

A close-up photograph of a honeycomb cell. The cell is partially covered by a white, crumpled wax cap. A small, reddish-brown mite, identified as a Varroa mite, is visible on the wax cap. The background shows the golden-brown structure of the honeycomb.

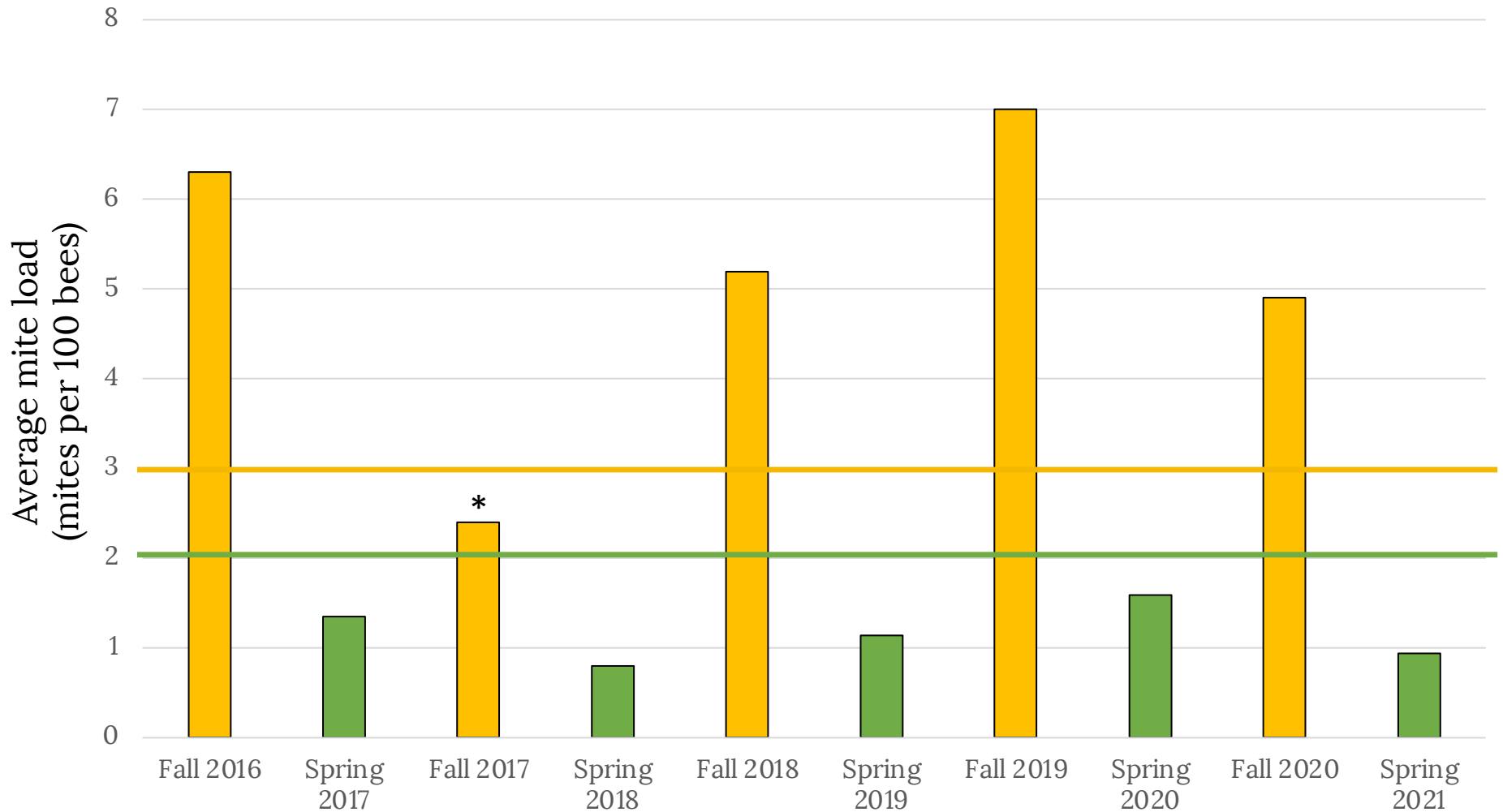
# **MYTHBUSTERS!**

*Varroa edition*

Emma Walters  
Cornell University



# Many beekeepers still struggle to manage *Varroa*, especially in autumn



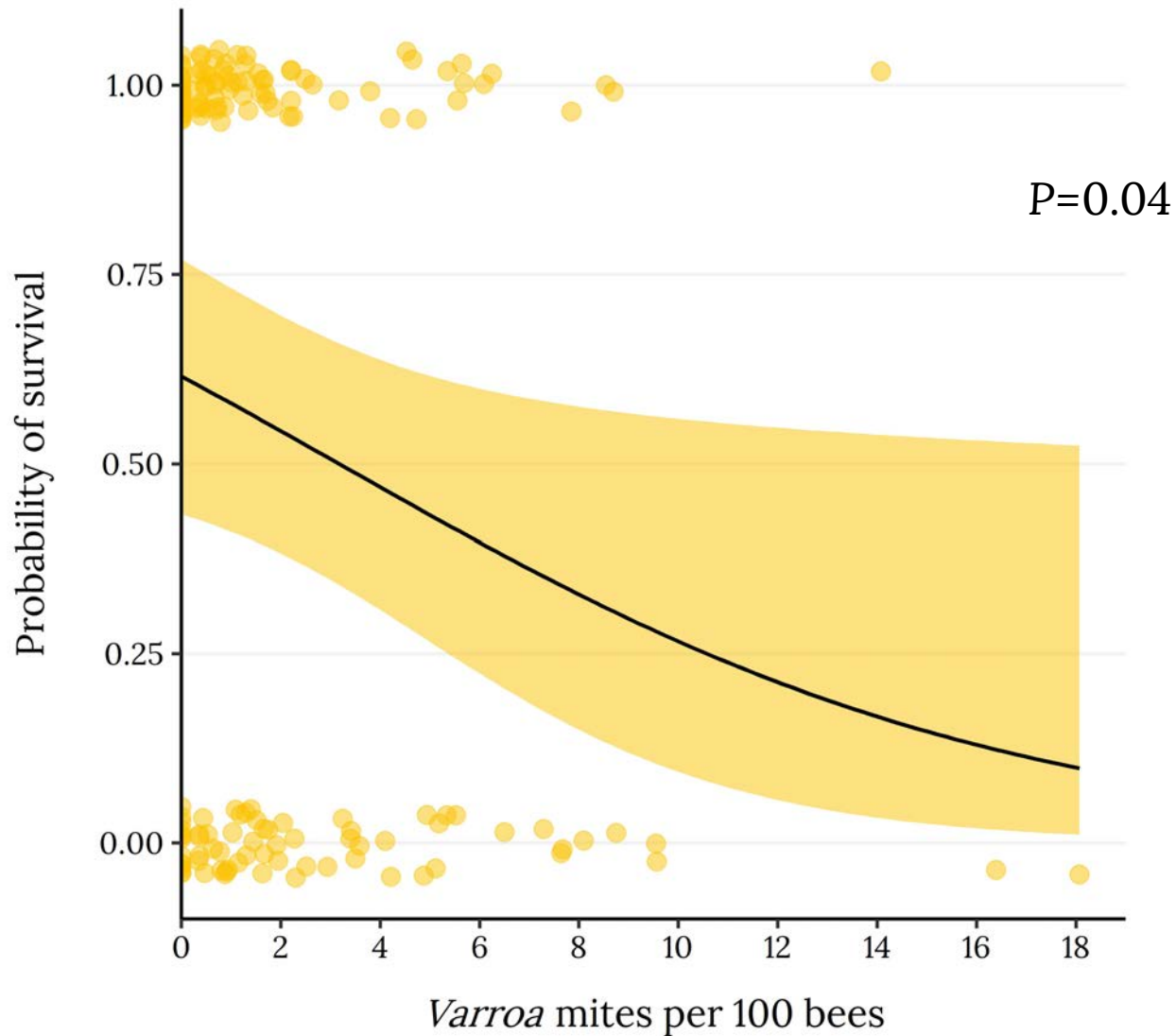
\* Sampled in August instead of September

In autumn, some colonies are healthy and some are not

- 54% of colonies are below threshold in fall.
- 12% of colonies have PMS in fall.



# *Varroa* is a significant predictor of winter loss





#1. I don't need to monitor because *Varroa* is always present.

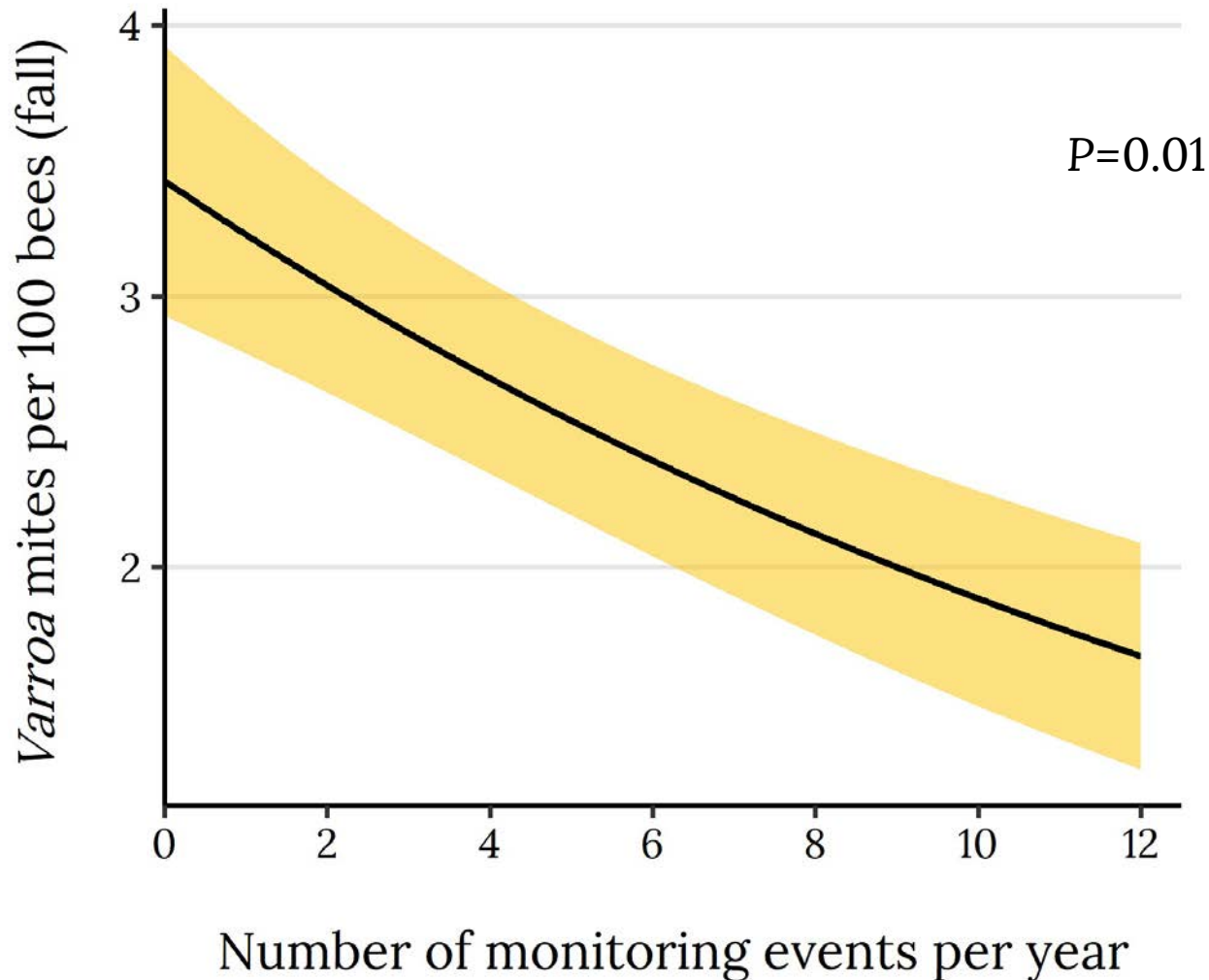
# Monitoring gives you three important pieces of info:

1. How *Varroa* pressure changes over time in your apiaries
2. When to treat
3. If your treatment worked

Choose an easy system!



# Regular monitoring is associated with lower fall *Varroa*





# Continue monitoring until the end of October

1. Mite populations can surge in October from healthy colonies robbing collapsing colonies
2. Mites are being re-introduced to colonies through visitation



1. Peck and Seeley. 2019. Mite bombs or robber lures? The roles of drifting and robbing in *Varroa destructor* transmission from collapsing honey bee colonies to their neighbors. PLoS ONE 14(6): e0218392.

2. Kulhanek et al. 2021. Accelerated *Varroa destructor* population growth in honey bee (*Apis mellifera*) colonies is associated with visitation from non-natal bees. Scientific Reports, 11: 7092



#2. Colonies should be treated once a year in autumn.

Colonies should be treated every time they reach the treatment threshold.



# Treatment thresholds

**March - July**

2 mites / 100 bees

**August - November**

3 mites / 100 bees

# Research from the University of Maryland supports this recommendation

	<i>Average Practice</i>	<i>BMP</i>
<i>Varroa control frequency</i>	Apply miticides once in fall	Monitor monthly and apply miticides when above 3.0 mites/100 bees



“After 3 years, colonies treated according to empirical BMPs experienced reduced *Varroa* infestation, viral infection, and mortality compared to colonies managed with average practices.”

Kulhanek, et al. 2021. [Survey-derived best management practices for backyard beekeepers improve colony health and reduce mortality](#). PLOS ONE 16, e0245490.



#3. Oxalic acid is an effective option during summer and can now be used with supers on.

# Don't rely on OA when brood is in the hive

- 26% of beekeepers use oxalic acid when brood is present
- Ineffective when brood is present, even when applied once a week for three weeks
- “Extended Release Oxalic Acid” trials are promising, and the method is still being researched



Jack, C. J., E. van Santen and J. D. Ellis. 2020. Evaluating the efficacy of oxalic acid vaporization and brood interruption in controlling the honey bee pest *Varroa destructor* (Acari: Varroidae). *Journal of Economic Entomology* 113:582-588

Jack et al. 2021. Determining the dose of oxalic acid applied via vaporization needed for the control of the honey bee (*Apis mellifera*) pest *Varroa destructor*, *Journal of Apicultural Research*, 60:3, 414-420.

# OA is not approved for use with honey supers

**FDA:** Announced a tolerance exemption for honey

**EPA:** Approves pesticide labels, and they can vary by state.

Currently the label still states:

- Use only when little to no brood is present
- Do not use when honey supers are in place





# Effective treatment options by season

Time of year	Most effective option
Early spring before supers March	Apivar
Early spring before supers April	Apiguard HopGuard 3
Summer with supers May - August	MiteAway Quick Strips Formic Pro HopGuard 3
Fall after supers August - October	Apivar Apiguard ApiLife Var HopGuard 3
Winter when little to no brood Mid November to January	Oxalic acid

# “Beekeeping Essentials” is coming this summer!

35-hour online class

Self-paced	\$239
Instructor & peers	\$367

1. Becoming a beekeeper
2. Honey bee biology and behavior
3. Bee food
4. Getting equipment and bees
5. Getting to know your bees
6. Colony inspections
7. Seasonal management
8. Queen situations
9. Navigating and preventing surprises
10. Parasites and Diseases (esp. *Varroa*)
11. Honey
12. Wintering your colonies
13. The hobby with life-long learning

