APIMONDIA SCANDINAVIA 2025
SWEDEN | DENMARK | NORWAY

PP-168 [Bee Health]

Breeding Mite Resistant Honey Bees In the U.S.

Standardized U.S. deep 10 frame and 5 frame brood boxes, frames, and foundation.

Managed using no miticides, antibiotics, or fumagillin for 15+ years.

Top producing survivors are tested using Harbo VSH assay- measuring % Suppressed Mite Reproduction.

Queens are grafted from II'd breeder Queens (Drone and maternal lines, high expressing SMR.)

Drones are caught from high expressing colonies to inseminate new breeders.

2.4% average infestation, no evidence of DWV or brood diseases in September 2024.

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PP-168 [Bee Health]
"Breeding mite and disease resistant honey bees in the US"

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The number one threat to honey bee health worldwide, is indisputably the varroa mite. The only truly sustainable approach to mitigating the effects of varroa mites and the viruses they transmit, is selecting for strong genetic host resistance mechanisms.

Though we know strong host resistance is required for sustainability, there is an obvious shortage of successful breeding programs and resistant queens on the open market.

In this presentation I will show that measuring strong resistant traits is achievable by most beekeepers with minimal lab equipment.

Our results have shown that using a simplified Harbo VSH assay, measurable gains in mite and disease resistance can both be achieved in a population. The Harbo VSH assay technically measures the bees' ability to suppress mite reproduction. Not only can lower mite loads be expected with VSH selected stock, but also lower viral loads and decreased instances of common brood diseases.

The results of our breeding program will have a strong positive effect on the health and survival of colonies utilizing selected queens. Projected expansion of the current breeding program and collaboration with producers, could have a significant impact on the health of the US honey bee population as a whole.