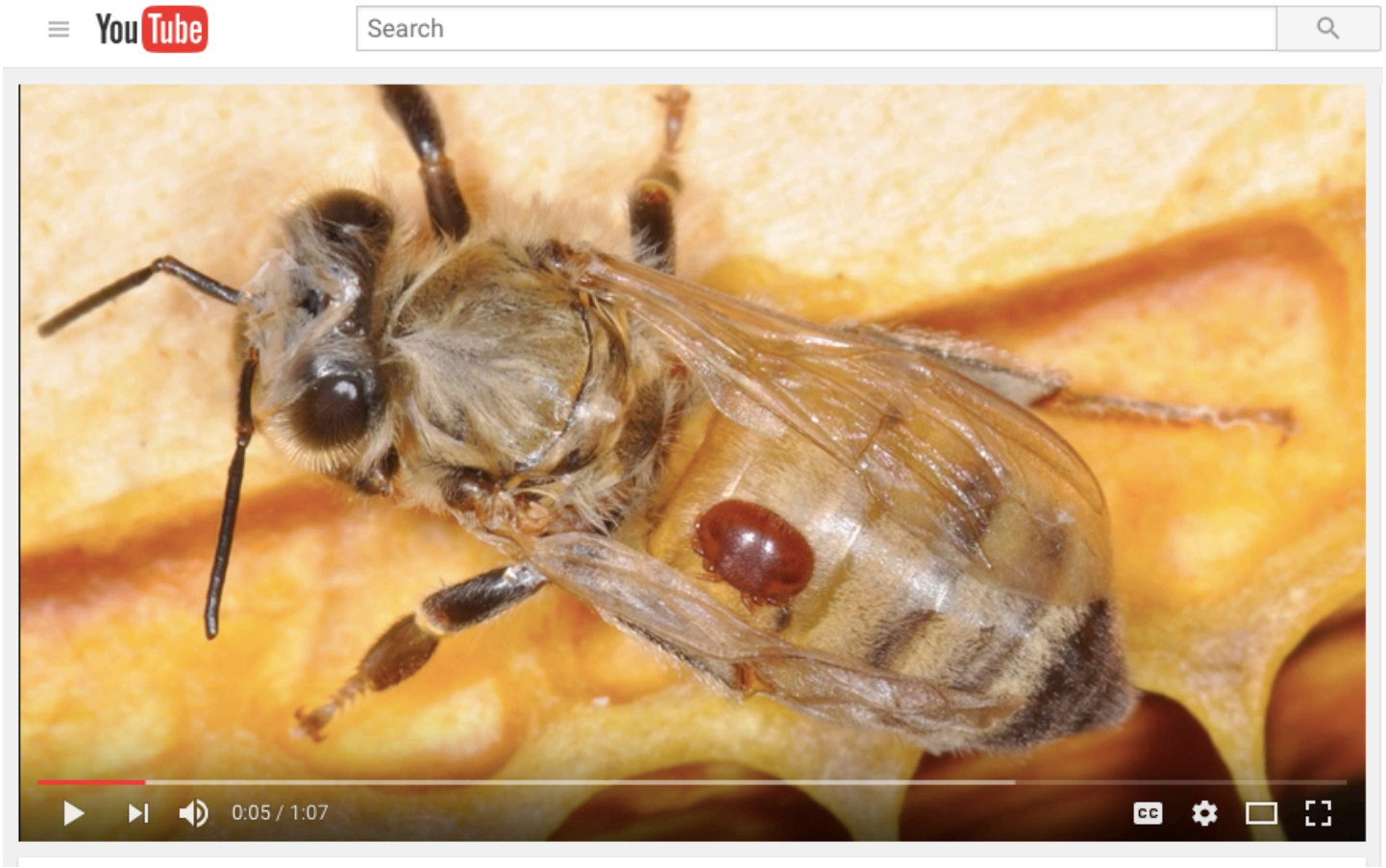
Protect Your Bees
from Varroa Mites

HONEY BEE
HEALTH
COALITION

HEALTHY BEES, HEALTHY PEOPLE, HEALTHY PLANET.™

HONEY BEE HEALTH COALITION

Will Varroa Mites Kill My Bees?



HONEY BEE HEALTH COALITION

WHO & WHAT
is the Honey Bee Health Coalition?

WE ARE the Honey Bee Health Coalition

AHPA
American Honey Producers Association

Oregon State Beekeepers Association

NOD Nature's Own Design Apiary Products

california almonds
Almond Board of California

FFVA
Florida Fruit & Vegetable Association

NCGA

ABF
1943
American Beekeeping Federation

EMBA
Eastern Missouri Beekeepers Association

Wisconsin Apicultural Society of North America
W.A.S.

Browning's Honey

syngenta

FieldWatch
Communication. Cooperation. Collaboration.

LAND O'LAKES, INC.

Agricultural Retailers Association

The Foundation for the Preservation of Honey Bees, Inc.

AIA

Heartland Apicultural Society

canolacouncil
of Canada

Our soybean checkoff.
Effective. Efficient. Farmer-Driven.

U.S. Canola Association

Canadian Honey Council

BAYER
Bayer CropScience

CropLife America

DuPont Pioneer

The Bee & Butterfly Habitat Fund

National Association of Wheat Growers

MONSANTO
imagine

asta
first-the seed

CropLife Canada

VALENT

EAS

LEVIN
FAMILY FOUNDATION

Saint Louis Zoo
Animals Always

BASF
The Chemical Company

Project Apis m.

PHEASANTS forever

Pollinator Stewardship Council

CTIC
Conservation Technology Information Center

DUCKS UNLIMITED

NASDA

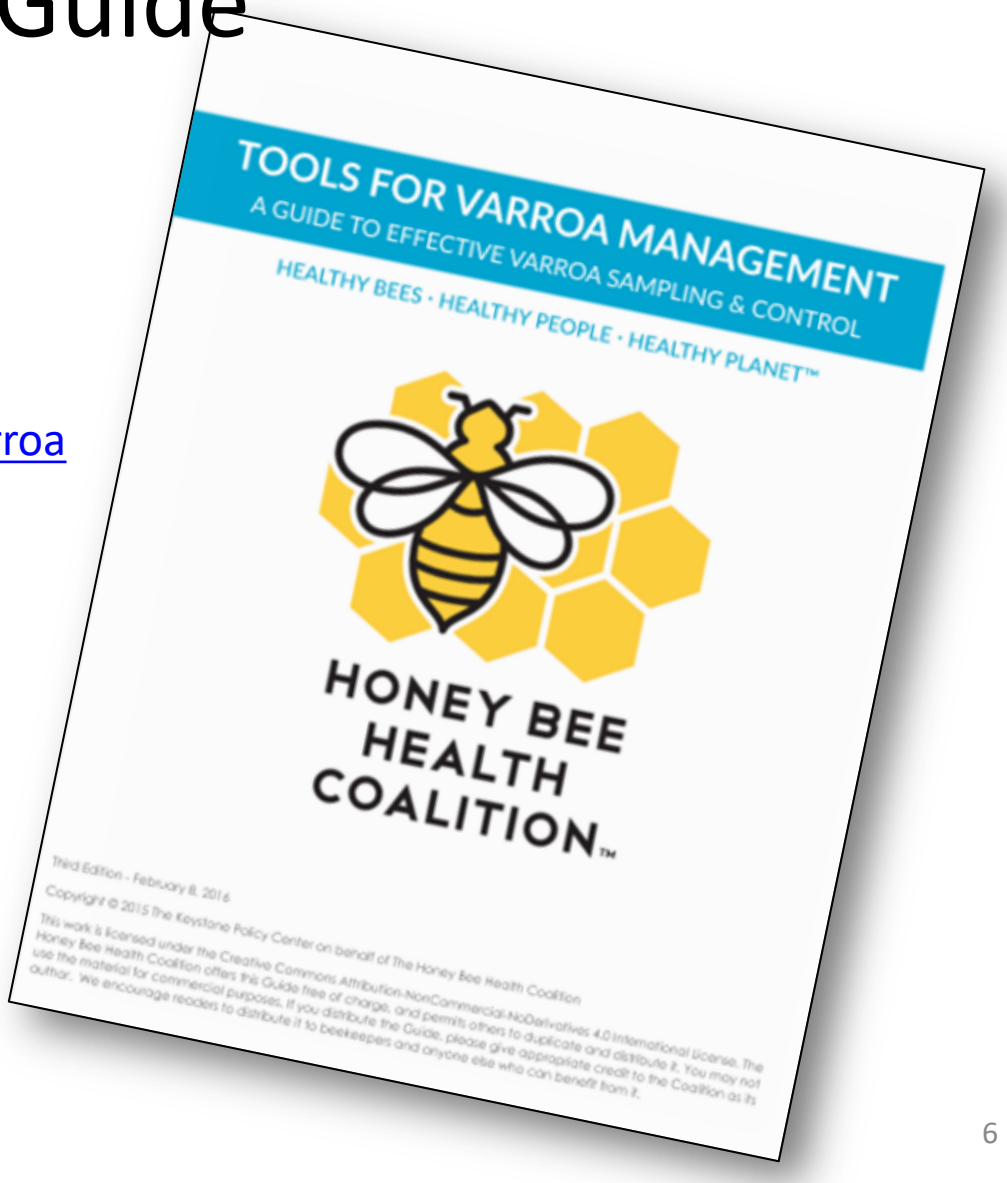
UNIVERSITY OF MARYLAND

United States Department of Agriculture
OPMP
Office of Pest Management Policy

United States Environmental Protection Agency

Resources: Tool for Varroa Management Guide

Download the Guide:
www.honeybeehealthcoalition.org/varroa



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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”

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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

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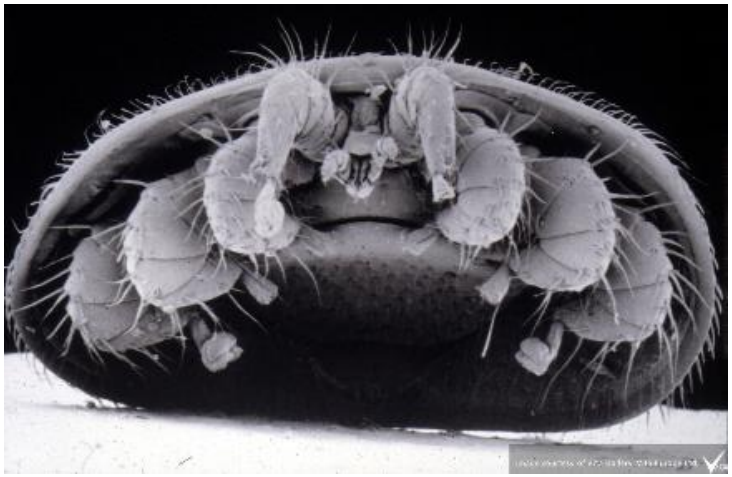

Questions & Answers About Varroa Mites

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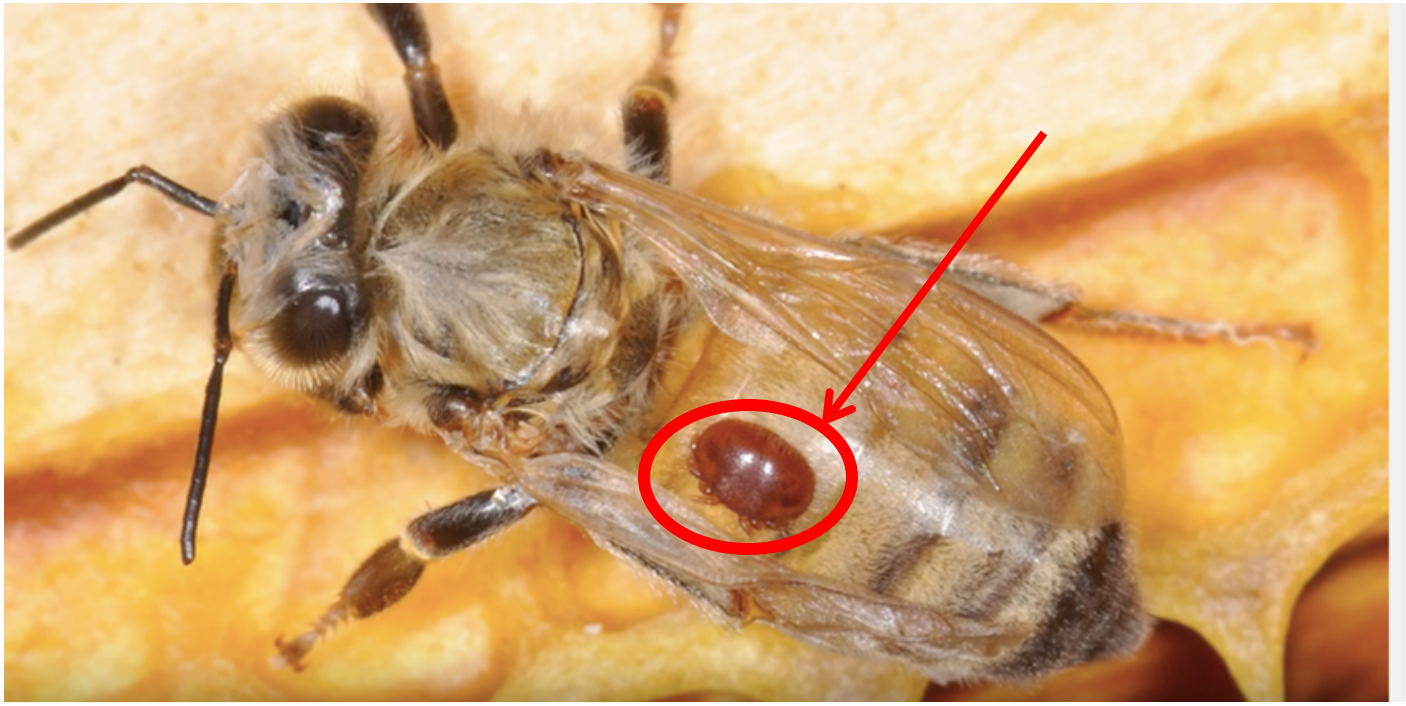
What is a Varroa Mite?



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What is a Varroa Mite?

- *Scientific name → Varroa destructor*
  - Originally a pest of Asian honey bee
  - Introduced to United States in 1987
  - In all beekeeping countries except Australia
  - Parasitizes larva and adult bees
  - Vector for diseases

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True or False?

Every honey bee colony in the continental United States and Canada either has Varroa mites today or will have them within several months.

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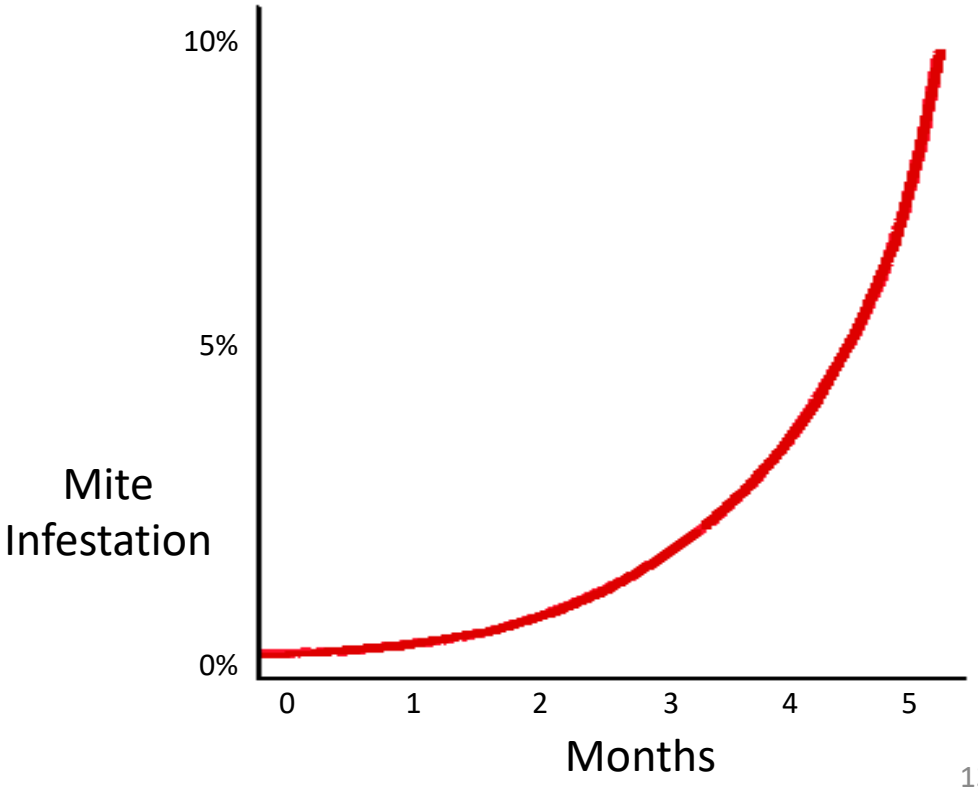
TRUE

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.

We all need to accept the fact that we have an extra member of the family – the mite – and it's here to stay.

HBHC Coalition



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Successful Varroa control is _____.

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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.

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

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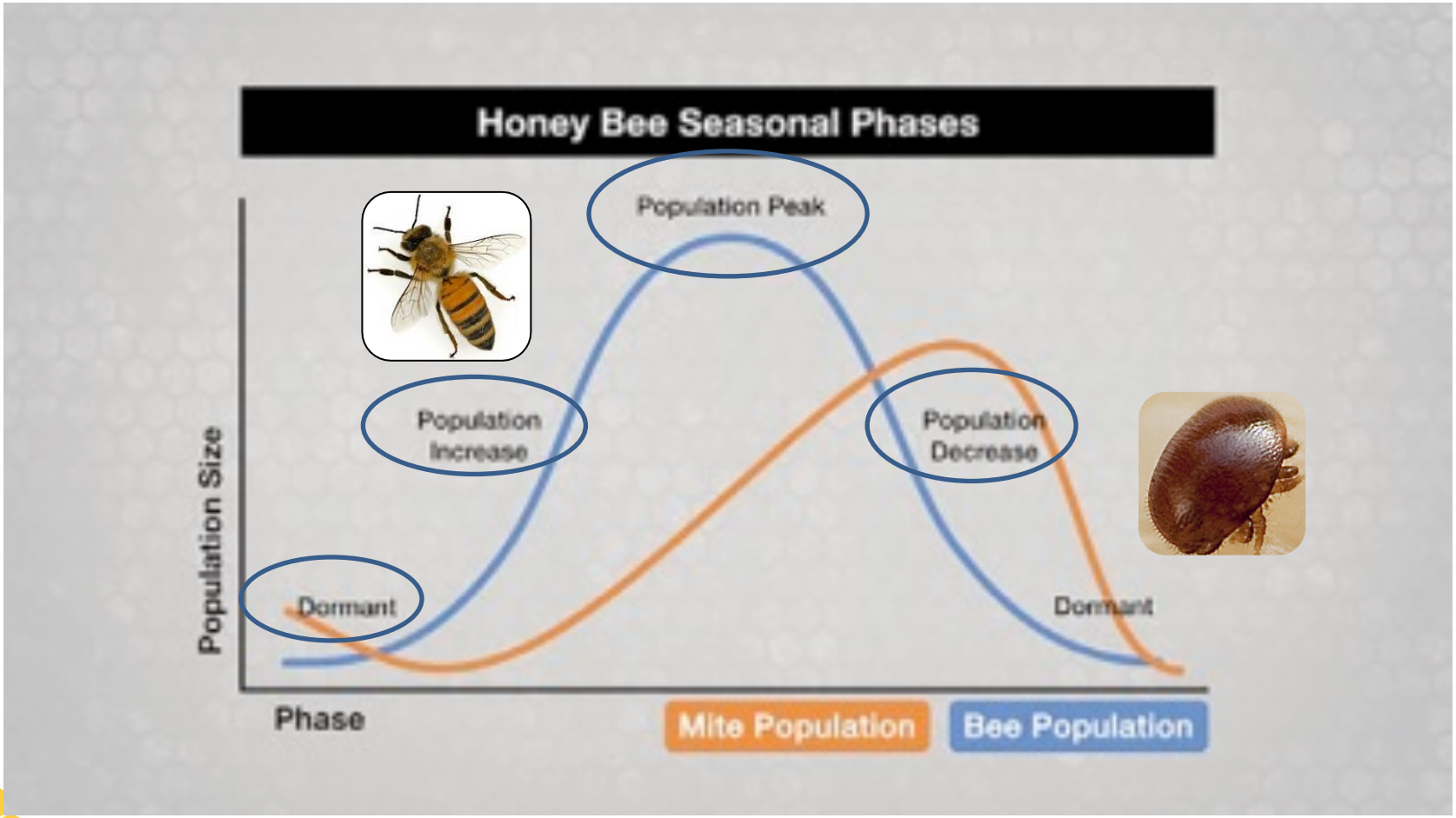
The four population phases of the honey bee/Varroa mite seasonal cycle are **dormant**, **population increase**, **population peak**, and **population decline.**



HONEY BEE HEALTH COALITION

%

%

%

What percentage of mite infestation is considered potentially harmful?

%

%

%

%

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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.*

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Post treatment sample percentage should be < 3%

Why is sampling important to controlling Varroa?

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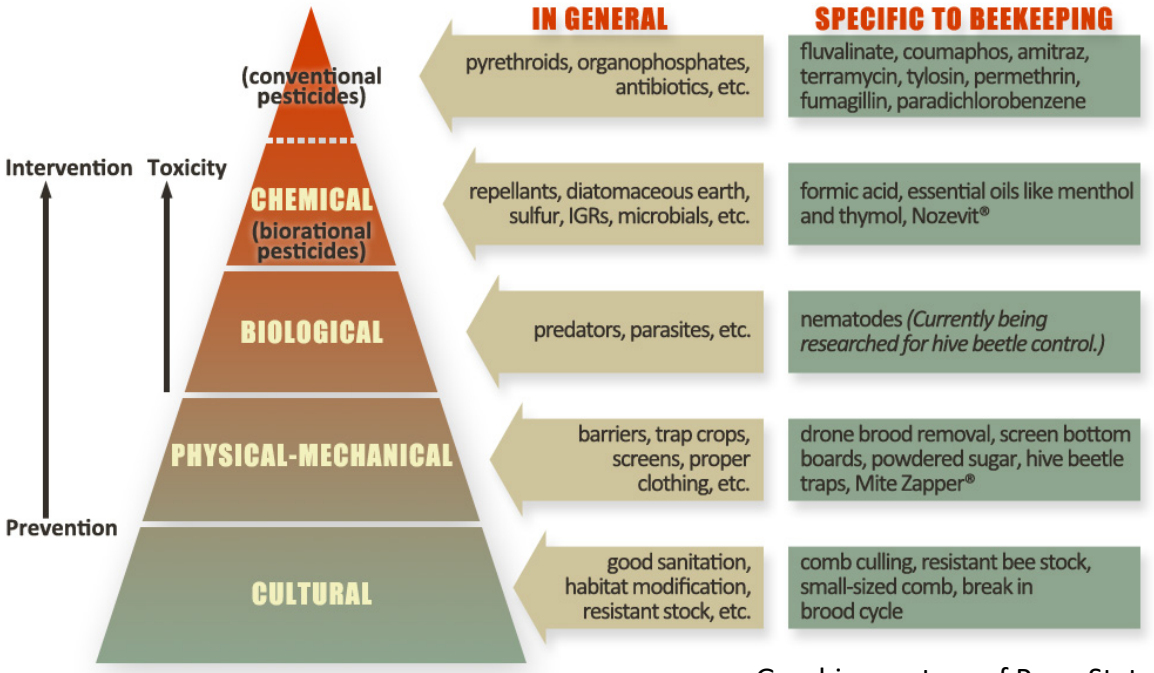
Regular sampling provides an estimate of your mite population and allows you to select the appropriate control technique.

IPM is a set of proactive, non-chemical and chemical methods that offers beekeepers the best whole systems approach to controlling Varroa.



Graphic courtesy of Penn State

Pyramid of IPM Tactics

IPM starts with most basic controls first.

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What sampling methods does the Honey Bee Health Coalition recommend?

HONEY BEE HEALTH COALITION

What sampling methods does the Honey Bee Health Coalition recommend?

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.

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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.

HONEY BEE HEALTH COALITION

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”

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What Controls Work?

See the *Tools for Varroa Management G*uide 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

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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.

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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

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MiteCheck
Beekeeper Citizen Science

Can beekeepers become proficient at mite monitoring?

Can we update beekeepers about mite levels in their area?

Can we better understand our mite population dynamics?

www.mitecheck.com

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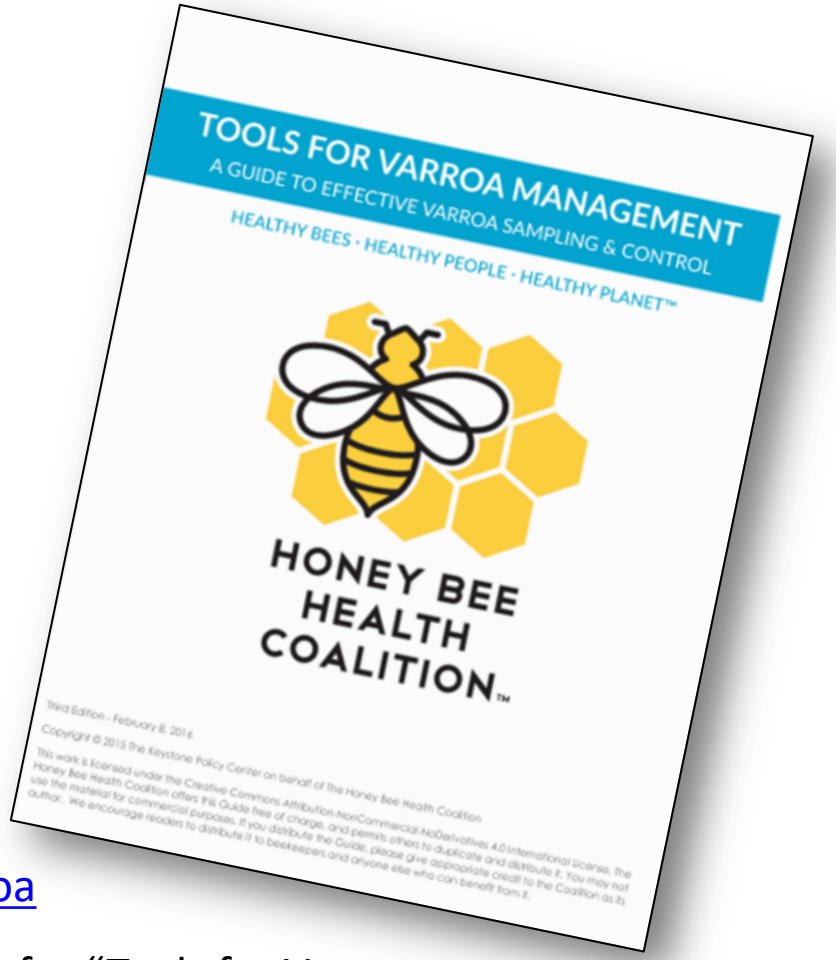
Thanks for your time and attention

Questions?



Download the Guide:
www.honeybeehealthcoalition.org/varroa

Watch the Video Series: Search YouTube for "Tools for Varroa Management Honey Bee Health Coalition"

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Additional Slides on Treatments

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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

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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

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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

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Essential Oils Treatments

API LIFE VAR®

APIGUARD®

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

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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

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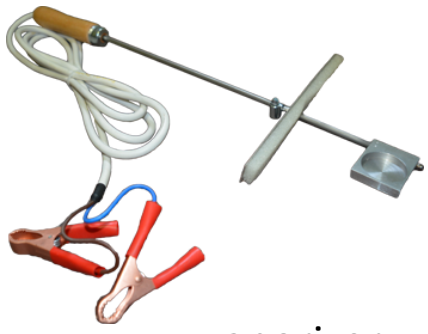
Acid treatments: Oxalic



vaporizer

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

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Hopguard®

BetaTec® hop products

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.

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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.

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