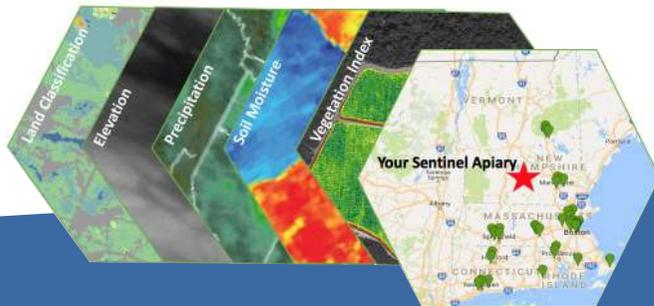


Research goals:

You Sentinel data also contributes to research which aims to study and manage honey bee diseases and reduce colony mortality. Our on-going research includes:

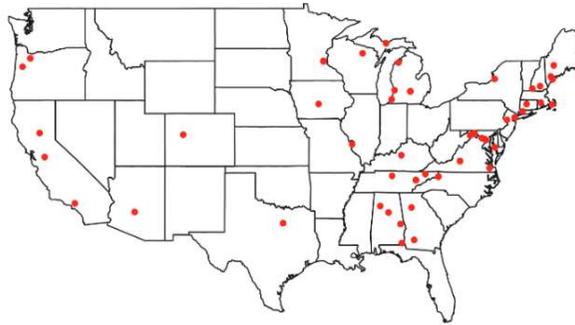
- Investigation of inter-apiary *Varroa* transmission. Sentinel data revealed rapid increases in *Varroa* populations that cannot be explained by normal mite reproduction, indicating a possible outside source of mites. This has led us to begin investigating the extent to which *Varroa* from highly infested/crashing colonies spread to nearby apiaries across the landscape.
- Correlation of internal physical abnormalities with colony mortality. This could pave the way for new method of colony sampling to better predict mortality.
- Collaboration with NASA-Develop to investigate landscape effects on Sentinel colony health using satellite imagery, allowing us to look at potential correlations with precipitation, soil moisture, and land cover.



Join the largest honey bee disease monitoring program in the world. Get actionable data and participate in cutting edge research.

Sentinel 2018 Participation

Don't see a Sentinel Apiary in your state? Be the first!



Get involved, stay informed!

Please visit our website:

www.beeinformed.org/programs/sentinel and click on "Sign Up" for information on joining the program and taking advantage of the many service we offer.

The BIP website is full of other useful information including:

- Latest survey results showing winter loss trends, management techniques and regional reports
- The BIP blog, where team members convey their experience, knowledge, and opinions about their work with bees.
- Press releases, videos and news articles



Dan Reynolds/UMD



SENTINEL: Bee Informed Partnership

Bee included. Bee involved. Bee Informed.

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The Basics

The Sentinel Apiary Program is a colony health monitoring program that helps inform beekeeper management decisions, while simultaneously providing the Bee Informed Partnership with some of our most valuable data. Beekeepers enrolled in the Sentinel monitor 4 or 8 colonies in one apiary for 6 months.

Each month, participating beekeepers take a sample of about 300 bees from each Sentinel colony. They also provide us with information about their colonies including queen status, brood pattern, and frames of bees, as well as any management (such as feeding, treating, supering, etc.).

Samples are then mailed to our lab at the University of Maryland where we process them for *Varroa* and *Nosema*. Beekeepers receive a report of their results within 2 weeks so they can make timely management decisions. To date, **189 beekeepers in 31 US states** have taken almost 7,000 samples from Sentinel colonies!

Pricing

For more information about pricing and the services included, reach out to Dan Reynolds at danrbrl@umd.edu.

Apiary Size	Price
4 Colonies	\$275
8 Colonies	\$499
(BIP Member) 8 Colonies	\$399



Hive scales monitoring

If you have hive scales in your apiary, we can incorporate that hive scale data into the existing program to build our interactive Hive Scale Map. Anyone, including those beekeepers not participating in the Sentinel Apiary Program, can contribute to the national Hive Scale Map.

The goal is to collect enough information so that Sentinel Apiaries become an early warning system to alert beekeepers of potential problems due to increases in *Varroa* and *Nosema* or changes in hive weight. One Sentinel Apiary in a county can thus empower all beekeepers in that area to take early action to protect their colonies.

This data can help you:

- Track nectar flow
- Receive data to respond quickly to swarms
- Compare your statistics to other beekeepers' around the region
- Receive fast, real-time data about the conditions of your hive

Disease load analysis

You receive detailed monthly reports (May - October) on your *Nosema* spore load and *Varroa* mite loads in comparison to regional and national averages. This data can help you understand the links management practices and disease and mortality levels. Monitoring your apiary over a whole season will help you learn what management and treatment strategies work best for you. In addition, your participation would contribute towards the data collection for research aimed at reducing honey bee colony losses long term.

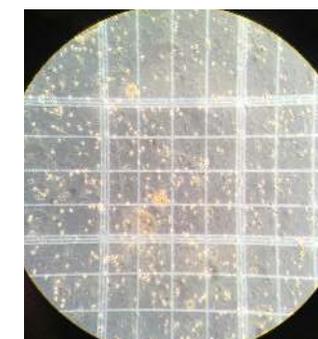
On average, 2018 Sentinel participants, experienced lower than historic national average mite loads each

Varroa mites



CSIRO Science Image

Nosema spores



Rachel Kuipers/UMD

Bee Included. Bee Involved. Bee Informed.