



BeeHero

Background. Technology & Research.
Pollination Overview.

Research & Development Forum Presentation



August 21st, 2023. Robinvale, Victoria.

Itai Kanot

Chief Operations Officer | BeeHero

Introductions. BeeHero in a Nutshell.

- **Itai Kanot.** Co-Founder & COO

- 2nd generation beekeeper
- Grew up working in my father's apiary—the largest in Israel
- Along with my Co-Founders Omer Davidi and Yuval Regev we founded BeeHero in 2017
- Headquartered in California with R&D in Israel
- We are a venture backed company



Itai Kanot, Omer Davidi, Yuval Regev

ADM CAPITAL

Rabobank

CONVENT CAPITAL
THE VENTURE CAPITAL FUND

- \$64M in funding
- \$42M in ARR in 2023

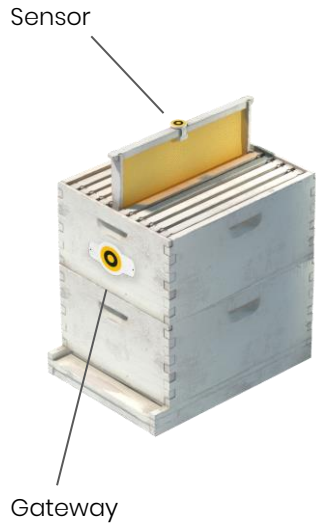
We've built a multidisciplinary team with expertise in:

- Commercial beekeeping and ag-tech
- Entrepreneurship, business growth, and strategy
- Data science, Machine-Learning, and AI
- Biological and environmental sciences

What we do

Precision Pollination as a Service

We provide Precision Pollination as a Service to commercial scale crop farming. With emphasis on almonds. BeeHero's breakthrough innovation combines low-cost, IoT sensors with sophisticated AI and ML techniques to enable the remote monitoring of the strength, health, and activity of hives. The result, is the world's largest bee and pollination database.



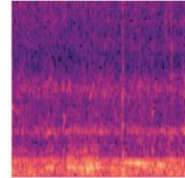
In hive sensor



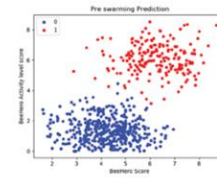
Data collection



Data analysis using AI



Classification & Prediction using ML



Actionable Insights Anytime, Anywhere



Technology.

At the heart of our platform is the in-hive Sensor. The sensor transfers data to the gateway.



Gateways transfer the data to the Cloud.

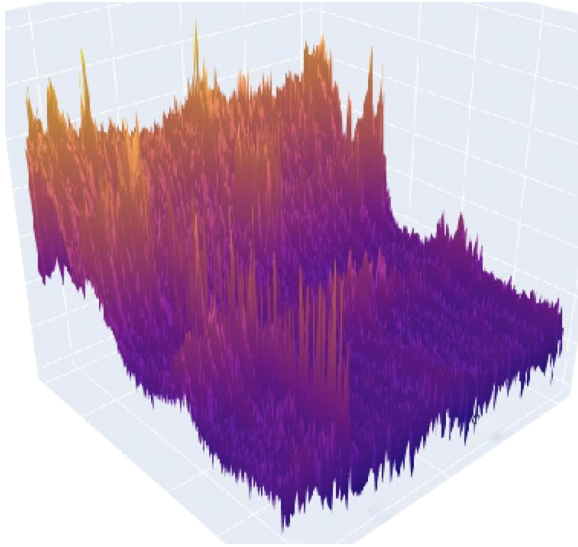


The data is displayed on the growers platform.

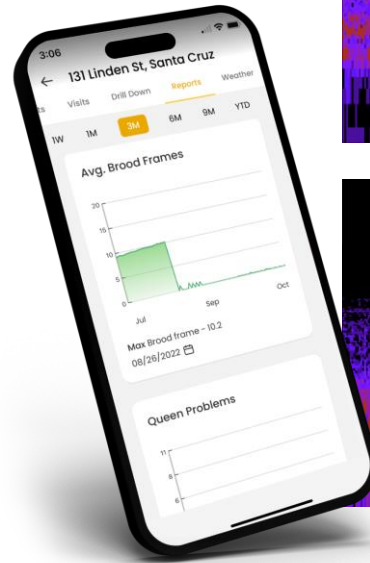


Data and AI.

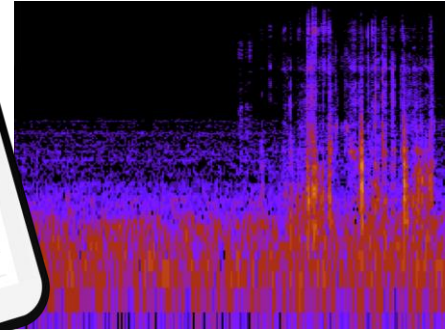
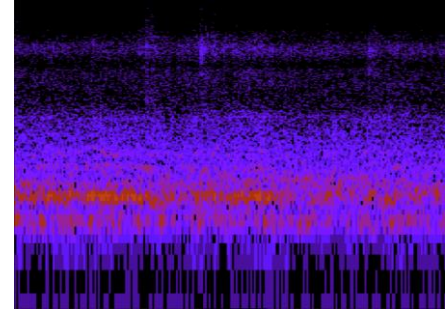
Our unique IoT hardware combined with our hive data harvesting and cloud based analytics gives us a window into the hive.



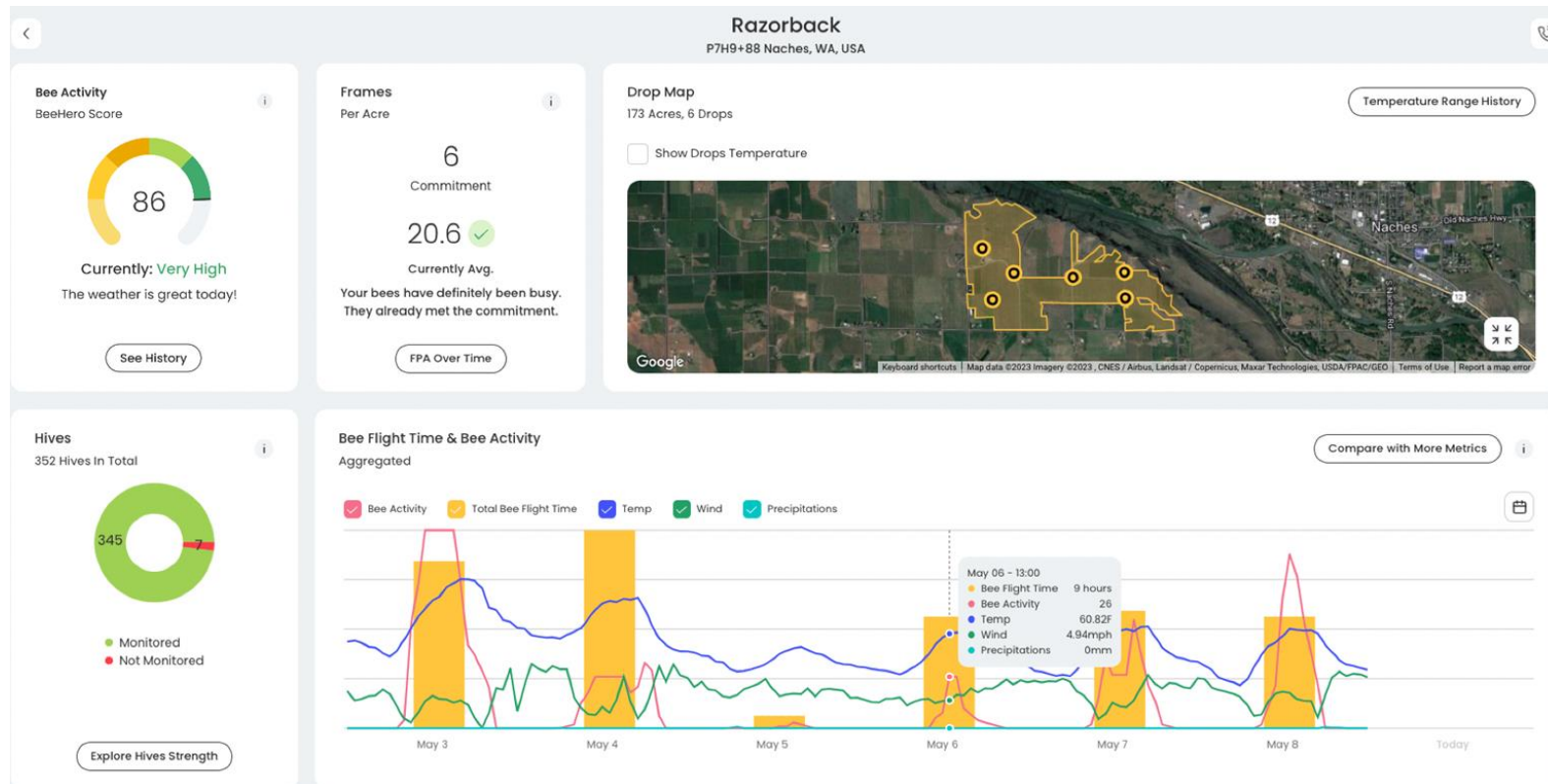
Acoustic signature of a hive



Evidence of queen failure & pre-swarming



Grower Platform



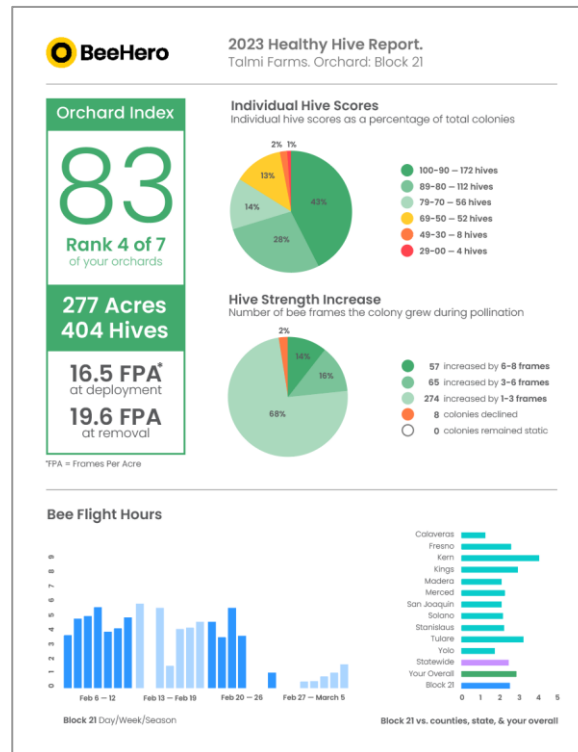
BeeHero value for Australian Growers

Beyond the unique value of our three core values:
Visibility, Transparency and Optimization we have three
other key assets:

Reports

Healthy
Hive
Index

ESG
Support





BeeHero is now the world's
Largest Pollination Provider

**200K
HIVES**

**100+K
ACRES**

BeeHero in Australia

We have partnered with Australia's premier beekeeping team, Monsoons Honey and Pollination to provide Australian growers with the same:

- Knowledge of your orchards and familiarity with your processes and expectations

Combined with:

- Hive monitoring provides visibility into colony strength and health
- Data-driven pollination
- Dashboard with 24/7 visibility into progress of pollination
- Ability to identify areas needing more colonies
- Powerful management and measuring tool
- No need for pre audit as colony strength is known upfront
- Weekly, mid & end of season reports driven by our data analytics



Research

BeeHero is a research driven company and is engaged in R&D projects with academic, government and business partners in the US and Europe.



Colony Audio Samples

By monitoring the sounds of the hive and analyzing the amount of noise (energy) produced at different frequencies our data science team can reveal and validate valuable insights about health, strength and behavior. Audio Heat Maps from California Almond Pollination 2023

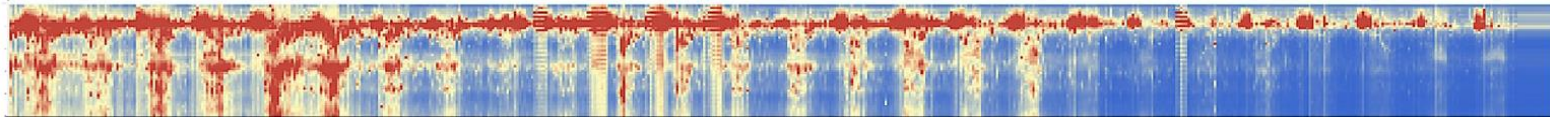
Strong (12 frame).

Medium (8 frame).

Weak (4 frame).

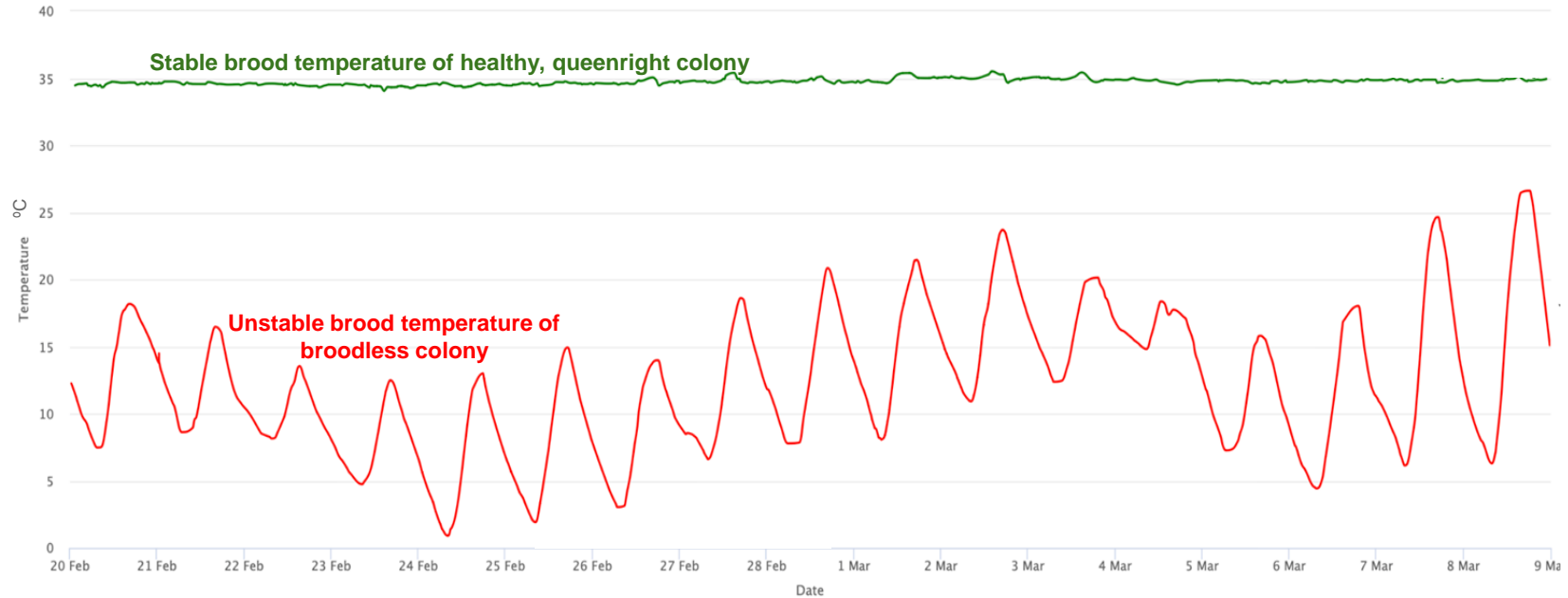
Colony Audio Samples: Decline from 10 frames to deadout

Tracking the amount of noise produced at specific frequencies and how this changes over time enables us to detect signals of changing status or behavior. This graph and spectrogram show changing audio of colony as it declines from 10 bee frames to dead out



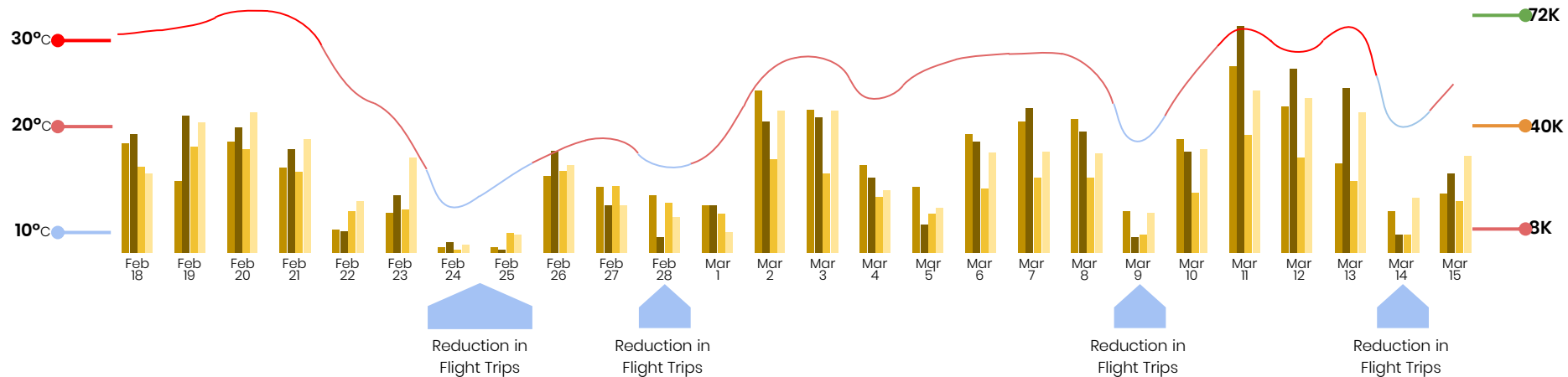
Colony Brood Temperature

The temperature in the brood nest is precisely controlled by a colony to within the range 33°C - 36°C. By tracking the brood temperature we can detect when it deviates from these optimal conditions and is a good indicator of queen and brood status.



Counting Bee Trips: Pollination Research Stations.

- Graph shows total daily foraging trips made by 4 hives plotted against L. daily maximum temperature and R. flight trips
- Several days of cool wet weather suppressed foraging activity throughout the 2023 California Almond bloom
- Bee counters enabled us to track the impact of extreme weather on pollination activity of the bees



BeeHero In the News

Awards & Recognition Highlights





**LET'S
GROW
TOGETHER**