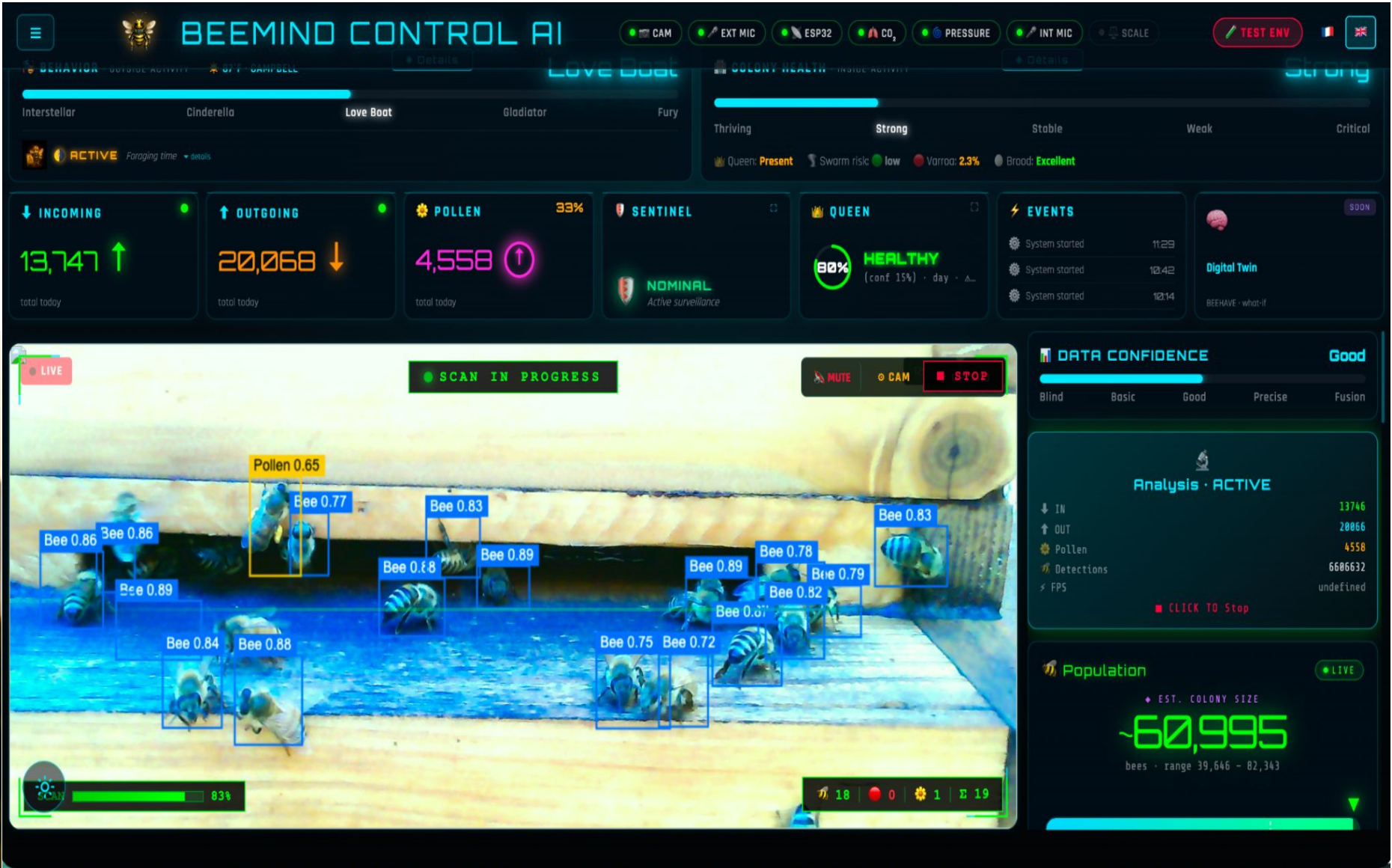


# BeeMind AI

Turning Hive Signals into Environmental Intelligence



## Nature's Oldest Intelligence Network

For more than 120 million years, bees have been silent witnesses to changes in our environment.

For the first time, recent advances in artificial intelligence make it possible to interpret these signals at scale.

That is BeeMind's mission.

- See inside every hive — without opening it
- Protect more colonies with fewer inspections
- Detect threats before they become losses
- Act earlier with AI-powered recommendations
- Know which hive needs attention — and why
- Turn every hive into environmental intelligence

## Key Takeaway

The value does not lie in the data collected.

It lies in the decisions those data make possible.



# Beekeepers Are Flying Blind

Millions of colonies are declining.  
The signals exist.  
But today, beekeepers don't have the tools to see, understand or act in time.

## 39.9%

Latest U.S. managed colony losses (2025–26)

Source: USDA  
(Bee Informed Partnership)

## ~\$600M

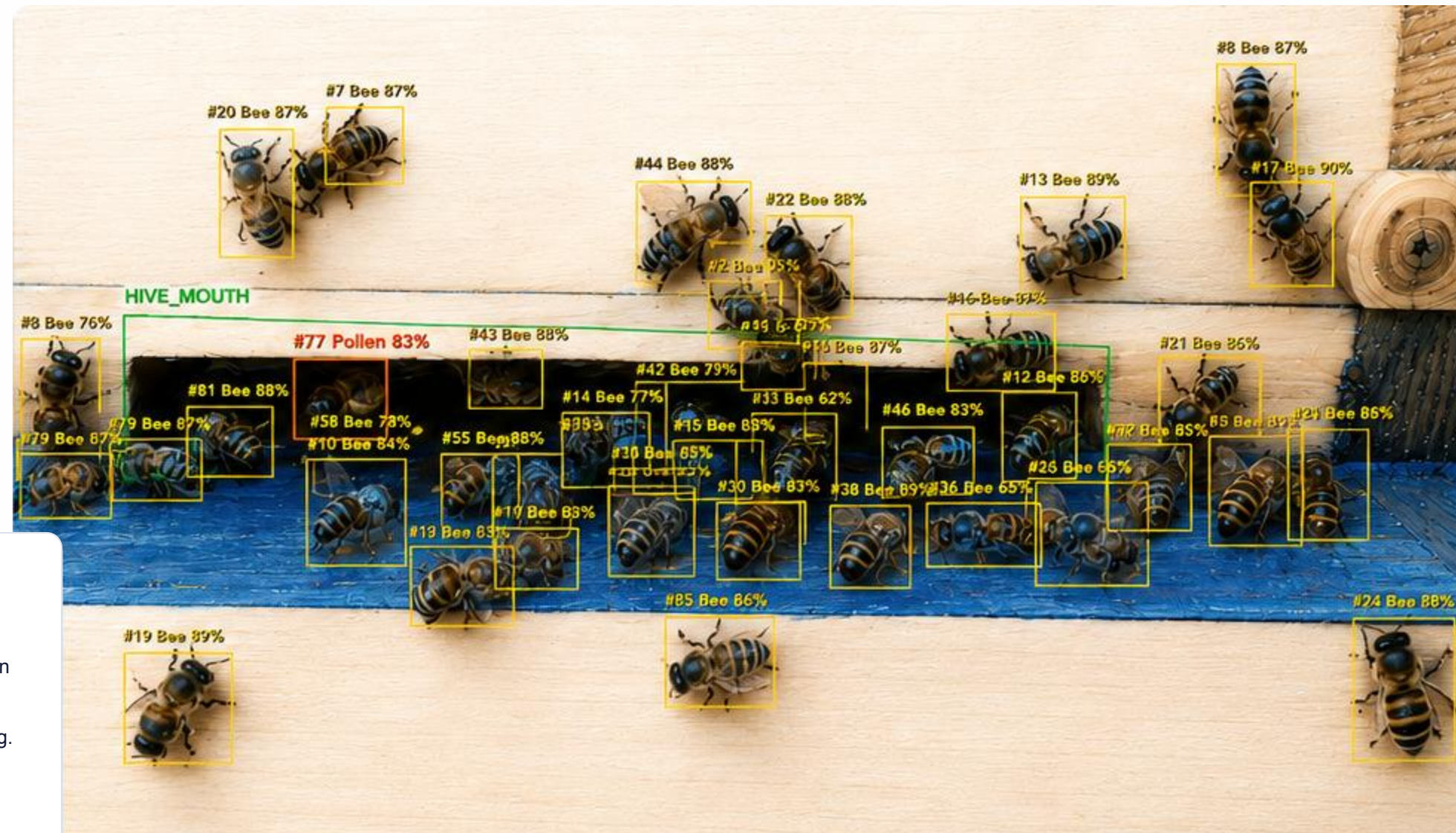
Estimated economic impact of the severe 2024–25 U.S. event

Source: USDA  
(ERS, May 2025)

## 79.1%

of surveyed European beekeepers had not adopted digital hive monitoring.

Source: Verbeke et al.,  
Scientific Reports (2025)



## THE CONSEQUENCES

- ◆ Diseases and pests spread undetected
- ◆ Queen issues discovered too late
- ◆ Pollination services at risk
- ◆ Crop yields and food security threatened
- ◆ Environmental changes not monitored



By the time a problem is visible,  
**significant damage** has already been done.

Colony decline is driven by many silent factors: varroa mites, viruses, queen failure, stress, poor nutrition, heatwaves and pesticides. Most signals are invisible to the human eye—until it's too late. BeeMind AI reveals what you can't see, in real time.



### UNSEEN SIGNALS

Critical events happen inside the hive, out of sight.



### CUMULATIVE IMPACT

Small issues today lead to colony collapse tomorrow.



### DELAYED ACTION

Traditional inspections are too infrequent.



### MISSED OPPORTUNITIES

Without data, beekeepers can't optimize or improve.



**We need a new standard: continuous intelligence instead of occasional inspections.**

BeeMind brings the missing eyes and ears to the hive.



# BeeMind AI: The Hive Operations Center

An all-in-one platform that transforms connected hives into intelligent, real-time observatories.

- AI VISION

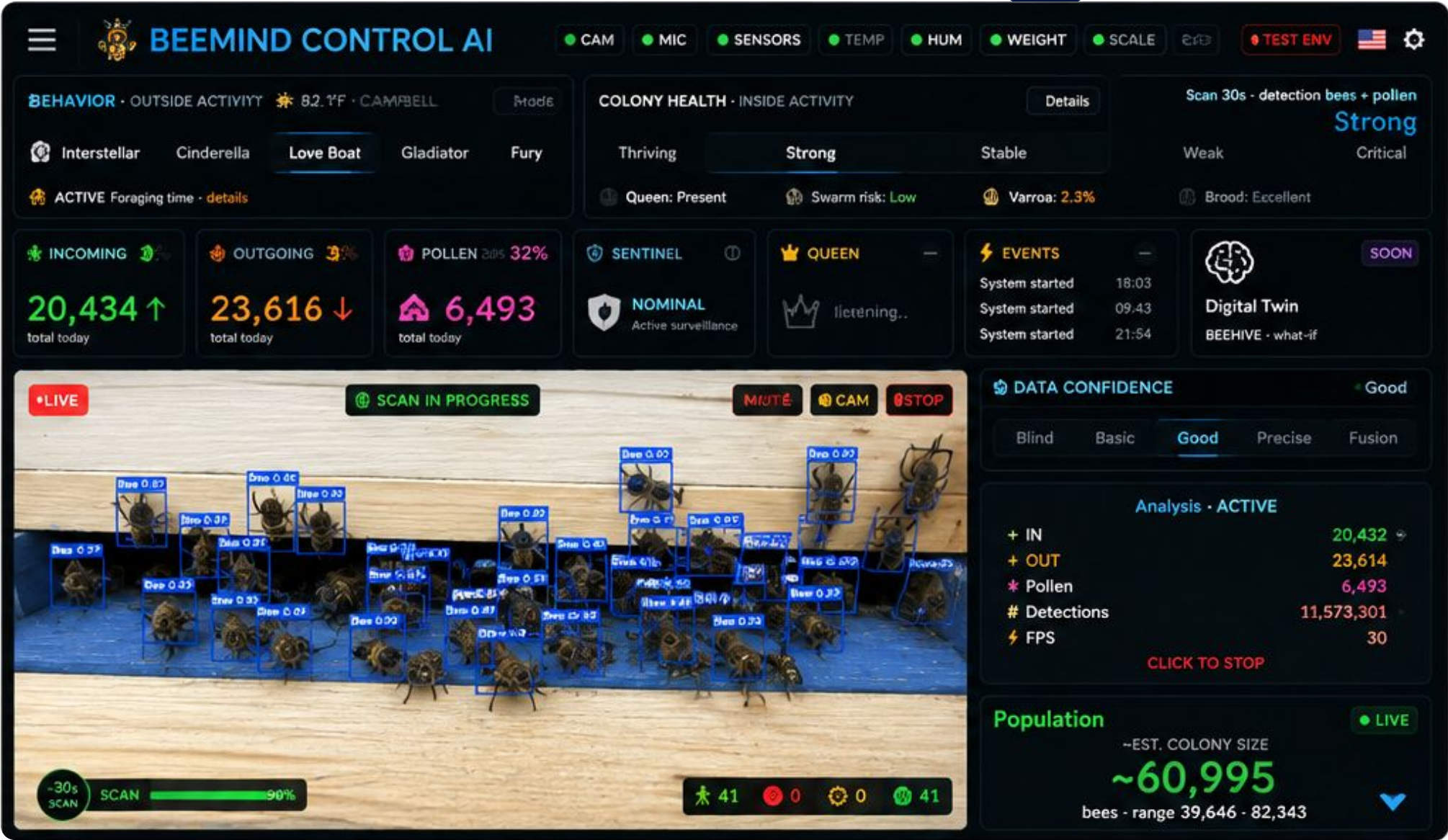
Detects and counts bee activity, tracks pollen, identifies visible threats (Varroa, hornets, wasps) and analyzes behaviors.
- HIVE HEALTH

Monitors CO<sub>2</sub>, temperature, humidity, weight and more to assess colony well-being.
- ACOUSTIC INTELLIGENCE

Analyzes acoustic patterns associated with queen status, stress, swarming and other key events.
- SMART ALERTS

Sends instant, actionable alerts and recommendations so beekeepers can act at the right time.
- HISTORICAL INSIGHTS

Trends, reports and analytics to improve decisions and long-term performance.



**From raw signals to actionable intelligence.**

BeeMind turns continuous hive data into insights and recommendations that help operators act earlier and with greater confidence.



# Why Now?

**Because everything is converging.**



**On one hand,**

pressure on bee colonies has never been greater. Varroa mites, Asian hornets, climate change, biodiversity loss and rising colony mortality are making traditional beekeeping practices increasingly insufficient.



**On the other hand,**

technology has reached a turning point. Artificial intelligence, low-cost sensors, computer vision, acoustic analysis and reliable connectivity now make continuous, non-intrusive and economically viable monitoring possible.



**At the same time,**

growing societal expectations around biodiversity, food security and environmental resilience are creating demand for reliable environmental data and better decision-making tools.

**For the first time, market need, technology and business economics are aligned.**

**BeeMind is no longer just possible—it is becoming necessary.**

## A Unique Convergence



**The need has become critical.**

- Colony losses at historic levels
- Pests and diseases spreading faster
- Climate and biodiversity pressures intensifying
- Beekeepers lack real-time visibility and tools



**Artificial intelligence has reached a new level of maturity.**

- Computer vision detects bees, pollen and threats
- Acoustic AI interprets queen signals and stress
- Advanced models deliver actionable insights in real time



**Connected sensors have become affordable.**

- Low-cost, high-precision environmental sensors
- Acoustic microphones
- 4K cameras for AI vision
- Reliable, low-power connectivity



**Cloud platforms enable large-scale deployment.**

- Scalable data storage and processing
- Secure, encrypted data pipelines
- Dashboards and APIs for decision-making
- Global updates and continuous improvement



### KEY TAKEAWAY

What was technically impossible yesterday has become both technologically and economically achievable today.



# Three Markets. One Intelligence Layer.

BeeMind enters through professional apiaries, expands through pollination operations, and scales into environmental monitoring.



01

PRIMARY MARKET

PROFESSIONAL BEEKEEPERS

1 GLOBAL MARKET

**101.7M** managed hives worldwide

ASIA 44.6% / 45.4M · EUROPE 24.7% / 25.1M  
AFRICA 17.7% / 18.0M · AMERICAS 11.4% / 11.6M · OCEANIA 1.4% / 1.4M

2 GLOBAL LOSS / RISK - Colony loss\*

**25%** annual loss range across international surveys

U.S. 39.9% · CANADA 39.3% · NEW ZEALAND 12.8%  
EUROPE 11–24% · AFRICA STUDY 21.3% · AUSTRALIA 10.5%



**BeeMind's role:**  
Detect decline and threats earlier, reduce unnecessary visits and build the proprietary hive dataset.

Colony loss\* - [Apiary Inspectors of America](#)



02

CONTRACT UPSIDE

POLLINATION OPERATIONS

1 GLOBAL MARKET

**>\$473M** documented paid-market floor — U.S. + Australia

NORTH AMERICA ≈86% / \$400.8M  
OCEANIA ≈14% / ≈US\$65M · NZ ≈159K PLACEMENTS

2 GLOBAL LOSS / RISK - Pollination loss\*

**34,3%** annual agricultural output exposed globally

U.S. \$18–20B · EUROPE €14.6B  
CANADA C\$7B · AUSTRALIA A\$4.6B



**BeeMind's role:**  
Verify colony strength and field activity to improve pollination service quality.

Pollination loss\* - [U.S. Beekeeping Survey 2025–26](#)



03

DATA CONTRACTS

GOVERNMENT / RESEARCH & ENVIRONMENTAL MONITORING

1 GLOBAL MARKET

**≈US\$147M** documented annualized public funding for apiculture, pollinator research & biosecurity  
EU ≈US\$135M · U.S. US\$5.7M  
CANADA ≈US\$1.2M · AUSTRALIA ≈US\$4.9M

2 MONITORING COST / DATA GAP

**≈US\$2,700** estimated annual cost per site for monthly field monitoring

30–50% FEWER ROUTINE VISITS

US\$800–1,350 SAVED / SITE / YEAR



**BeeMind's role:**  
Continuous monitoring and standardized research data. USDA SBIR I + II: up to US\$831.5K including TABA.

Sources: European Commission · USDA NIFA · BLS · IRS



One installed base. Three markets. One compounding environmental dataset.

Market sizes use different units and are intentionally not added together.

CONFIDENTIAL



# READY TO SCALE

The first BeeMind model works. Now it's time to move to the next level.

## TRACTION — THE FIRST MODEL IS ALREADY WORKING

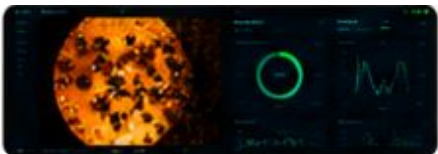
### ✓ Deployed on real hives

Live colonies in California.



### ✓ AI models already running

Vision + audio models running in real time.



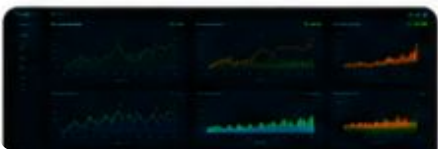
### ✓ Multi-sensor platform

Audio, CO<sub>2</sub>, temperature, humidity + weight.



### ✓ Data pipeline operational

Edge-to-cloud operational.



### ✓ Continuously learning

Real-world data updates.

More data → Better models → Better outcomes

## ROADMAP — OUR PATH TO COMMERCIALIZATION

### TODAY WORKING MODEL

✓  
Demonstrated on real hives. Operational.  
**We are here.**

### PHASE 1 (Q4 2026)

#### Validate & Productize

- Validate with beekeepers
- Improve vision/audio
- Harden hardware

### PHASE 2 (H1 2027)

#### Pilot & Industrialize

- Pilot deployments
- Production ready
- SaaS & feedback

### PHASE 3 (H2 2027)

#### Commercial Launch

- Paying customers
- SaaS launch
- Pollination cases

### PHASE 4 (2028)

#### Scale & Expand

- Scale deployments
- Pollination intel
- Europe & NA

## LIVE BEEHIVE MONITORING — BEEMIND CONTROL AI DASHBOARD (ACTUAL UI)



## TEAM — FOUNDERS WITH COMPLEMENTARY STRENGTHS



### Marc Gourvenec — Founder & CEO

- 25+ years in technology, marketing & GTM.
- Former RSA, Quest, HP/HPE, EfficientIP.
- Beekeeper with domain insight.



### Jega Aravandy — Chief Technology Officer

- 30+ years in software & product development.
- Founder of AddVal & Valtanix.
- AI, product strategy & scalable technology.

### ♦ Working technology. Experienced founders. A clear path to commercialization.

BeeMind AI is ready to accelerate from working model to market leadership.



# 7. THE EVOLUTION OF BEE INTELLIGENCE

From monitoring a single hive to understanding ecosystems at scale.

Our long-term vision is to create the global operating system for hives and environmental intelligence.

## 1. TRADITIONAL HIVE

Experience and observation guide every decision.

## 2. CONNECTED HIVE

Sensors, cameras and edge AI bring real-time visibility.

## 3. INTELLIGENT HIVE

AI analyzes behavior, health and environment to predict and protect.

## 4. CONNECTED APIARY & AGRICULTURE

Data from thousands of hives reveals pollination, crop impact and environmental conditions.

## 5. ENVIRONMENTAL INTELLIGENCE NETWORK

A global network generating the most comprehensive real-time dataset on pollinators and the environment.



### HIVE MONITORING

Know what's happening at the hive.



### COLONY INTELLIGENCE

Understand colony health and behavior.



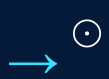
### POLLINATION INTELLIGENCE

Measure pollinators and their impact on ecosystems.



### AGRICULTURAL INTELLIGENCE

Optimize agriculture with nature-based data.



### ENVIRONMENTAL INTELLIGENCE

Powering decisions for a healthier planet.



One hive creates insight.

A connected network creates intelligence at ecosystem scale.