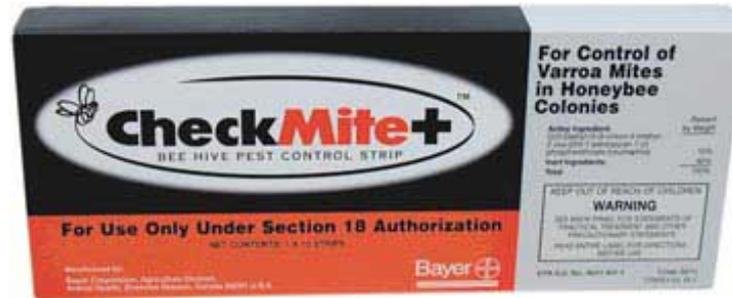


Synthetic Chemical Treatment: Apivar[®]



- | | |
|---|--|
| What is common name for Apivar [®] ? | amitraz |
| What is its route of exposure? | Contact |
| Can it be used when supering? | No |
| What is treatment interval? | 42-54 days |
| What about disadvantages? | Brood loss,
mites developing resistance |

Two Older Synthetic Chemical Treatments



What is the active ingredient of Checkmite®?

Coumaphos

What about Apistan®?

Tau-fluvalinate

What are major disadvantage of these two treatments?

Mite resistance,
Beeswax contamination,
Kill queens,
Long half-life



Essential Oils Treatments

API LIFE VAR®



API GUARD®

What is the main essential oil ingredient of both products?

Thymol

What is the route of exposure for these products?

Fumigant

What is an advantage of these product?

Naturally derived

What are issues when using these products?

Temperature
Brood/queen loss

Acid Treatments: Mite-Away Quick Strips® (MAQS®)



What is the active ingredient of this treatment?

Formic acid

Route of exposure

Fumigant

What are two major advantages of this product?

Kills mites under caps & can use when supering

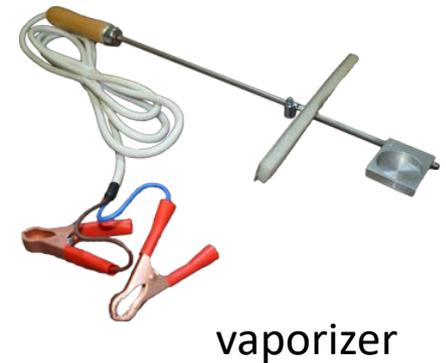
What is treatment time?

One week (7 days)

What considerations does the beekeeper have to keep in mind?

Temperature; personal protection essential: gloves, eye wear, respirator recommended

Acid treatments: Oxalic



What is the mode of action?

Contact

What are the methods of application?

Spray, dribble & vapor

What time of year should this product be applied?

Dormant phase,
late Population Decrease

When should this product be used?

Apply when colony is
broodless

What about disadvantages?

Corrosive; **must** use safety
equipment, including respirator



Hopguard®



What is it?

An acid derived from the aromatic beta acids of hops

What is the method of application?

Cardboard impregnated strips

When should this product be applied?

Dormant phase; works best if bees are broodless

What are the issues?

“Messy” product still in development (legal to use); goggles, waterproof gloves, proper clothing required.



Other Chemicals

- Other chemicals are **not recommended** by the Honey Bee Health Coalition
 - Only use pesticides registered with EPA for control of varroa mites
 - Using non-approved treatments is **illegal**
 - They may be dangerous to beekeeper and/or bees

***If a chemical sounds too good to be true,
it probably is.***

Keeping bee colonies healthy is challenging
Some seasons are going to be tough....
Bee colonies will also need to be tough



For every complex problem there is an answer that is clear, simple and wrong.

H.L. Mencken

Thanks for your time and attention

Questions?

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