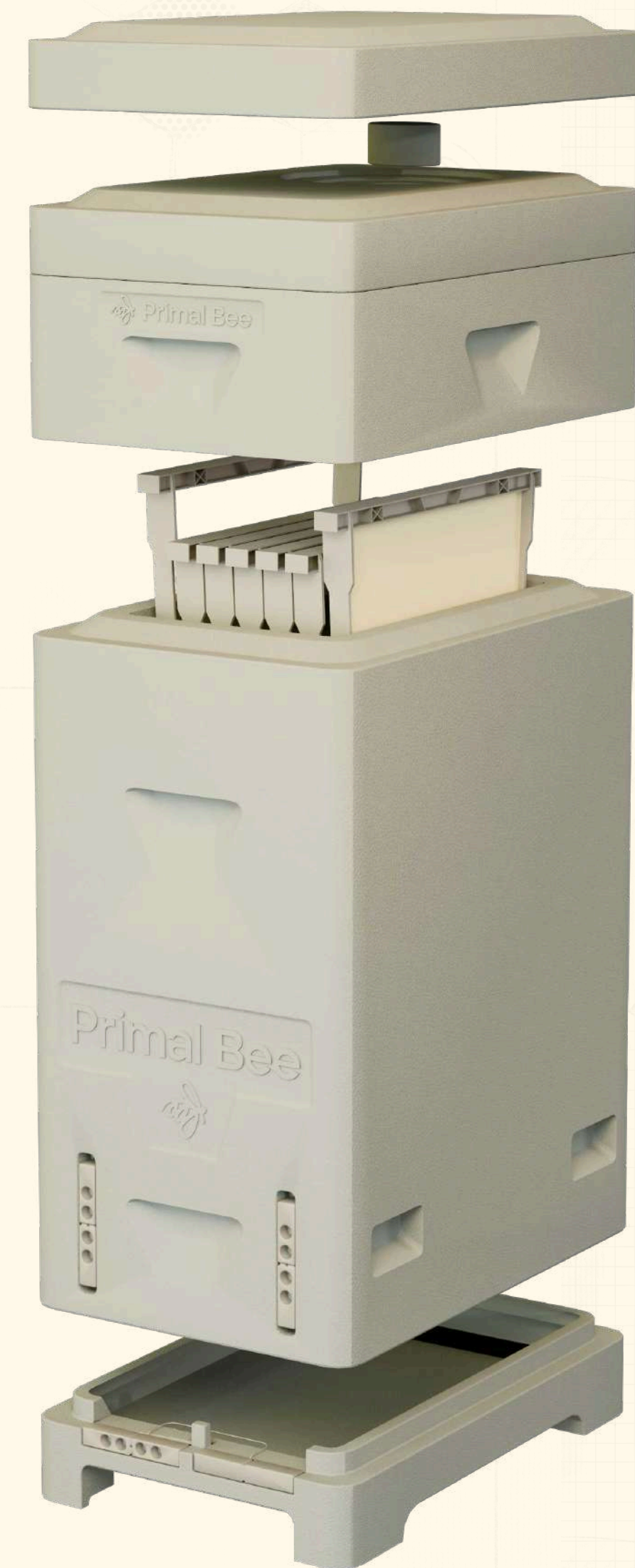




Engineering the future of beekkeeping.

The new standard hive.



The world has changed a lot in 170 years. The hive has not.

Modern beekeeping innovations are all built on top of the original Langstroth hive.



Langstroth
hive



Primal Bee
is introduced

170 YEARS · ZERO FOUNDATIONAL CHANGE

1851

2025

Bees are the largest mobile livestock operation on Earth.

Their product isn't honey;
it's the entire food system.

~102M

hives managed worldwide

At least 15–20% annual hive turnover and replacement rate

~2.5M

colonies at CA's almond bloom

trucked in every February — the single largest pollination event on Earth.

50x

more bees under management

than every cow, pig, chicken, sheep, and goat on Earth combined.

POLLINATOR DEPENDENCY · % OF CROP YIELD



FAO 2024
USDA NASS
IPBES POLLINATORS ASSESSMENT
KLEIN ET AL. 2007

The operation is breaking.

An industry the world cannot live without is failing faster than it can be replaced. Chronic colony losses, low productivity, and high maintenance have long constrained beekeeping. The 2024–2025 crisis revealed the scale of the industry's systemic vulnerability.

RISING DEMAND ↑

35%

of global crop production depends on this operation



+300% growth in pollinator-dependent crops globally over the past 50 years.

COLLAPSING SUPPLY ↓

55%

of total US managed colonies died in a single year — the highest annual losses ever recorded. (Apr 2024 – Apr 2025)



Second consecutive record-breaking year



62% lost specifically by commercial operations

The industry treats symptoms. ➡ No one has fixed the foundation.

Every modern intervention stacks on top of the same thermally inefficient hive design.

Monitoring & Sensors



Treatments & Chemicals



Nutrition & Supplements



Breeding & Selection



Migration & Adaptation



Software & Data



Every solution treats the colony. None redesigns where the colony lives: the hive itself.

Half a colony's energy goes to regulating temperature.

Bees are the HVAC: shivering to heat, fanning to cool – 36 °C year-round through a 19 mm pine wall. Every degree lost forces the colony smaller. Every bee lost forces more heating.

ANNUAL COLONY ENERGY BUDGET

50% · Thermoregulation

28% · Brood Rearing

22% · Foraging & Honey

PRIMAL BEE · VIRTUOUS CYCLE

Heat holds → colony compounds.

Larger colony regulates heat more easily · cycle strengthens



Colony grows faster · more foragers, brood



Honey fuels brood, not heat · +24 kg redirected



Stable thermodynamics · R-50 shell

TRADITIONAL HIVE · VICIOUS CYCLE

Heat leaks → colony shrinks.

Heat escapes · R-1 pine wall



Bees burn honey to stay warm · 30 kg/winter



Colony shrinks · fewer foragers

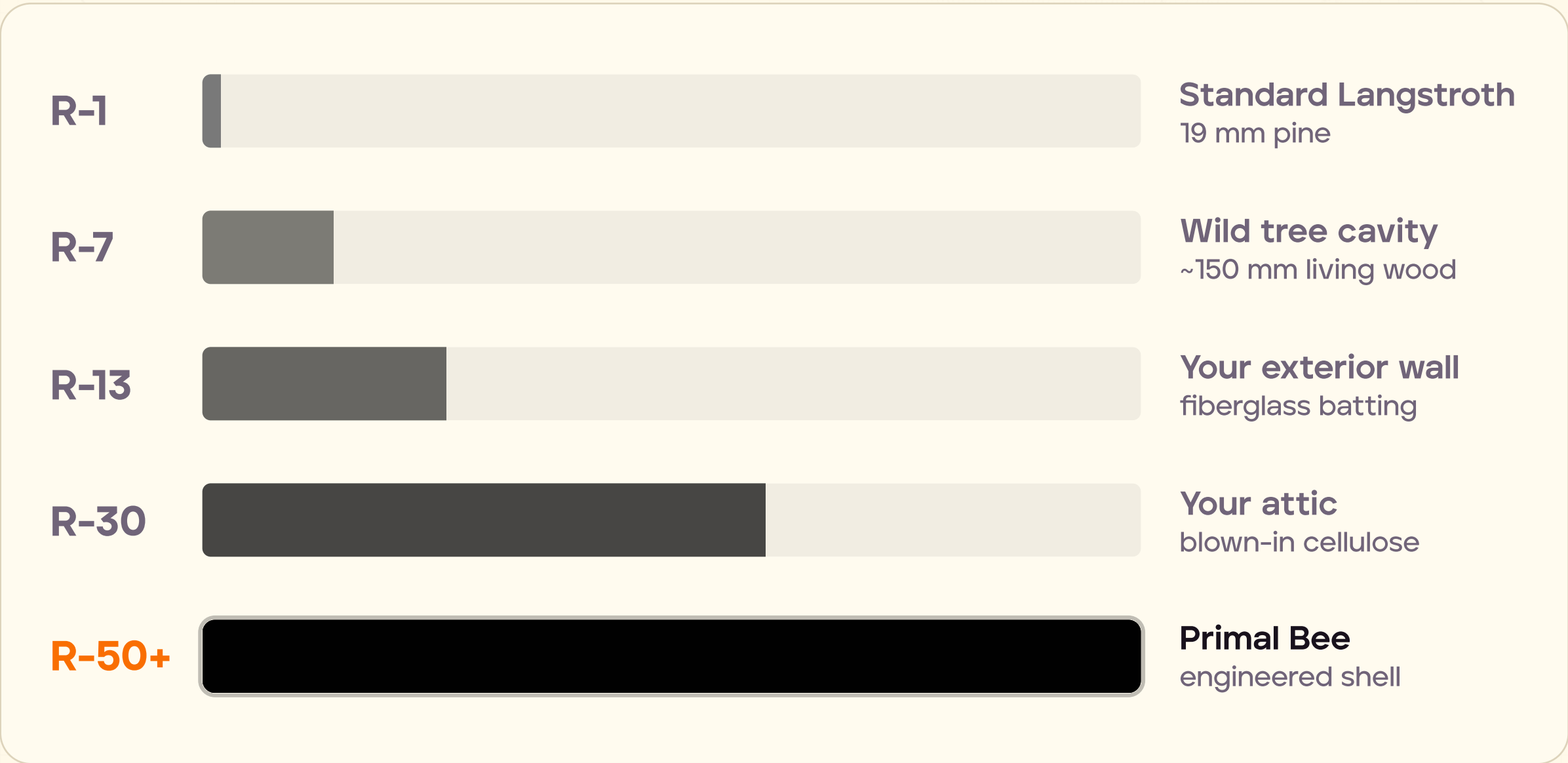


Stress rises, disease follows · 55% annual loss

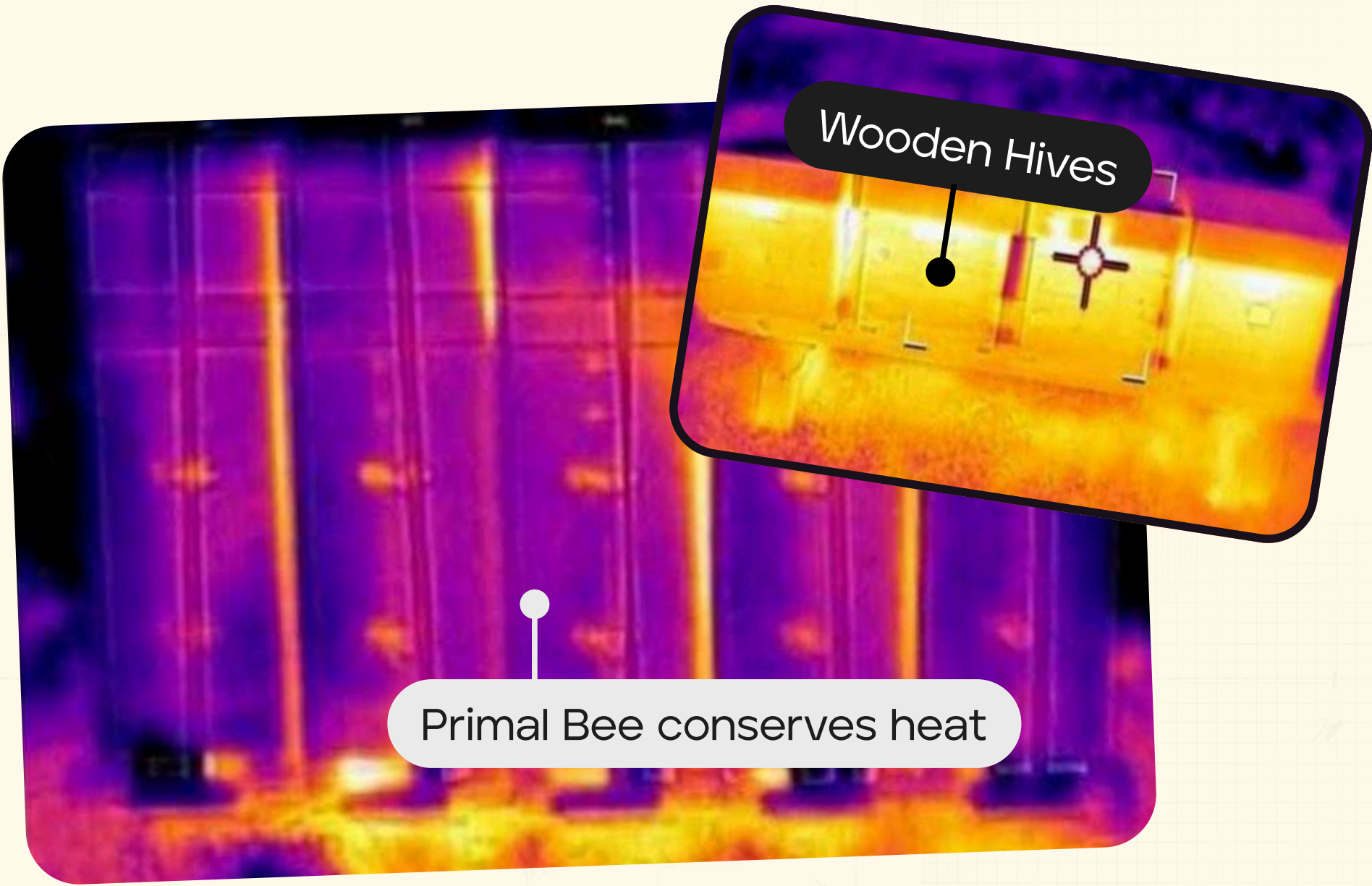
Small thermodynamic gains at the foundation → non-linear compounding across every downstream metric: honey, pollination, survival, profit.

A new standard in hive performance

R-value measures how well a material resists heat flow. Higher = more insulation. **Primal Bee is R-50+**, engineered to hold the colony's energy inside the hive.



50x more thermal resistance than the industry standard. [How we get there →](#)



THERMAL IMAGING

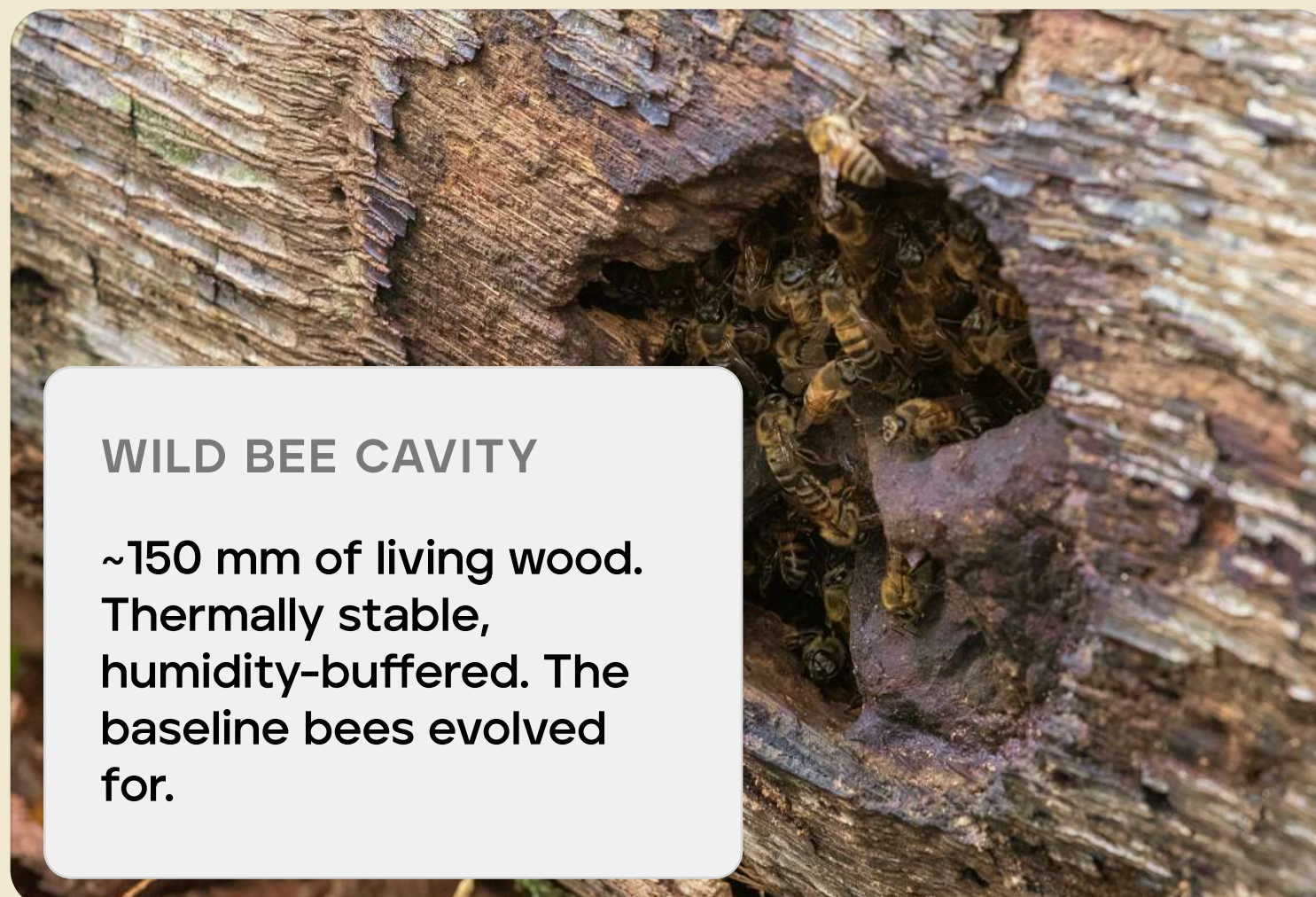
Side-by-side in the same apiary, same night. Wooden hives radiate heat into the atmosphere (bright yellow/orange). Primal Bee hives hold it in (dark purple). The difference is what the colony has to replace by burning honey.

From mimicking nature to optimizing it.

For 170 years the industry mimicked what wild bees do. Primal Bee takes the biology as input and engineers beyond it.

01 · MODEL

What nature does.



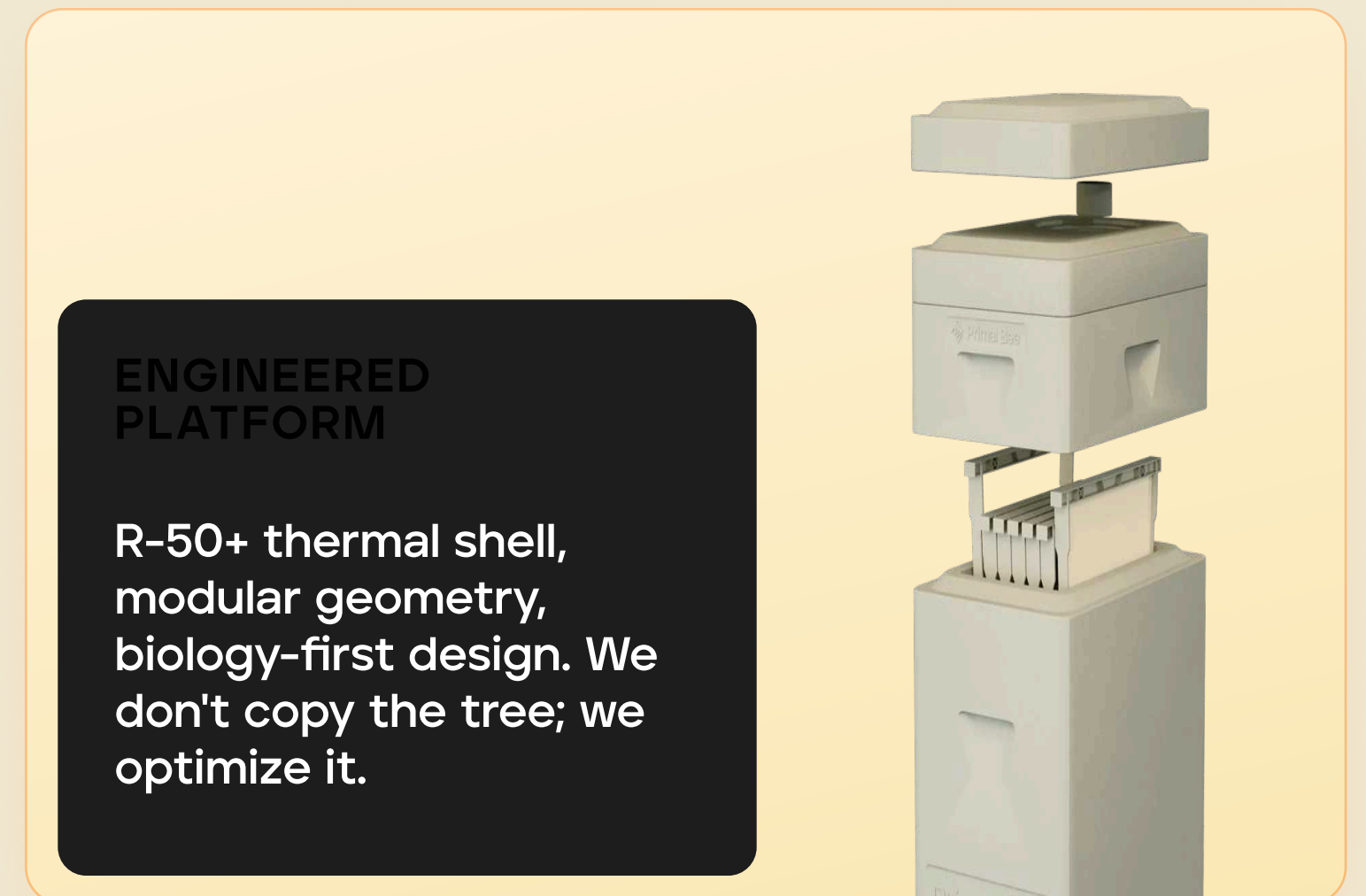
02 · MIMIC

What industry copied.



03 · OPTIMIZATION

What Primal Bee engineers.



We didn't build on top of a broken system. We redesigned the foundation.

Hive thermodynamics is a first-order variable in colony performance. Everyone has overlooked it. Primal Bee engineered around it.

— Now everything else can finally work on a stronger foundation.



The Primal Bee Hive. One integrated system.

Thermal shell + sealed brood chamber + controlled airflow = less heat loss = stronger colonies

01



EPS INSULATION

Thermal Shell

High-density EPS composite. Retains core temperature through 30°C outdoor swings.

02



INTERNAL GEOMETRY

Controlled Airflow

Calibrated vent geometry mirrors natural cavities bees evolved in.



Sealed Brood Chamber

Continuous envelope around the brood core. Moisture-managed, draft-free.

Proprietary where it matters. Fits into existing operations.



Field-validated across 12+ countries and 10+ years.

Backed separately by field trials, controlled pollination studies, university pilots, observational sensor data, and federal innovation programs – results converging across operators, geographies, and seasons.

ENGINEERING

+500% Better thermal efficiency

30mm+ EPS walls, <0.3 W/mK · U.S. Patent 11,375,697

BIOLOGY

2× Colony population

Multi-season side-by-side observations
300 dm² continuous brood chamber

YIELD

~2× Honey production

Consistent across 8+ years of internal and early-user observations. Validated in 2017 Swiss federal trial vs. Dadant control.

POLLINATION

Increased pollination efficiency

59.9% vs 48.6% fruit-set · paired t-test, $p = 0.0016$
Schwartz Farm, Israel, Spring 2026, and Portugal field trial. 2025-2026

OPERATIONS

~70% Less maintenance

Commercial operator pilots: fewer feedings, fewer inspections, less handling time per hive. Israel, Italy, Portugal · 2024-2026

We sell into a substantial equipment market today — serving a far larger agricultural value chain.

IMMEDIATE ENTRY POINT

\$2B Global Hive
Equipment Market

Our initial foothold: a recurring hardware replacement market we can capture today, before layering in accessories, services, data, and international expansion.

VALUE CHAIN WE UNLOCK

\$577B Pollination-Dependent
Agriculture

The economic surface our hives sit inside. Yield, insurance, and data partnerships convert strategic position into addressable revenue over time.

75% of global food crops depend on pollinators — almonds, berries, apples, coffee, cocoa.

\$15B annual pollination services in the U.S. Almonds consume the national hive supply every Feb.

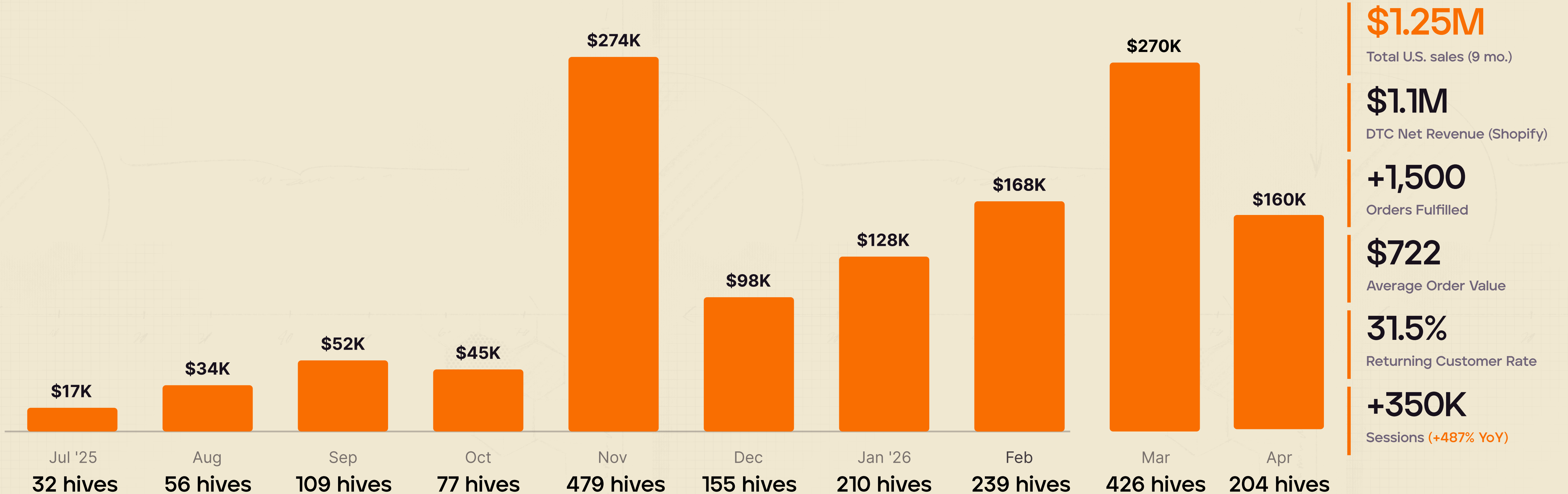
102M Approx. 102M managed colonies globally

SOURCES: FAO (2024), GRAND VIEW RESEARCH (2025), IBISWORLD (2024), IPBES POLLINATION ASSESSMENT (2023), USDA, AIA 2024-25.

\$0 to \$1.25M in 9 months.
And accelerating.

DTC validated willingness to pay. Large scale commercial operator adoption is the next unlock.

Chart reflects Shopify/DTC sales from July–April only and excludes additional revenue channels. Seasonality impacts sales performance and cycles.



25+

Small - medium commercial customers scaling up

2,500+

Hives sold globally (lifetime)

12+

Countries with active colonies

Feb '26

Commercial channel launched

Three real moats.

MOAT 01



Utility patents

Granted in U.S., EU, AU, CA. Cover the thermodynamic geometry, sealed brood envelope, and airflow calibration.

MOAT 02



Manufacturing know-how

High-density EPS composite tolerances are difficult to replicate without 18+ months of process learning. Our supplier relationship is exclusive in two regions.

MOAT 03



Field data flywheel

Three years of measured thermal + biological + yield data across six countries feeds product iteration. Each new operator deepens it.

Performance → adoption → community → demand → scale

From DTC to commercial - a deliberate path to scale.

100 operators run 70% of all colonies. We're not jumping to them — we're earning our way there.

U.S. COMMERCIAL CONCENTRATION:

70%

Top 100 operators



30%

1,500+ smaller

STEP 1

DTC willingness to pay
validated.

STEP 2

Mid-market commercial (active)
Paying customers, not pilots. 25+

STEP 3

Top 100 operators (2027 target) —
where the category gets built at scale.

Margin step-change in 2027.

Per-hive hardware margin, today vs. once the U.S. EPS line is online and operator orders scale. DTC and Commercial reported separately, same product.

DTC · CONSUMER STARTER HIVE

39% → 53%

Per hive · \$	2026	2027
ASP	\$615	\$675
Add-On Accessories	\$92	\$135
COGS	\$247	\$279
Shipping	\$185	\$105
Gross profit	\$275	\$426

COMMERCIAL · FLEET PRICING

32% → 44%

Per hive · \$	2026	2027
ASP	\$475	\$475
Add-ons Accessories	\$71	\$95
COGS	\$239	\$263
Shipping	\$130	\$55
Gross profit	\$177	\$252

15 years of R&D. One team, from first principles.

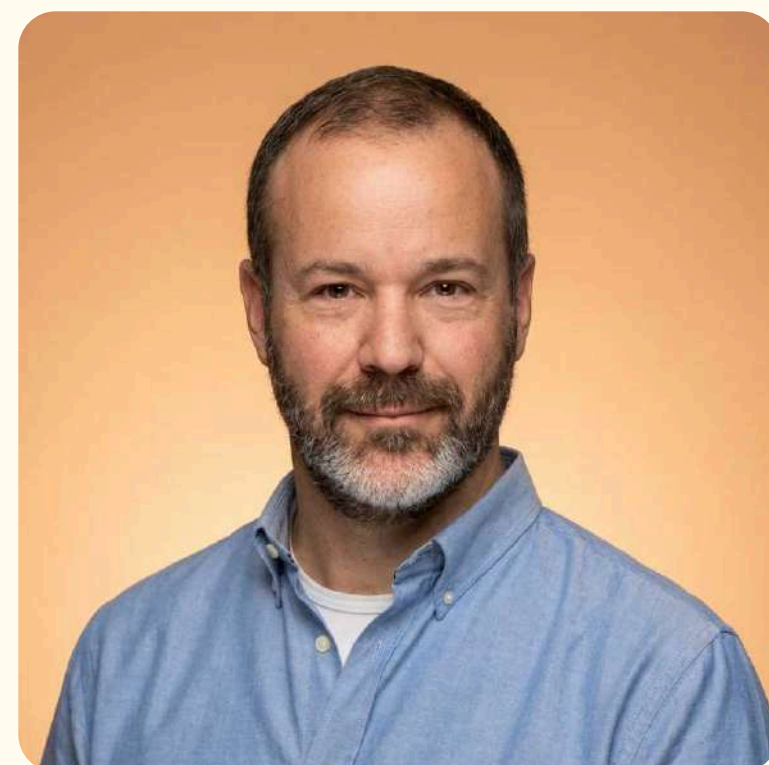
Primal Bee began as a Swiss engineering problem: how to make the beehive obey the laws of physics. Fifteen years of iteration, six countries of field data, and a team that bridges biology, hardware, and go-to-market.



CO-FOUNDER · INVENTOR

Gianmario Riganti

Engineer, academic researcher, and inventor behind Primal Bee's patented thermodynamic hive.



CO-FOUNDER · PRODUCTION

Alessandro Gamberoni

Aerospace & marine manufacturing (Leonardo Helicopters, Luna Rossa, GE Turbines). Master Beekeeper.



CO-FOUNDER · CEO

Tomer Moldovan

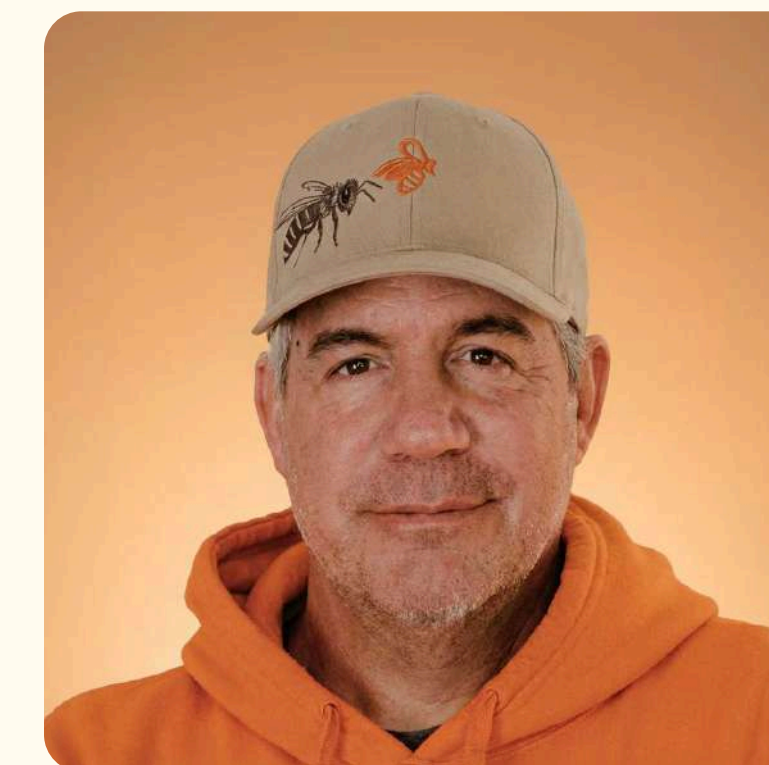
Entrepreneur & operator with a proven track record in ag-tech. Leading capital, strategy, and global scale at Primal Bee.



CO-FOUNDER · GM

Yotam Melman

Driving U.S. operations and growth. Experience across public & private sectors. Leads commercial strategy & market expansion.



SCIENTIFIC ADVISOR

Dr. Jason Graham

Entomologist in honey bee & native bee conservation biology, ecology, and nest dynamics.

Differentiated product. Field-validated proof. Clear commercial milestones.

Primal Bee is raising to move production to the U.S., expand into new territories, and unlock the commercial beekeeping market.

PRODUCT



PROOF



TRACTION



SCALE



CONTACT