# Tech-Transfer Teams for Commercial Beekeepers

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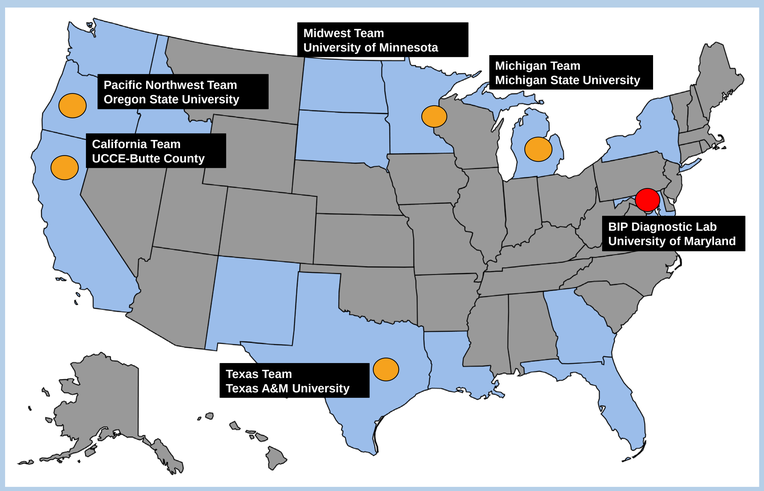
## About BIP

The Bee Informed Partnership (BIP) is a nonprofit organization that brings researchers and commercial beekeepers together in order to evaluate and improve colony management practices with the goal of reducing colony losses.

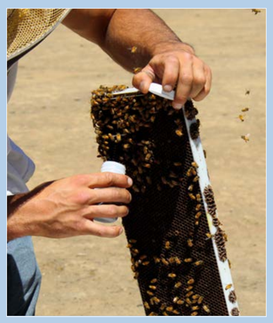
## Tech-Transfer Teams

Commercial beekeepers face many challenges in keeping their colonies alive and healthy. Our goal is to decrease honey bee colony losses by working directly with commercial operations to provide near real-time data from full colony assessments. BIP created Tech-Transfer Teams (TTTs) in 5 key regions to assist commercial operations in providing actionable solutions to increase survivorship.




The host institutions of our 5 mobile Tech-Transfer Teams, along with our Diagnostic lab in Maryland, are marked with dots. The 15 states in which the Teams sampled in 2017 are colored blue.

TTTs are composed of highly trained field agents, who regularly monitor colonies for pests, diseases, and environmental factors that contribute to honey bee health. These include *Varroa* mites, *Nosema*, viruses, and pesticides. When TTTs sample an operation, the beekeeper gets instant feedback on the health of their colonies. Beekeepers are notified immediately of any visual symptoms of disease, parasites, and pests. TTTs further investigate pathogen levels with laboratory analysis. The TTTs also provide hygienic testing to help beekeepers select disease resistant stock for queen breeding. TTTs work with industry and commercial beekeepers to evaluate new feed, treatment or management products in the field.

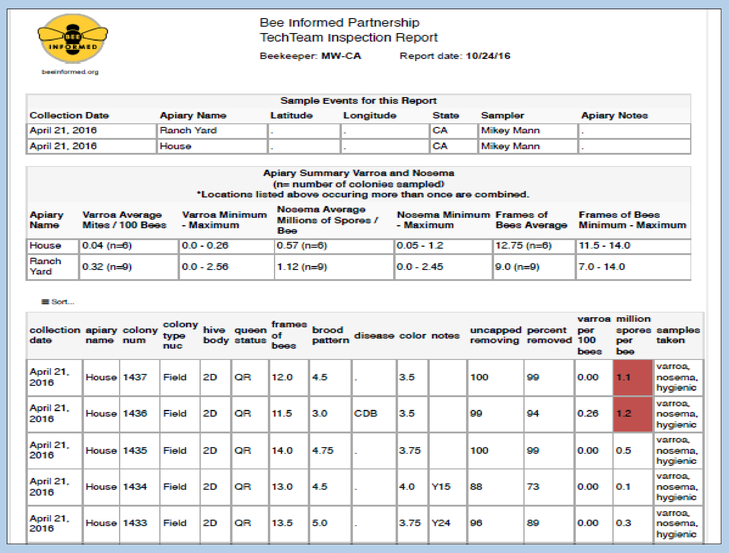


In-field sampling

*Varroa* sample processing at UMD

## Reports

After every site visit, the beekeeper receives an individualized report with quantitative data. This allows them to implement appropriate management strategies in a timely manner. TTTs also send summary reports after each sampling period. These reports anonymously compare the beekeeper's disease loads to those of other beekeepers in their region. These data help beekeepers set long-term goals.



Bee Informed Partnership
TechTeam Inspection Report
Beekeeper: MW-CA Report date: 10/24/16

Sample Events for this Report

| Collection Date | Apiary Name | Latitude | Longitude | State | Sampler | Apiary Notes |
|---|---|---|---|---|---|---|
| April 21, 2016 | Ranch Yard | . | . | CA | Mikey Mann | . |
| April 21, 2016 | House | . | . | CA | Mikey Mann | . |

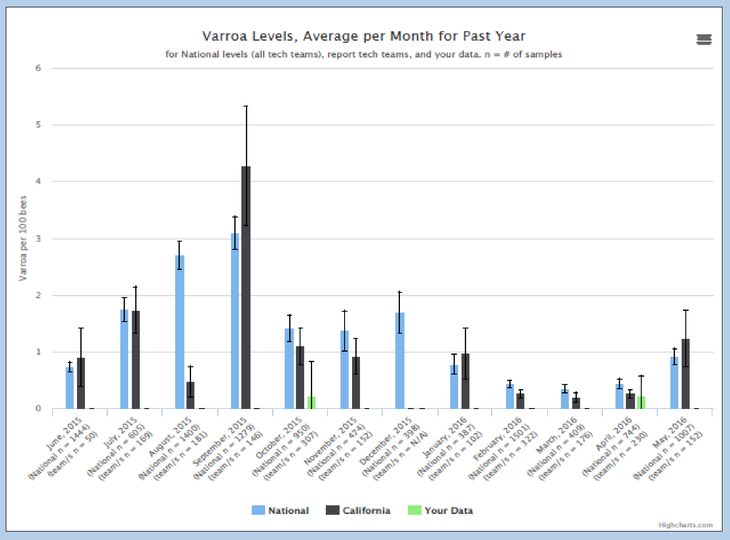
Apiary Summary Varroa and Nosema
(n= number of colonies sampled)
*Locations listed above occuring more than once are combined.

| Apiary Name | Varroa Average Mites / 100 Bees | Varroa Minimum - Maximum | Nosema Average Millions of Spores / Bee | Nosema Minimum - Maximum | Frames of Bees Average | Frames of Bees Minimum - Maximum |
|---|---|---|---|---|---|---|
| House | 0.04 (n=6) | 0.0 - 0.26 | 0.57 (n=6) | 0.05 - 1.2 | 12.75 (n=6) | 11.5 - 14.0 |
| Ranch Yard | 0.32 (n=9) | 0.0 - 2.56 | 1.12 (n=9) | 0.0 - 2.45 | 9.0 (n=9) | 7.0 - 14.0 |

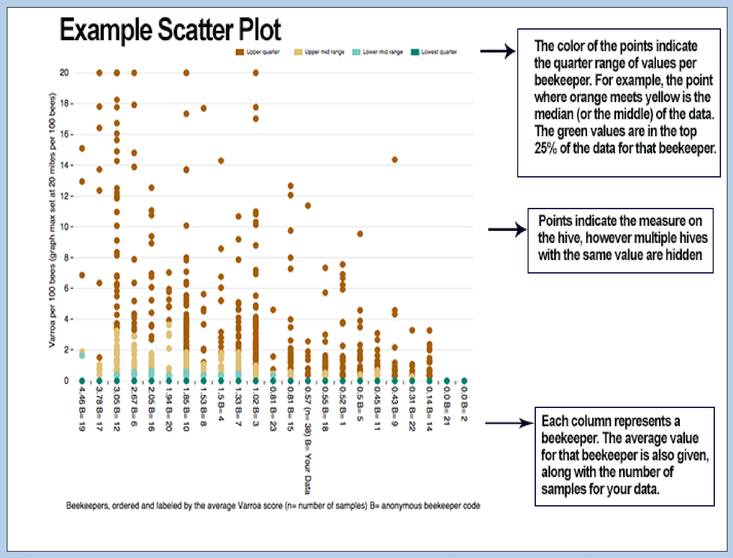
Sort...

| collection date | apiary name | colony num | colony type nuc | hive body | queen status | frames of bees | brood pattern | disease | color | notes | uncapped removing | percent removed | varroa per 100 bees | million spores per bee | samples taken |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| April 21, 2016 | House | 1437 | Field | 2D | QR | 12.0 | 4.5 | . | 3.5 | | 100 | 99 | 0.00 | 1.1 | varroa, nosema, hygienic |
| April 21, 2016 | House | 1436 | Field | 2D | QR | 11.5 | 3.0 | CDB | 3.5 | | 99 | 94 | 0.26 | 1.2 | varroa, nosema, hygienic |
| April 21, 2016 | House | 1435 | Field | 2D | QR | 14.0 | 4.75 | . | 3.75 | | 100 | 99 | 0.00 | 0.5 | varroa, nosema, hygienic |
| April 21, 2016 | House | 1434 | Field | 2D | QR | 13.0 | 4.5 | . | 4.0 | Y15 | 88 | 73 | 0.00 | 0.1 | varroa, nosema, hygienic |
| April 21, 2016 | House | 1433 | Field | 2D | QR | 13.5 | 5.0 | . | 3.75 | Y24 | 96 | 89 | 0.00 | 0.3 | varroa, nosema, hygienic |

Inspection reports are sent 7-10 days after a TTT visits, showing the disease loads and whether those loads are above the treatment threshold at the colony and apiary level.




This individualized summary report shows beekeepers how their *Varroa* and *Nosema* levels compare to the national and regional average.




The anonymous comparison report provides context that allows beekeepers to determine where improvements within their operation can be made and provides a framework of conversation for how the beekeeper may improve.

## Database

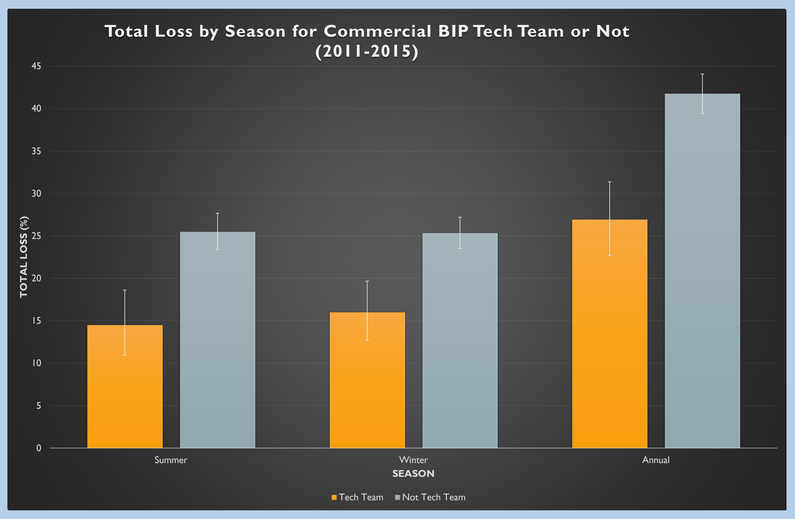
The data TTTs collect go into a broad database. BIP uses this database to make data driven recommendations for colony management including:

- *Varroa* mite management
- Re-queening
- Supplemental feeding

## Healthy Bees for Pollination

By helping beekeepers make data-driven short-term management decisions, and learning more about long-term trends of bee health, the BIP TTTs help improve colony health prior to, during, and after pollination of almonds and other crops.

BIP beekeepers provide approximately 417,300 colonies for almond pollination, representing 25% of all colonies needed to pollinate almonds.




The commercial beekeepers participating in the BIP program lost significantly fewer colonies, on average, than the general commercial beekeeper population.

Thank you to our Sponsors:

Project Apis m. · USDA · North Dakota Department of Agriculture · USDA APHIS · Honey Bee Health Coalition · National Honey Board · California Almonds Almond Board of California · Véto-pharma Committed to apiculture

In collaboration with:

University of Maryland · University of Minnesota · Michigan State University · Bee Informed · Texas A&M · UC CE · OSU · vanEngelsdorp Bee Lab

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