



**BEEWISE**

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**IMPACT  
REPORT  
2022**



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# ABOUT BEEWISE



# FOUNDERS' STATEMENT

At Beewise, we are dedicated to saving bees.

We founded the company to support bees and address the global bee colony collapse crisis. By applying 21<sup>st</sup> century technology to an industry that has not experienced major technological changes in over 150 years, and through the latest advancements in robotics, computer vision, and artificial intelligence, we are solving the challenges of bees today—at scale.

**Our solution is built to save bees so we can safeguard the global food supply.**

The increasing loss of bee colonies around the world poses a threat to approximately 75% of pollination dependent crops that humans consume, and to the pollinators

themselves.<sup>1</sup> At Beewise, our business model is intrinsically linked to our mission: for every dollar we make, we save at least two bees. In our first Impact Report, we will discuss our impact for climate, hunger, life on land, industry and innovation, and economic growth. This report covers activity and data for January - December 2022, and aligns with industry-specific standards of the Sustainability Accounting Standards Board (SASB) for Agricultural Products and also Software & IT Services. We hope this report opens a dialogue with the food and environmental sustainability community, and we are committed to maintaining a focus on our impact as we scale.



**Saar Safra**  
CEO



**Eliyah Radzyner**  
Co-Founder & Head of Product

**OUR MISSION:**  
Save bees and thereby secure the global food supply

**“As we develop our solution, we always ask ourselves what’s good for the bees.”**

**Saar Safra, CEO**

<sup>1</sup> [Assessment Report on Pollinators, Pollination and Food Production](#), IPBES

# WHO WE ARE

We started the company in 2018 in Kibbutz Beit HaEmek, a location that resonates with our mission as it is a technology hub within an agricultural setting. We are now headquartered in California, and have built deep connections with growers, farmers, and beekeepers.

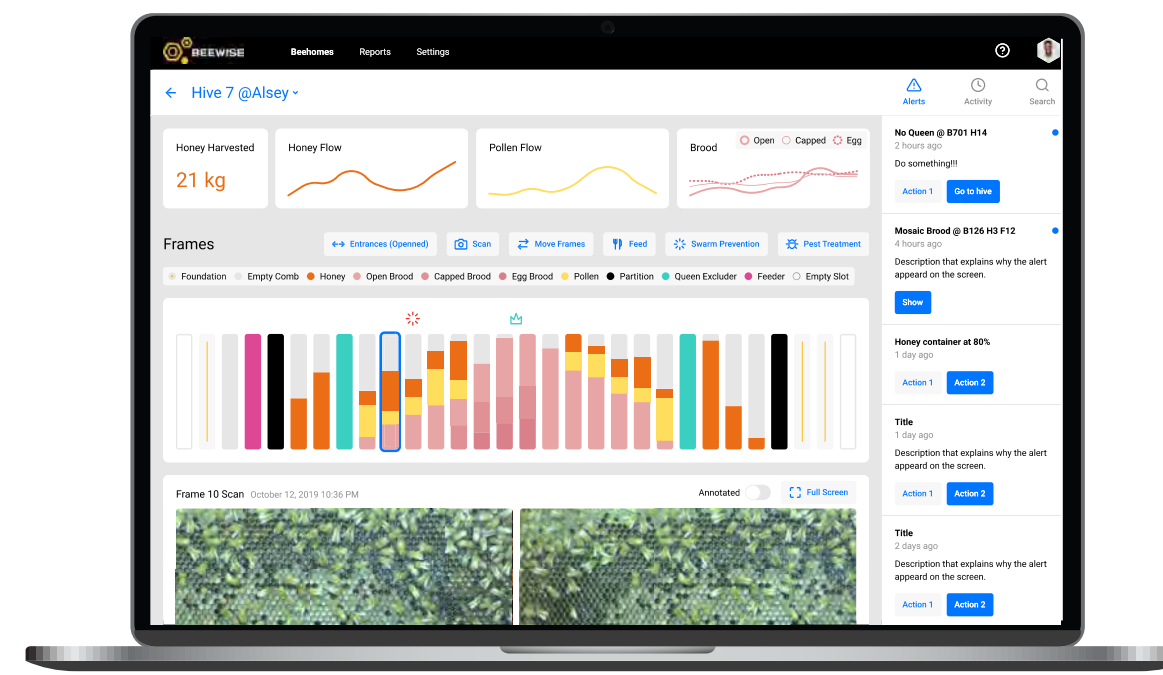
Our team is united by a singular mission to save bees and safeguard the global food supply. We have more than 150 people on our team, which spans the US, Israel, Ukraine, and Poland. Our team has a wide range of expertise, including robotics, artificial intelligence, software development, hardware design and development, apiology, botany, global operations, and more. We are all committed to saving bees and securing the global food supply.



## SENIOR LEADERSHIP

1. Saar Safra, CEO 2. Amit Hirsh, Finance 3. Hila Fluman, HR 4. Eliyah Radzyner, Revenue & Product 5. Netaly Harari, Operations  
6. Tai Nicolopoulos, Marketing 7. Oren Yakobi, GM, Software 8. Hallel Schreier, GM, Research 9. Shachar Adar, Hardware

# OUR VISION



## Save bees through technology

We completely redesigned the traditional beehive, a “technology” that has not changed much since its invention over 150 years ago, if at all.<sup>2,3</sup>

We created a new beehive that includes computer vision, AI, and precision robotics, for the benefit of the bees. Now, bees are constantly monitored using computer vision, with AI identifying their needs in real-time and precision robotics applying the appropriate treatment as needed.

We are not changing how beekeeping is done. Instead, we enable it to be performed in real-time, so it’s as if every bee had her own beekeeper—24/7, rain or shine.

## Improve outcomes through automation

Beekeepers typically have two main revenue streams: pollination services they provide to crop growers and sales of the honey their bees produce.

We provide commercial beekeepers with a technology-enabled platform, so together with their personal expertise and know-how, they are equipped with advanced tools to help their bees survive, thrive, and stay healthier.

We help growers and beekeepers reduce operational costs.

**With our solution, beekeepers increase their efficiency for optimized pollination and improved honey production. Healthier bees lead to better unit economics for beekeepers, which ultimately means more beekeepers in business, protecting more bees.**

## Improve pollination through healthier hives

Typically, pollination is positively correlated with a crop’s yield that season.<sup>4</sup> Healthier hives lead to improved pollination, which subsequently increases crop yield for growers.

Increased crop yield helps growers maximize land use, which in turn improves food supply. This means more food becomes accessible at better prices to more people around the world.

<sup>2</sup> [Why bees matter](#), FAO

<sup>3</sup> [Lorenzo Langstroth Invented the Modern Beehive](#), National Inventors Hall of Fame

<sup>4</sup> [The power of pollinators: why more bees means better food](#), FAO

# BEEES ARE IN TROUBLE AND TIME IS RUNNING OUT

Why it matters:

# BEEES AS POLLINATORS

Pollinators are vital to life on our planet. Bees have thrived for more than 130 million years, ensuring food security and nutrition, and maintaining biodiversity and vibrant ecosystems for plants, animals, and humans.

Today, pollinators are essential to the production of many of the micronutrient-rich fruits, vegetables, nuts, seeds, and oils we consume. Approximately 75% of the world's crops that produce fruit, vegetables, seeds, and nuts for human consumption depend, at least in part, on pollinators for sustained production, yield, and quality.<sup>5</sup>

The significant decline in populations of pollinators is likely to impact the production and costs of vitamin-rich crops. This decline could lead to increasingly unbalanced diets and health problems, limiting the intake of needed nutrients and potentially giving rise to disease and limited life spans.<sup>6</sup>



# 75%

of the world's crops that produce fruits, vegetables, seeds, and nuts depend on pollinators

<sup>5</sup> [FAO's Global Action on Pollination Services for Sustainable Agriculture](#), FAO

<sup>6</sup> [Pollinator Deficits, Food Consumption, and Consequences for Human Health: A Modeling Study](#), EHP



# BEEES & OUR DAILY LIVES

Every day, we consume crops that depend on pollinators, which carry pollen on their bodies and help plants reproduce.

Pollinators include birds, bats, butterflies, moths, wasps, small mammals, and bees, who go to flowers to consume nectar and collect pollen, and transport pollen grains as they move from flower to flower. Honey bees pollinate as much as all other pollinators combined.<sup>7</sup>

As the human population grows, demand for these crops rises. At the same time, the supply of honey bee colonies is in constant decline.<sup>8</sup>

**Pollinators provide pollination services to over 180,000 plant species and 1,200 crop types.<sup>9</sup>**

What we eat



What we drink



What we wear



What our livestock eats



<sup>7</sup> [Delivery of crop pollination services is an insufficient argument for wild pollinator conservation](#), Nature

<sup>8</sup> [Colony Collapse Disorder](#), US EPA

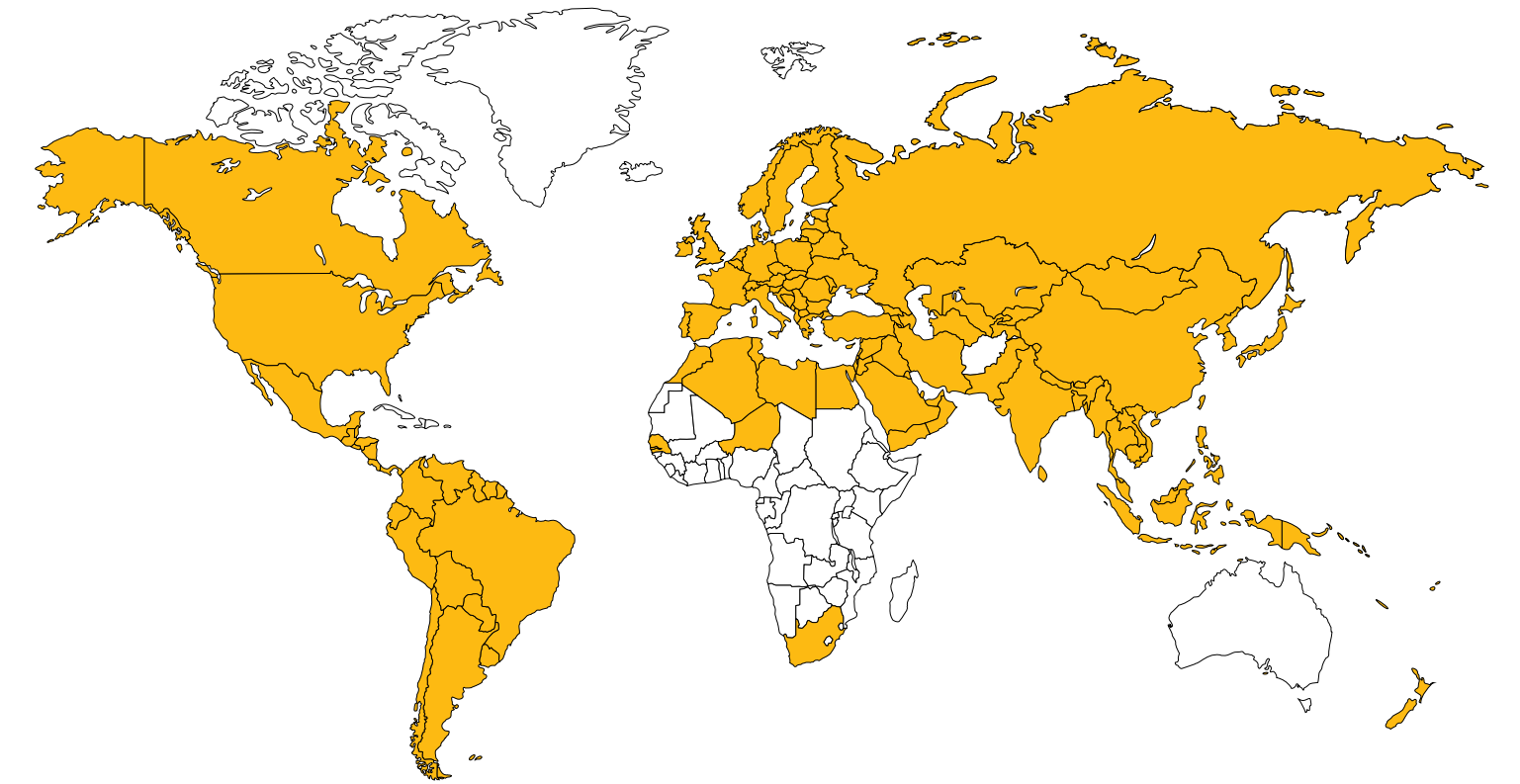
<sup>9</sup> [What is a pollinator?](#), National Park Service

# BEEES ARE IN TROUBLE

# 45%

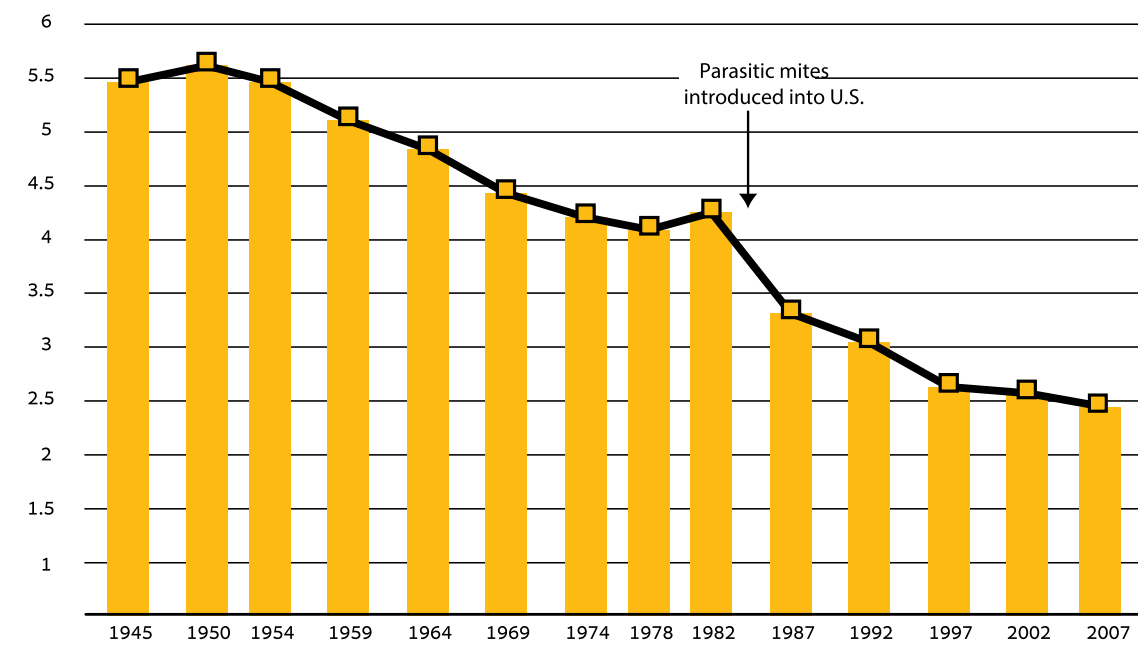
of managed honeybee colonies in the US were lost in 2020-2021<sup>10</sup>

## Bees die every year everywhere



## US honey-producing colonies

Number of honey producing bee colonies (x 1 000 000)



Data source: U.S. Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS).

<sup>10</sup> United States Honey Bee Colony Losses 2020-2021, Bee Informed Partnership

# WHY IT'S HAPPENING

Honeybee colonies are highly susceptible to climate change and other environmental stressors. Leading threats to bees include:



## Climate change

We are already experiencing the effects of global climate change, which include higher temperatures, drought, floods, and other extreme weather events that can alter flowering times. This leads to asynchronism between demand (nectar, pollen, and other food sources) and supply (blooming flowers). This results in starvation of bee colonies, disease, rapid spread of deadly pests, and a general diminishment of bee colony health.



## Pesticides

Certain pesticides and fungicides have detrimental effects on bees, and neonicotinoids can kill hundreds of thousands of bees in a single application.<sup>11</sup>



## Pests and disease

Pests such as Varroa mites, pathogens such as American foulbrood, and viruses can affect pollinator health, and have spread to almost every hive across the planet.<sup>12</sup>



## Loss of flora diversity

As farms become larger with more consolidation in the sector, agricultural practices have changed. The focus is on fewer crops and monoculture farming, which can increase the risk of disease and pest outbreaks.<sup>13</sup> Additionally, loss of diverse foraging habitats can lead to poorer nutrition for pollinators or starvation.



With these major stressors, we recognize that bees need our help today.

So we decided to use available technology to give bees the tools they need to survive modern stressors.

<sup>11</sup> [Bees face yet another lethal threat in dicamba](#), Reveal

<sup>12</sup> [Honey Bee Health](#), Agricultural Research Service, US Dept. of Agriculture

<sup>13</sup> [The rise and fall of monoculture farming | Research and Innovation](#), Horizon, the EU Research & Innovation Magazine

# IMPACT OF BEE LOSS

The loss of bee colonies has potentially serious adverse effects on people, businesses, and the planet.



## Social

Suboptimal pollination leads to lower crop yields per acre, which in turn leads to higher food prices, potentially impacting food security, hunger, and nutrition, especially for vulnerable populations.



## Economic

The loss of colonies directly impacts the businesses of beekeepers and growers, with secondary effects on the larger agricultural sector.



## Environmental

The loss of pollinators impacts wild flora, which can lead to additional loss of both flora and fauna.

# THE BEEWISE SOLUTION FOR TODAY AND TOMORROW

An aerial photograph of a solar-powered tractor in a field. The tractor is a small, blue and yellow vehicle with a solar panel mounted on its back. It is positioned in the center of the frame, facing left. The field is a mix of brown, dry earth and green, leafy plants. The text "THE BEEWISE SOLUTION FOR TODAY AND TOMORROW" is overlaid on the left side of the image in large, white, bold, sans-serif font.

# AN ADVANCED SOLUTION FOR BEES

Beekeepers have been using the same technology for the past **150** years.<sup>14</sup>



1857

Modern beekeeping starts with wooden boxes to house bees



1900

Beekeepers use smokers to calm bees during hive inspections



2018

Beewise founded



2021



## BeeHome

**The world's first robotic, automated beekeeping system**

The only beehive equipped with computer vision, AI, and precision robotics, resulting in:

- 70% colony loss reduction
- 50% yield increase
- 90% labor reduction

Through the digitization of pollination and beekeeping,

**we can save bees on a large scale.**

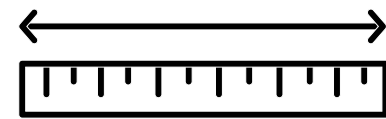
In the traditional hive, essentially a closed wooden box developed 150 years ago, the only way to treat bees is by physically attending to them in the field. There is no way to treat bees when they actually need it in real-time, in the field, at scale.

<sup>14</sup> [Lorenzo Langstroth Invented the Modern Beehive](#), National Inventors Hall of Fame

# OUR **INNOVATIVE** APPROACH

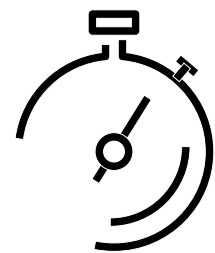
## THE CHALLENGE

There are three main constraints that prevent beekeepers from helping their bees deal with modern stressors effectively:



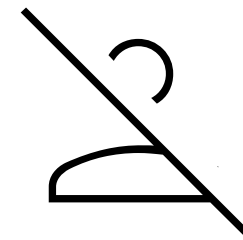
### The distance gap

Hives are situated far apart from each other and from beekeepers—sometimes hundreds of miles away. As a result, beekeepers can treat only a limited number of hives on any given day.



### The time gap

Because of the distance and lack of professional labor, beekeepers typically visit their hives every three to four weeks. So hives are treated in broad strokes, rather than with precise solutions. Beekeepers are rarely able to treat a problem just in time—they're either too early or late.



### The experience gap

Commercial beekeepers manage thousands of hives—a typical medium-sized US beekeeper has ~10,000 hives, with a labor ratio of one person for every 1,000 hives. This leads to generalized care that is not necessarily done by an experienced beekeeper, and inconsistencies in treatments of bees.

## OUR SOLUTION

The Beewise solution allows beekeepers to know what their hives need and provide the right solution when it's needed, without having to physically visit the hive.

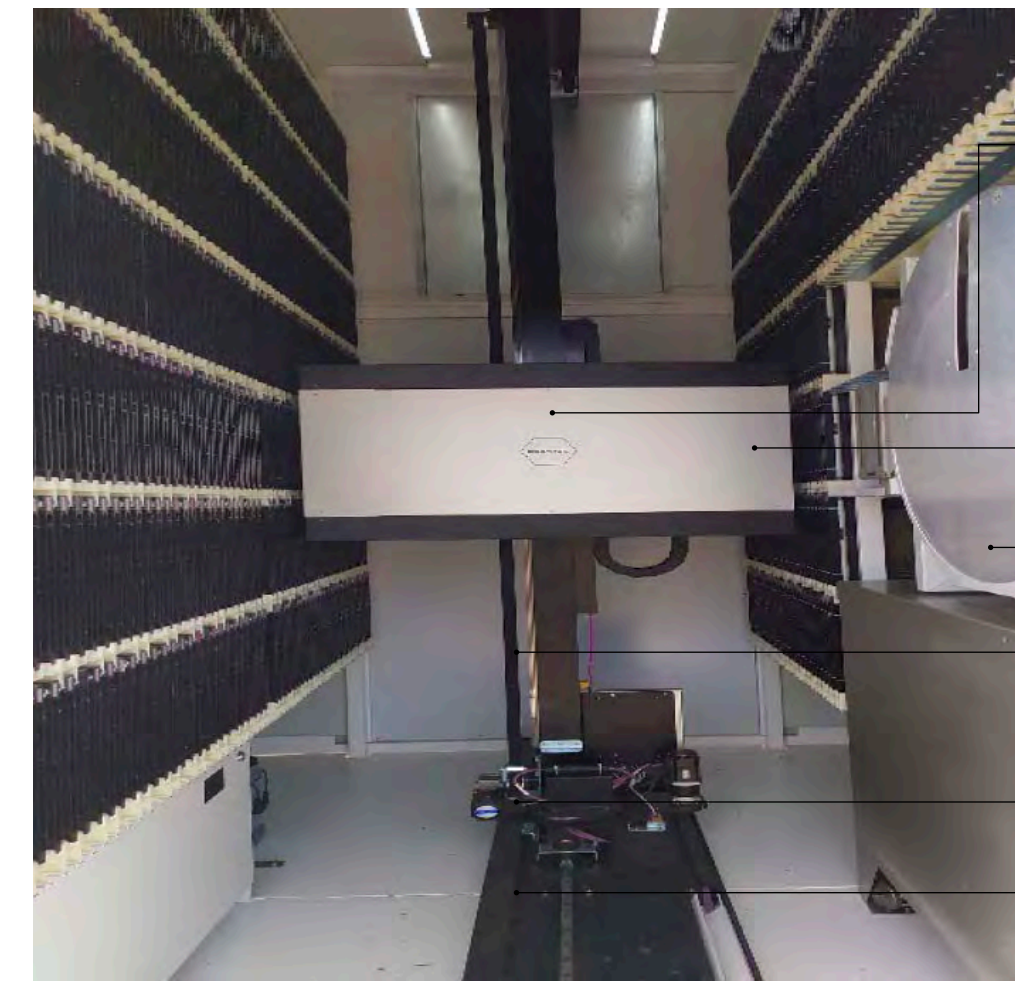
We solve the challenges facing beekeepers today and enable them to help bees more effectively.

**This is accomplished through monitoring and automation, enabled by our innovative technology solution.**

# BEEHOME: THE FIRST ROBOTIC BEEHIVE

We have developed a holistic solution for bees— with advanced hardware in the field, and software for beekeepers and growers to manage operations from their desk or mobile phone.

## BeeHome hardware platform



Frame Inspection



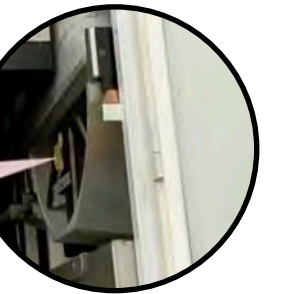
Robot

Honey Extractor

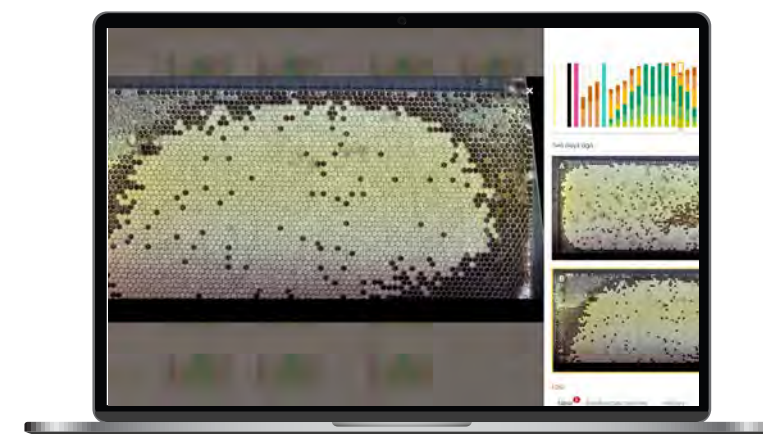
Moving Frames

Feeding

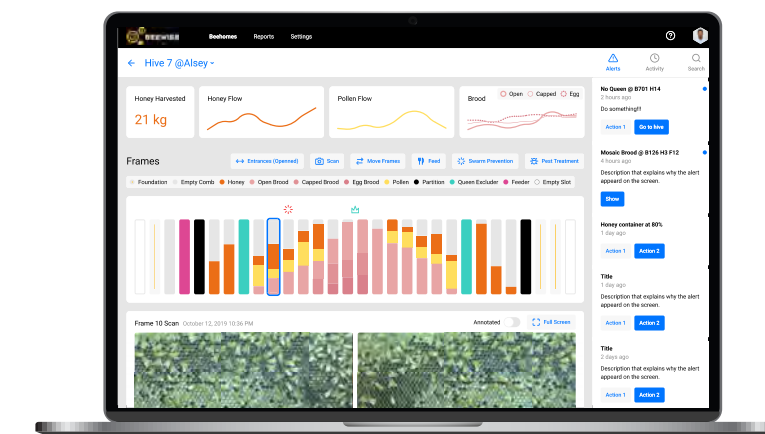
Pest treatment



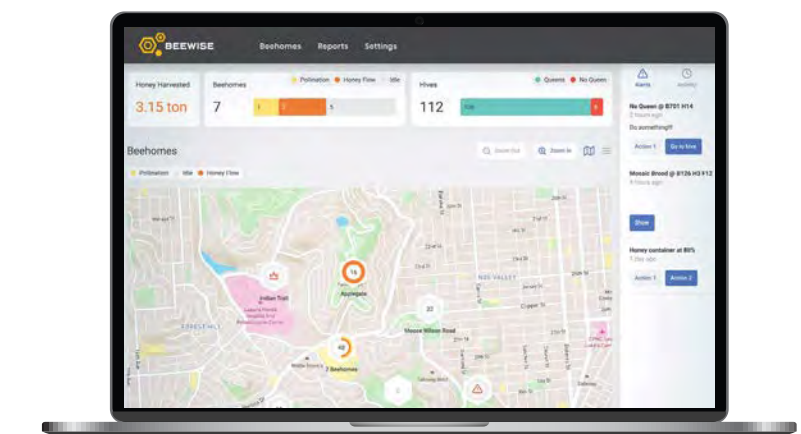
## BeeHome software platform



Real-time images and data for every frame in the hive, down to the cell level



Comprehensive data monitoring, insights, and alerts across all hives



Location and mapping capabilities for tracking and planning



# THE BEEHOME TECHNOLOGY

Comprised of several layers:

## Biological

The BeeHome is a safe and controlled environment for organisms (bees) to interface with and live inside.

## Physical

The device is designed with a range of features, including:

- Thermo-regulation to insulate, heat, and cool the interior, as well as provide air exchanges and ventilation
- Modular, dynamic, and flexible habitat space with frames that can be added or subtracted in each hive
- External signage to guide bees to the appropriate hive
- Designed for mobility and transport by forklift
- Controllable bee entrances that can be opened and closed by the system and beekeepers

## Infrastructure

The structure is built with power and sensors to enable remote monitoring.

- Renewable energy, powered by on-site solar panels
- Sensors to measure temperature, weight, sound, humidity, etc.

## Robotics

Hardware is included that enables automation.

- Frame loader to extract and move frames
- Mechanism for continuous harvesting of honey
- Heat treatment of specific frames for pest control



# THE BEEWISE TOOLSET

TOOLSET  
*for*  
**BEES**

TOOLSET  
*for*  
**BEEKEEPERS**

TOOLSET  
*for*  
**GROWERS**

# TOOLSET *for* BEEES

We completely redesigned the beehive, using the latest technology to give bees the environment they need to operate in naturally. At Beewise, we consider the bee our main customer and we build the products for them.

The BeeHome is self-contained, solar powered, autonomous, and controlled remotely by beekeepers. It is designed to keep bees healthier, so they can survive and thrive.

BeeHome combines computer vision, AI, and precision robotics to automatically and autonomously handle most issues associated with supporting colonies. For those instances where a beekeeper is required to intervene in person or remotely, alerts are sent accordingly.

## Thermo-regulation

Through controlling the climate in the BeeHome we can create a better environment for bees, resulting in less bee mortality and higher yields.

## Autonomous swarm prevention

Through AI technology, swarming is prevented by early detection of a swarm build-up and adjusting conditions in the bees' habitat according to their needs.

### About swarming

When bee colonies are at their peak and hives can no longer contain all the bees and their supplies, a majority of the bee population (including their queen) swarm away from the hive in a process known as 'swarming'.

Despite being a natural phenomena, this has adverse effects on the productivity of a colony both in honey production and pollination, due to the loss of most of the bee population. It can result in 50% less honey than colonies that don't experience swarming.<sup>15</sup>

## Automated feeding

The ability to feed a hungry colony remotely keeps it from starving and encourages the queen to lay more eggs, thereby increasing its chances for survival.

## Pest control

The BeeHome constantly monitors pests, such as Varroa mite in the hive and applies non-chemical treatment where needed, in real-time. This leads to a significant reduction in Varroa infestation, infections, and colony loss.



## IMPACT

With BeeHome, bees finally have a toolset at their disposal to deal with modern stressors and help support their natural activities. The BeeHome is where they live, build, store and produce supplies, including nectar, pollen, and honey. It gives them a better chance to not only survive, but thrive in the face of today's climate changes.

- Beekeepers using BeeHome have reported up to **70% reduction in colony loss.**
  - Bees' needs are addressed in the field, in real-time, without the need to wait for human intervention.
  - Beekeepers can see what's happening in the hives, 24/7, with the ability to remediate threats *before* they develop into a disaster.
- The BeeHome is a data-driven system, so beekeepers no longer have to guess what's happening in a closed box.**
- With automated and efficient harvesting of honey, bees can pollinate more effectively and produce more honey.

<sup>15</sup> [Colony manipulations for honey production](#), Bee World

# TOOLSET *for* BEEKEEPERS



The BeeHome provides beekeepers a technological solution that improves pollination and increases honey yields, all while reducing colony losses and operational costs.

## Technology to improve bee colony health, thereby increasing pollination and honey yield:

- Fully remote monitoring, 24/7
- Frame manipulation via robotics, controlled remotely
- Thermo-regulation
- Automated remote feeding
- Pest identification and control

## Comprehensive system improves business activity:

- Less colony collapse leads to optimized operations and decreases remediation spend
- Reduces operational and labor resources, time and cost
- Less time in the field allows for more focus on managing colonies and the business
- Drives efficiency, thereby improving margins
- Improved honey yield increases profit
- Opportunities to scale

<sup>16</sup> [Farmers, Ranchers, and Other Agricultural Managers: Occupational Outlook Handbook](#), US Bureau of Labor Statistics

## IMPACT

When bees are stressed, so are beekeepers. BeeWise helps beekeepers do their jobs better, so their bees and business can thrive.

### Economic

BeeWise drives efficiency and increases profits: less colony collapse leads to increased yields, and automation leads to reduced labor costs.

### Social

Employment in the US agricultural sector is projected to decline by 3% over the next decade.<sup>16</sup> BeeWise increases operational efficiency for beekeepers, allowing technologically-inclined professionals to enter the field, thereby boosting the sector as a whole.

### Climate

The BeeHome allows for remote treatment of bee colonies at scale, and allows for a significant reduction in transportation-related emissions, as beekeepers spend a great deal of their time driving when treating traditional hives.

# TOOLSET *for* GROWERS



Growers rely upon bees and beekeepers to thrive. Pollinators add an estimated \$18 billion in revenue to crop production every year in the US. Some of the major US crops pollinated by honey bees and other pollinators include almonds, non-citrus fruits, berries, melons, and squash.<sup>17</sup> At the same time as we help bees, we help growers improve pollination in the field, increase crop yield, and reduce operational costs.

## Digitizing pollination to improve business operations

- Data analysis to optimize pollination operations
- Mapping and analysis to identify ideal location for bee colonies, and optimized coverage of pollination-dependent areas
- Real-time visibility into hive strength, health, and pollination efficacy
- Transparency of hive history and projections of performance
- Data-driven, transparent pollination for better crop yields

## IMPACT

With better pollination, growers have the chance to harvest more crops and improve the harvest of existing ones, helping to grow crops despite the challenges posed by climate change. In addition, BeeWise helps growers grow their business, with a significant impact on the global food supply.

### Economic

Despite a steady demand for agricultural products, many small farms operate with slim margins and are vulnerable to market conditions. In the US, operators of small farms are expected to exit the sector over the next decade.<sup>18</sup> Pollinator declines, including wild bees and honeybees, could translate directly into decreased yields or production for crops,<sup>19</sup> and improved pollination can lead to better business results for growers.

### Social

Increased output per acre can improve growers' profit, while having a potential impact on food costs for end consumers. This means a greater variety and volume of fruit and vegetables are accessible to more people around the world, helping to alleviate global hunger and malnutrition, especially within vulnerable populations.

<sup>17</sup> [The Buzz About Pollinators](#), USDA

<sup>18</sup> [Farmers, Ranchers, and Other Agricultural Managers : Occupational Outlook Handbook](#), US Bureau of Labor Statistics

<sup>19</sup> [Crop production in the USA is frequently limited by a lack of pollinators](#), Proceedings of the Royal Society B: Biological Sciences, July 2020

# SUSTAINABLE DEVELOPMENT GOALS



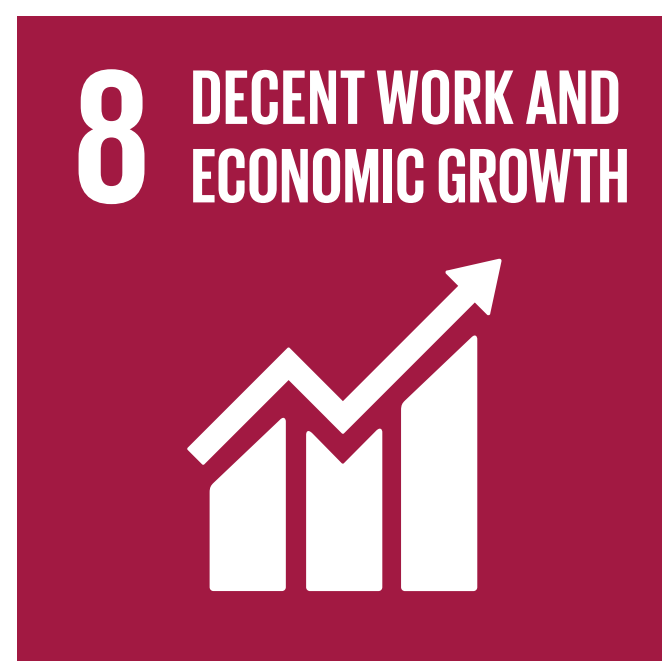
# WORKING TO SOLVE GLOBAL SUSTAINABILITY CHALLENGES

At Beewise, we have identified five SDGs that our product and service support.

In 2015, United Nations Member States adopted the 2030 Agenda for Sustainable Development, a shared blueprint for peace and prosperity for people and the planet.

At the heart of this Agenda are 17 Sustainable Development Goals (SDGs), which recognize that ending poverty and other deprivations must go hand-in-hand with strategies to improve health and education, reduce inequality, and spur economic growth—while protecting our environment and tackling climate change.

The SDGs represent a holistic approach for organizations working to solve global sustainability challenges, and each goal has specific targets and indicators.





# SDG GOAL 2

## ZERO HUNGER

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

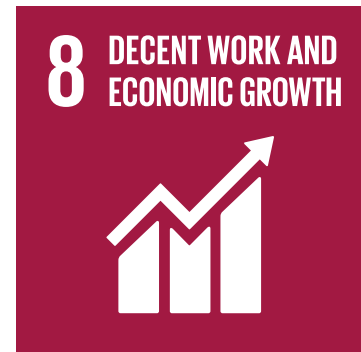
### Targets

### Beewise Activity

<p><b>2.1</b> Sufficient food all year round</p>	<p>Close to 75% of the world’s crops that produce fruit, vegetables, seeds, and nuts for human consumption depend, at least in part, on pollinators. Beewise’s technology saves honeybee colonies, which are the most widespread and impactful commercial pollinators. Better access to better pollination helps provide more food security for all people by raising crop yields.</p>
<p><b>2.3</b> Double the agricultural productivity</p>	<p>Today, most farmers and growers do not have access to adequate pollination (both in quantity and in quality), mostly due to bee colony collapse. By keeping bees alive, the Beewise solution helps raise agricultural productivity and add value to farmers whose crops require pollination services, while reducing their expenses.</p>
<p><b>2.4</b> Implement resilient agricultural practices that increase productivity and production</p>	<p>Beewise helps mitigate the negative effects of climate change on bees by providing bees with more controlled conditions through the BeeHome. Improved pollination by bees makes farming more productive by providing more yield for the same plot of land.</p>







# SDG GOAL 8 DECENT WORK AND ECONOMIC GROWTH

Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all

## Targets

## Beewise Activity

**8.2** Higher levels of economic productivity through diversification, technological upgrading and innovation

Beewise’s innovative technology allows beekeepers to tend to their hives remotely. It’s reported that US beekeepers spend up to 60% of their time traveling to care for their hives; Beewise reduces costs and travel time for beekeepers. The BeeHome is a sector disrupter that replaces 150-year-old technology.

**8.3** Support decent job creation and encourage the formalization and growth of micro, small and medium-sized enterprises

By introducing a technological solution to beekeeping, Beewise makes the entire industry more accessible to technologically-prone individuals and professionals, in essence injecting new blood into the industry (both for large-scale commercial operations, but even more so for smaller-scale ones that have a hard time finding quality talent and labor).

**8.8** Protect labor rights and promote safe and secure working environments

By allowing remote treatment of bees, the Beewise solution significantly reduces travel time (in a vehicle), physical labor in the field, and occupational hazards of working in close proximity to bees.





# SDG GOAL 9

# INDUSTRY, INNOVATION AND INFRASTRUCTURE

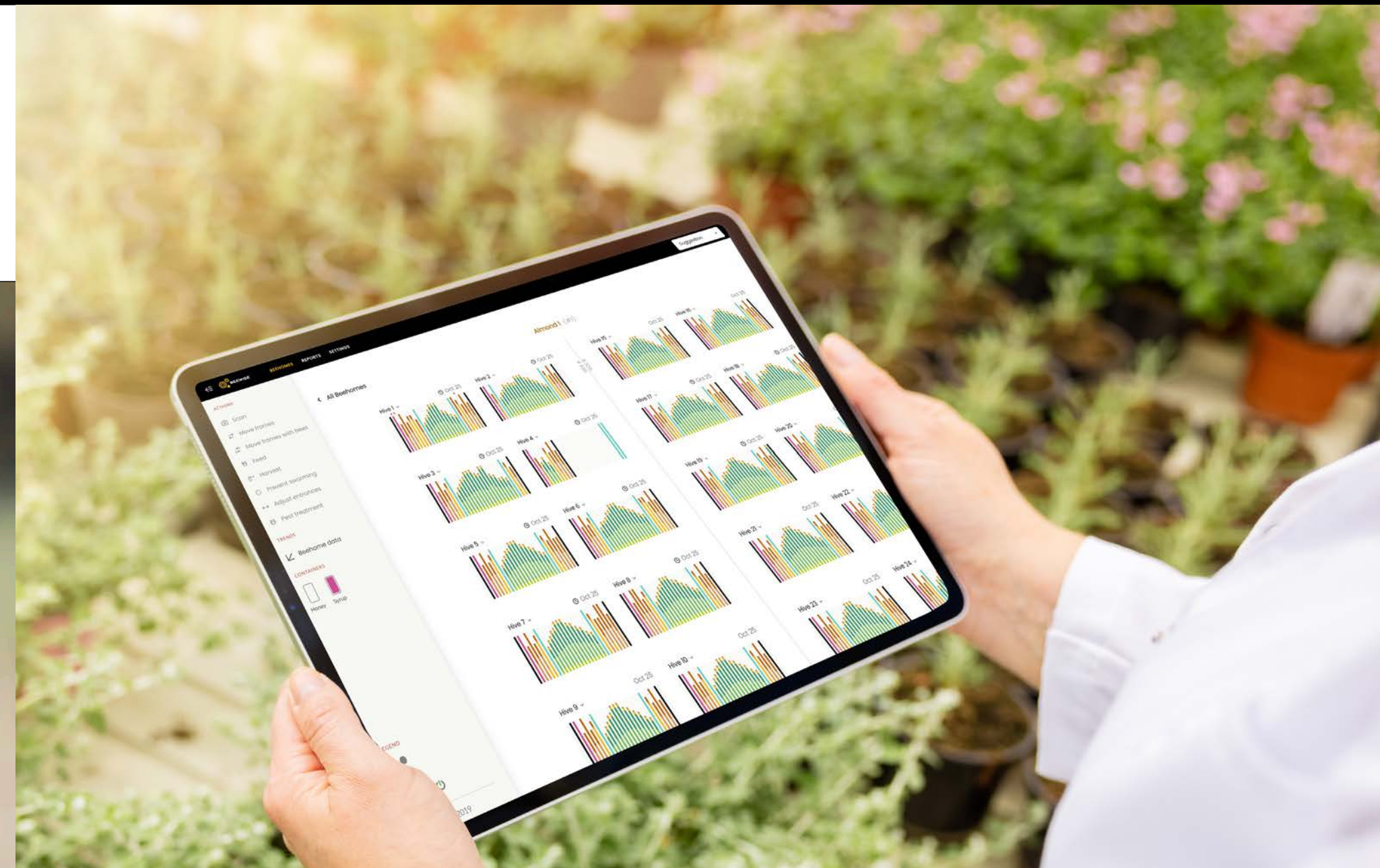
Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

## Targets

**9.4** Make industries sustainable with resource-use efficiency and adoption of clean and environmentally sound technologies

## Beewise Activity

Beewise helps farmers use less resources and be more productive, while being more sustainable.  
Automation saves time and resources, and remote capabilities reduce transportation for beekeepers.





# SDG GOAL 13 CLIMATE ACTION

Take urgent action to combat climate change and its impacts

## Targets

**13.1** Strengthen resilience and adaptive capacity to climate-related hazards

## Beewise Activity

The bee population has severely declined due to climate-related negative effects and other negative environmental factors (the global bee population is ~50% of what it was 60 years ago).

Beewise’s solution helps protect bees, significantly reducing colony collapse. The Beewise solution can also be a step towards decarbonization within the agricultural sector by preventing greenhouse gas emissions, due to reduced beekeeper transportation to and from hives as a result of the remote treatment capabilities of the solution.





# SDG GOAL 15 LIFE ON LAND

Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

## Targets

**15.5** Reduce the degradation of natural habitats, halt the loss of biodiversity and prevent the extinction of threatened species

## Beewise Activity

Beewise’s goal of saving bees not only helps bees and cultivated crops, but also impacts the entire ecosystem due to the bee’s important role as an overall general pollinator.

Reducing bee colony loss helps enhance the biodiversity of flora and fauna in the areas surrounding the hives, ultimately having a positive effect on the natural habitats themselves.





# CULTIVATING INNOVATION

# THE PEOPLE BEHIND THE MISSION

We are on a mission. Our employees around the world dedicate their talent, creativity, and know-how to save bees, building innovative solutions that are disrupting the industry.



# 110

Employees

# 4

Global locations

We support this culture of innovation through our **diverse team**, expansive **employee support**, and exceptional **leadership and training**.

In addition, we have cultivated a culture of **agility** based on our collective engineering mindset and experience working with bees in nature, where it's crucial to react

to changes calmly, quickly, and effectively. We believe a key part of innovation is the ability to change direction if something is not working. This approach is driven by our R&D leadership, which enables and supports continuous innovation through new features and ongoing product development.

Our employees around the world embody our values and are united in our commitment to save bees, every day.

# DIVERSITY OF IDEAS AND PEOPLE

At Beewise, we come together from a wide range of disciplines to develop innovative solutions to save bees.

Our employees are experts in physics, biology, apiculture, mathematics, algorithms, modeling, robotics, software, business development, supply chain, operations, and more.

This range of expertise, in addition to our diversity in ethnicity, religion, and nationalities, ensures that we have a free, collaborative, cross-discipline exchange of ideas and opinions.

To further support this culture of diversity, we aim to have equal representation of men and women at Beewise. We prioritize women hires for teams that have a significant majority of men and we are drafting diversity objectives for each department.

We were joined by 61 new hires this year, **nearly doubling our workforce.**

Our turnover rate during 2022 was **22%**.



**30%**  
of employees are women

## DIVERSITY OF EMPLOYEES 2022

	Women	Other Under-represented Groups	Over 50	30-50	Under 30
Executive	43%	0%	0%	100%	0%
Middle Management	33%	6%	6%	89%	6%
Non-managers	29%	5%	8%	68%	24%
<b>Total</b>	<b>30%</b>	<b>5%</b>	<b>7%</b>	<b>75%</b>	<b>19%</b>

# SUPPORTING OUR EMPLOYEES

We are committed to providing our employees with the best support and toolsets they need to do their jobs.



We provide free extensive health insurance to all employees, and discounted insurance for their families. In the US, our employee healthcare plan covers 100% of medical and vision care. We ensure all personal health-related information and data is private and accessible only to those who are eligible to view it according to local law.

To ensure fair and equal remuneration, we utilize two salary surveys to cover 95% of existing positions and utilize common practice to assess professional background and relevant years of experience for salaries of candidates and employees.

We acknowledge the tremendous efforts of combining parenthood along with career

development, and we support our employees during pregnancy and provide maternity leave in accordance with local regulations. To support a healthy work/life balance for all employees, we offer unlimited vacation days.

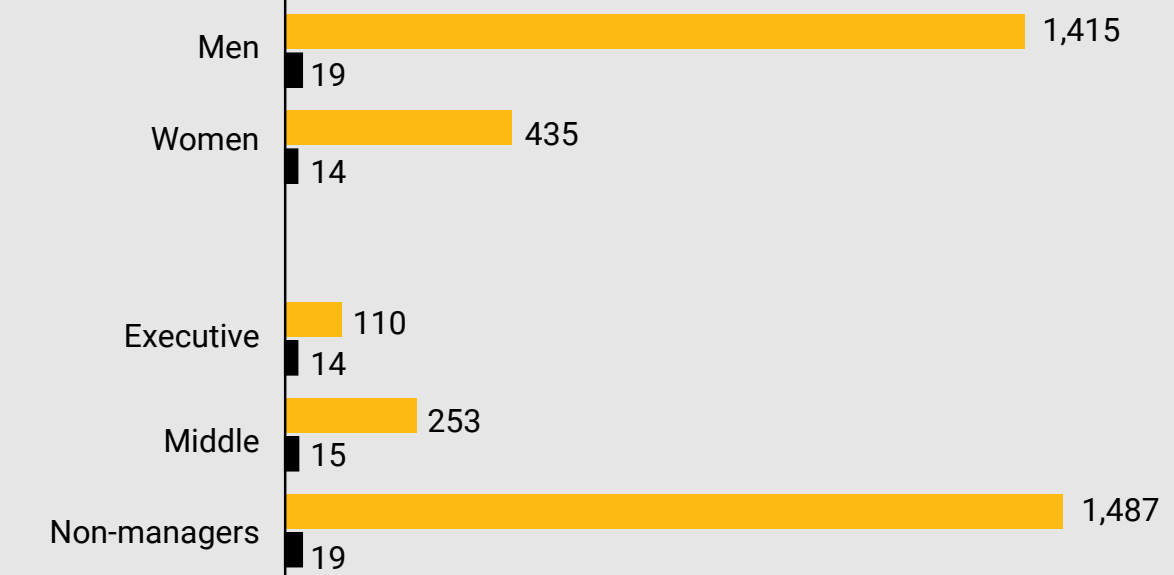


# LEADERSHIP AND TRAINING

Engaging our employees and fostering their development contributes to better business outcomes. As part of our Talent Experience, Engagement and Development strategy, our employees are encouraged to grow professionally and personally. We believe that managing a person’s career development should be a collaborative process between employees, their managers, and Beewise leadership. We strive to ensure that our employees feel valued and that their work matters. Furthermore, we are committed to helping them grow, learn, make a difference, and reach their full potential.



## TRAINING AND EDUCATION OF EMPLOYEES



1,850

Total number of training hours provided

18

Average number of training hours

Our goal is to constantly expand our training offerings and provide new learning opportunities to ‘re-skill’ and ‘up-skill’ our employees, to meet the changing demands of the workplace. We recently introduced four significant improvements to our training and development process:

- **Onboarding learning experience** for new employees, covering company information, products, business strategy, core values, basic information about bees and pollination, and more.
- **Investments in technology**, including implementation of new HRIS platform powered by BOB to streamline processes, analyze data, track, and measure HR practices, including learning and development.
- **Compliance management system** to foster business ethics and responsibility, with online compliance training programs for all employees on topics such as anti-harassment, information security, anti-bribery, etc. Training is tracked for all employees.
- **Diversity, equity, and inclusion (DEI) training** to be a more accountable and equitable workplace. Company-wide, we offered all employees a lecture on LGBTQ issues, and on the management level we provided online DEI training for hiring managers, which will help us develop a strategy to diversify our talent pipeline and employees.

# GOVERNANCE

# 7

members of the  
Board of Directors

To ensure proper management, we have an established corporate governance system and a wide range of policies in place. Senior management and the CEO receive guidance from the Board of Directors, which has seven members, including five non-executive members.

The Beewise Code of Ethics covers topics such as equal employment opportunities, business ethics and conduct, conflicts of interest, non-disclosure, workplace violence prevention, and employee conduct. The Code is reviewed and updated regularly, and is included in the Employee Handbook which is distributed to all employees. Once a year, employees undergo training on the Code, implemented through a trusted third-party organization (Thompson Reuters).

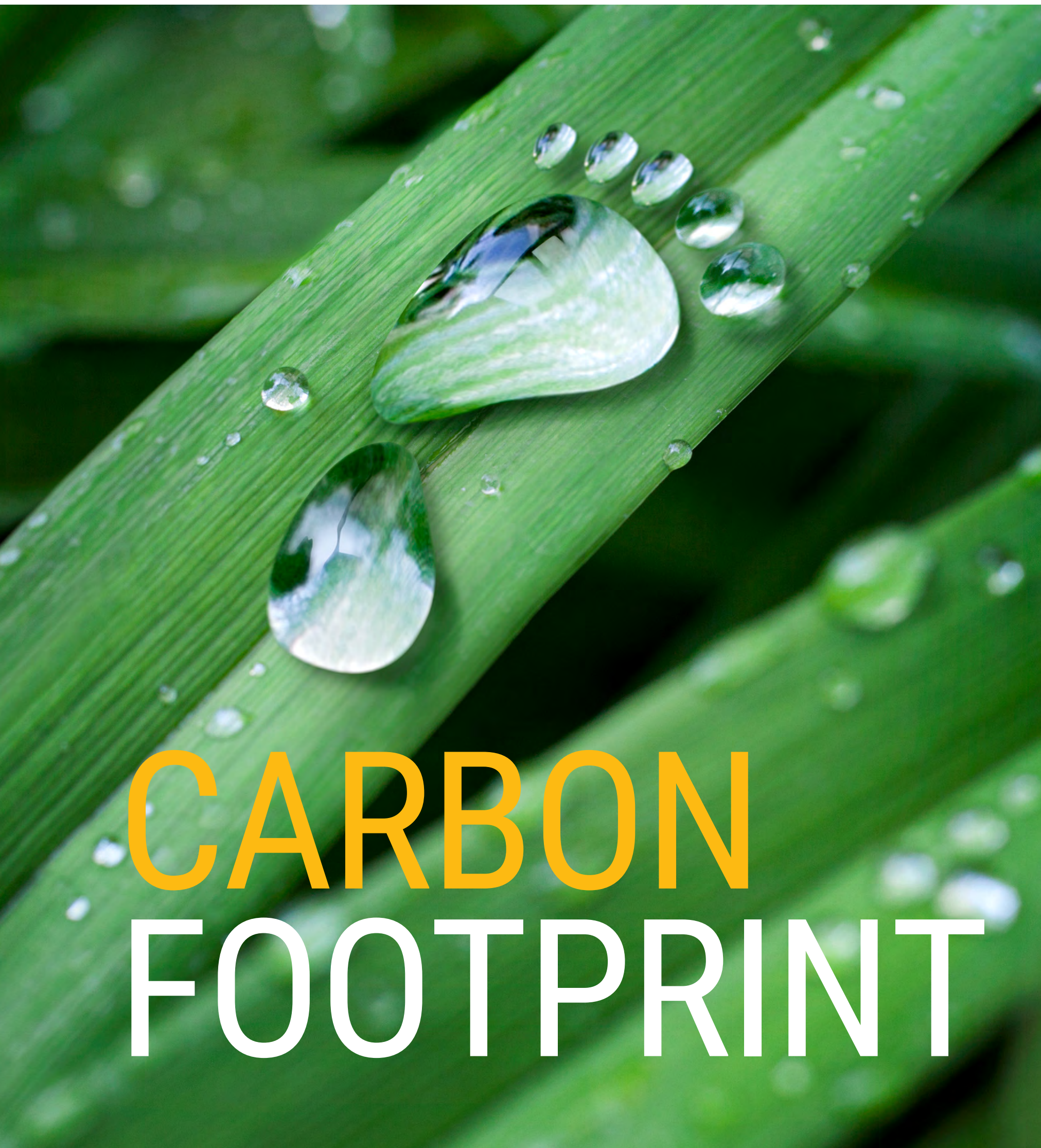
We value the opinions of our stakeholders and strive to maintain regular, transparent communication with them. For employees, this includes regular All-Hands meetings every six weeks, three-month check-ins for new hires, and annual 360° employee performance and satisfaction surveys.

We provide regular reports to shareholders, including financial reports, an annual report, and quarterly updates to the board and shareholders.



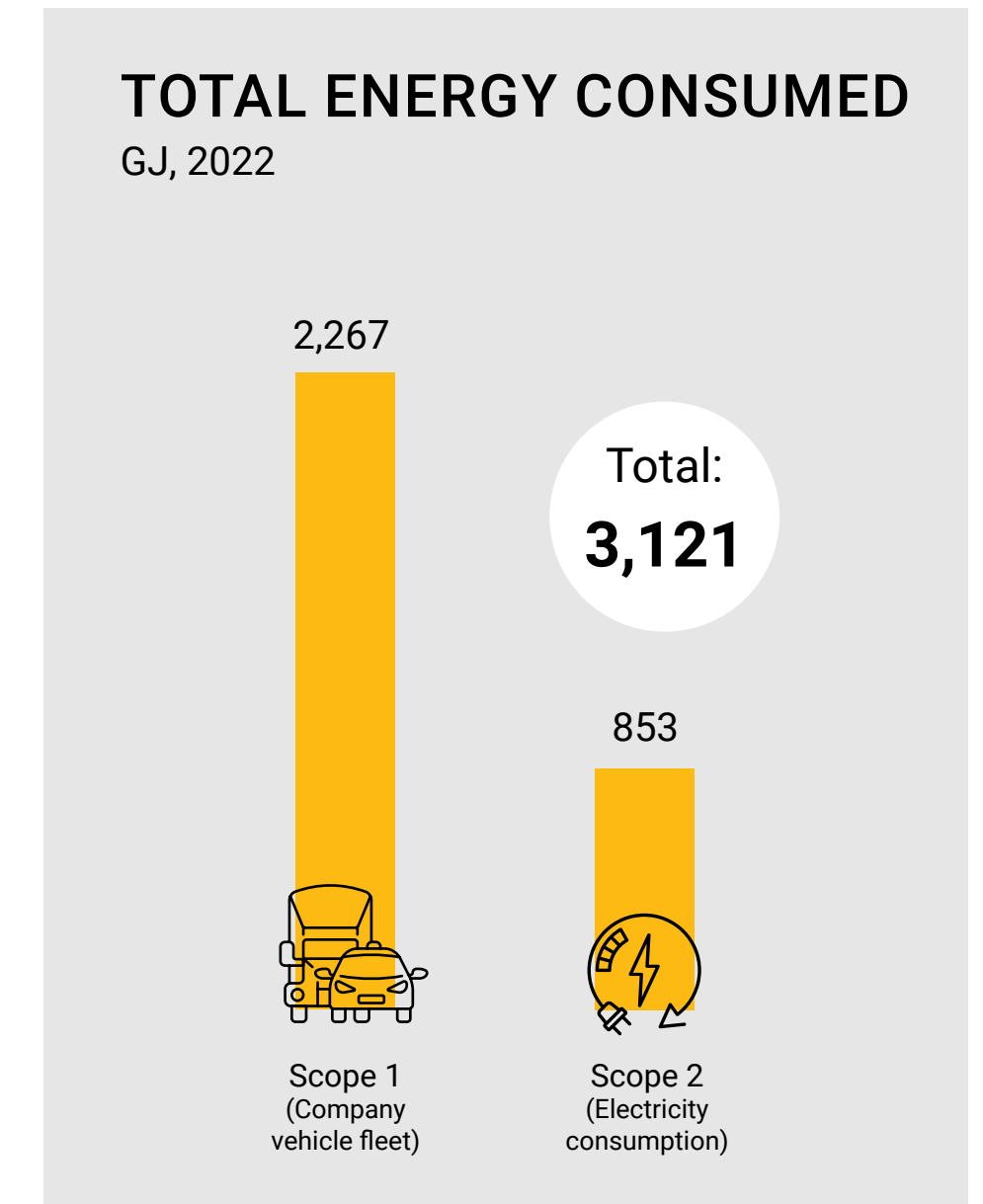
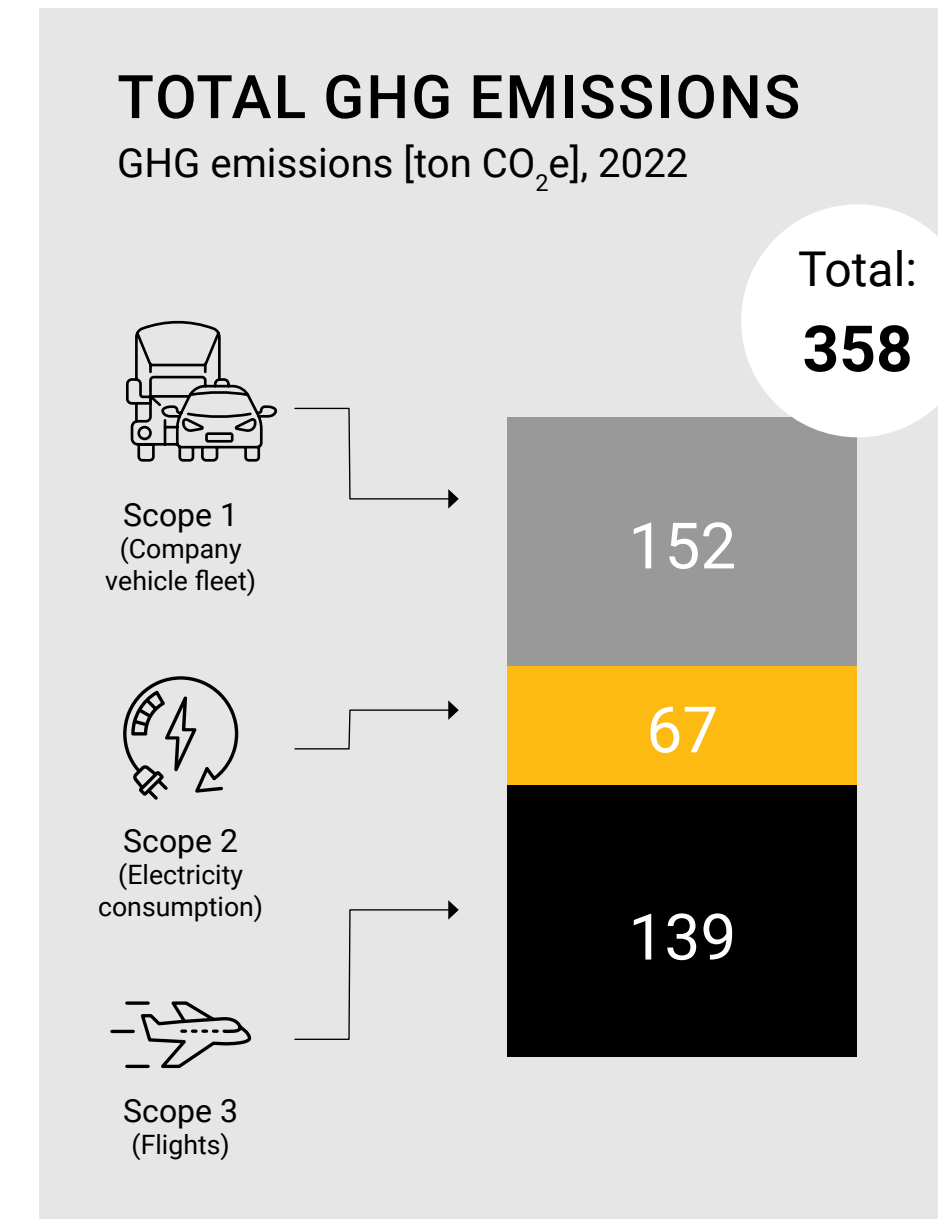


# OPERATIONAL IMPACT: PLANET, PEOPLE, TECHNOLOGY



# CARBON FOOTPRINT

We value the role our product plays within nature, and we take our role as environmental stewards very seriously. As such, we make all efforts to minimize the impact of our business operations on the environment and climate. The BeeHome is powered exclusively by solar energy. We consider greenhouse gas (GHG) emissions in our decision-making for various business needs, including employee air travel and our corporate vehicle fleet, and we track our Scope 1, 2 and 3 GHG emissions to track our carbon footprint and identify potential areas to reduce our impact.



## Energy consumption

We operate a corporate fleet of 29 vehicles, including 7% hybrid vehicles, that employees use for commuting and client visits.

- Total energy consumed by the corporate fleet (Scope 1) during the reporting period: 2,267 GJ

At our Israel location, our electricity is sourced from 30% renewable energy (solar) and 70% natural gas.

- Total electricity purchased for consumption (Scope 2) during the reporting period: 853 GJ

We use third-party cloud hosting providers for our data, including Amazon Web Services and Google Cloud, which are more energy efficient than typical data centers. Within our logistics and shipping operations, we take steps to promote increased efficiencies, such as consolidating cargo, optimizing routes, and identifying alternative shipping channels when feasible. We make efforts to reduce our air travel and only travel when necessary.

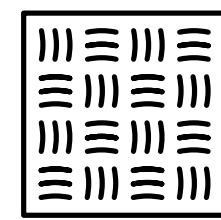
# MATERIALS AND WASTE

We are extremely mindful of the materials we use to assemble our products and the waste we produce in our office and assembly operations. We are working on implementing measures to track and reduce our waste more effectively.

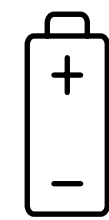
## MATERIALS

We assemble the BeeHomes on site, with semi-manufactured goods purchased directly from external suppliers.

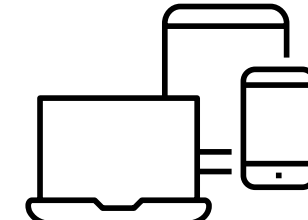
### Materials used (kg)



**542,488**  
Metal



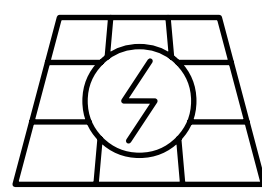
**6,000**  
Batteries



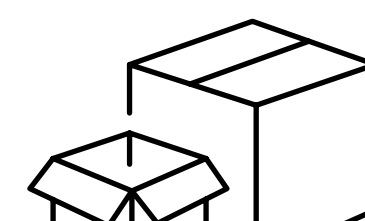
**30,000**  
Electronics



**378,537**  
Plastics



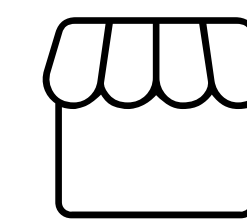
**2,000**  
Solar panels



**7,500**  
Cardboard  
(for packaging)

### Local suppliers

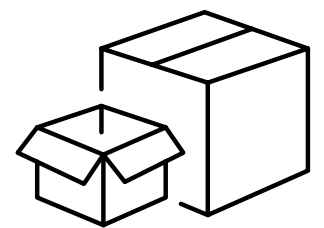
Where possible, we strive to support local suppliers.



**82%**  
of our procurement budget was spent on local suppliers

# WASTE

At our R&D facility, our municipal solid waste is collected and disposed of together with the rest of the kibbutz, so we are currently unable to track the total quantity of general waste. We make efforts to recycle in our office and assembly sites, and during the reporting period we recycled over 12 tons of material, including:



**3 tons**  
of cardboard



**7 tons**  
of non-hazardous industrial waste (metal)



**2 tons**  
of non-hazardous agricultural waste

We do not produce hazardous waste.

## Waste reduction

We have put into place several processes to reduce our waste. These include:

- Adherence to the Israeli law of packaging waste and recycling all packaging materials received from our vendors through a designated recycling service provider vendor.
- Encouraging employees and guests to drink tap water through the installation of water filters to reduce the use of plastic water bottles.
- Reducing the use of paper in the office and making our operations nearly paperless through tools such as DocuSign, Adobe Pro, etc. All agreements (internal and external) are digital, including signatures, unless specifically required by a third party.

There were no instances of non-compliance with environmental laws and regulations during the reporting period.



# HEALTH AND SAFETY

The health and safety of our people is our top priority. We work with an external professional safety expert to identify and monitor workplace safety issues and to minimize risk.

The safety expert conducts regular examinations of all working processes and facilities, and results are shared in regular reports with senior management, with recommendations for remediation.

Workers are encouraged to report hazardous situations either to their managers or to the site's General Manager, and there are strict policies in place to protect employees against any possible reprisals.

In 2022, there were two work-related injuries of an employee and one work-related injury of a contractor. The external safety expert investigated all instances and subsequent training sessions were provided to relevant employees. One of the incidents required a three-month sickness leave for the employee to recover; the employee subsequently returned to full working capacity with no permanent injuries or health issues.



# PRIVACY AND SECURITY

We are committed to the highest standards of data security and privacy. In a world where cyber attacks are increasingly common, we make every effort to protect the data of our employees and customers and to manage systemic risks to our technological operations. During the reporting period there were no complaints concerning breaches of customer privacy or loss of customer data.

## Data privacy

Our core products or services are subject to government-required monitoring, blocking, content filtering, or censoring in the US and Israel.

## Data security

**We take data security seriously and have implemented a variety of policies and programs to identify and address data security risks.**

We use certified third-party software and cloud hosting providers, such as AWS and Google, that meet the highest levels of security standards for protecting data. In addition, we maintain strong encryption of our wireless network and ensure our networks are protected against threats and cyberattacks by implementing a variety of security tools, including an anti-spam system, firewall, and the use of security software on employee PCs.

All employees are made aware of our security and privacy policies and practices, with information and training provided during the onboarding process. We are in the process of developing a General Data Protection Regulation (GDPR) policy to comply with privacy and security regulations in the EU.

There was no breach of data security during 2022. A comprehensive cyber security assessment, including penetration tests and vulnerability scans, was completed during 2022 and ISO27001 was implemented to avoid any future breaches.



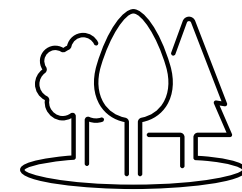




# LOOKING AHEAD

# LOOKING AHEAD

As we grow and expand, we are committed to further developing our Environmental, Social, and Governance (ESG) practices and management approach. We will focus on a range of initiatives:



## Environmental Management

Develop a comprehensive environmental policy that covers our operations, waste production, supply chain engagement, procurement policy, and business continuity plans to mitigate climate change risks.



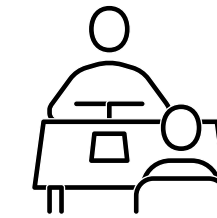
## Carbon Footprint:

Track and monitor our Scope 3 emissions, with the aim to reduce GHG emissions.



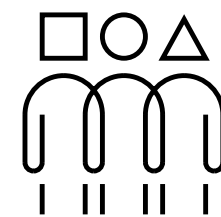
## Employee Engagement

Further develop our engagement activities, including employee satisfaction surveys.



## Training & Development

Quantify existing programs and define goals for employee training and development.



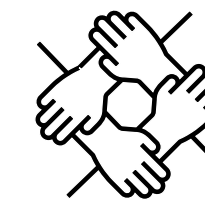
## Diversity, Equity & Inclusion

Formalize and share our DEI policy, implement tracking measures, and expand employee and management training.



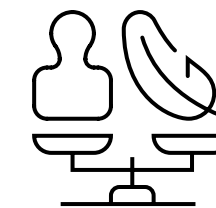
## Health & Safety

Form an internal Safety committee to track and monitor ongoing safety matters.



## Community Investment

Develop a formal community investment program and employee volunteer activities.



## Business Ethics & Integrity

Publicly share our Code of Conduct policy.

# SASB

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE MEASURE	CODE	RESPONSE
<b>Greenhouse Gas Emissions</b>	Gross global Scope 1 emissions	Quantitative	Metric tons (t) CO <sub>2</sub> -e	FB-AG-110a.1	p.36
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	FB-AG-110a.2	p.36
	Fleet fuel consumed, percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-AG-110a.3	p.36
<b>Energy Management</b>	(1) Operational energy consumed, (2) percentage grid electricity, (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	FB-AG-130a.1	p.36
<b>Water Management</b>	(1) Total water withdrawn, (2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic meters (m <sup>3</sup> ), Percentage (%)	FB-AG-140a.1	Not relevant to Beewise
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	FB-AG-140a.2	Not relevant to Beewise
	Number of incidents of non-compliance associated with water quantity and/or quality permits, standards, and regulations	Quantitative	Number	FB-AG-140a.3	none
<b>Food Safety</b>	Global Food Safety Initiative (GFSI) audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances	Quantitative	Rate	FB-AG-250a.1	Not relevant to Beewise
	Percentage of agricultural products sourced from suppliers certified to a Global Food Safety Initiative (GFSI) recognized food safety certification program	Quantitative	Percentage (%) by cost	FB-AG-250a.2	Not relevant to Beewise
	(1) Number of recalls issued and (2) total amount of food product recalled	Quantitative	Number, Metric tons (t)	FB-AG-250a.3	Not relevant to Beewise

# SASB

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	MEASURE	CODE	RESPONSE
<b>Workforce Health &amp; Safety</b>	(1) Total recordable incident rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR) for (a) direct employees and (b) seasonal and migrant employees	Quantitative	Rate		FB-AG-320a.1	1) TRIR = 2.63 (2) 0 (3) n/a
<b>Environmental &amp; Social Impacts of Ingredient Supply Chain</b>	Percentage of agricultural products sourced that are certified to a third-party environmental and/or social standard, and percentages by standard	Quantitative	Percentage (%)	by cost	FB-AG-430a.1	Not relevant to Beewise
	Suppliers' social and environmental responsibility audit (1) non-conformance rate and (2) associated corrective action rate for (a) major and (b) minor non-conformances	Quantitative	Rate		FB-AG-430a.2	Not relevant to Beewise
	Discussion of strategy to manage environmental and social risks arising from contract growing and commodity sourcing	Discussion and Analysis	n/a		FB-AG-430b.1	Not relevant to Beewise
<b>GMO Management</b>	Discussion of strategies to manage the use of genetically modified organisms (GMOs)	Discussion and Analysis	n/a		FB-AG-430b.1	Not relevant to Beewise
<b>Ingredient Sourcing</b>	Identification of principal crops and description of risks and opportunities presented by climate change	Discussion and Analysis	n/a		FB-AG-440a.1	Not relevant to Beewise
	Percentage of agricultural products sourced from regions with High or Extremely High Baseline Water Stress	Quantitative	Percentage (%)	by cost	FB-AG-440a.1	Not relevant to Beewise

**Table 2: Activity Metrics**

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE	RESPONSE
<b>Production by principal crop</b>	Quantitative	Metric tons (t)	FB-AG-000.A	Not relevant to Beewise
<b>Number of processing facilities</b>	Quantitative	Number	FB-AG-000.B	Not relevant to Beewise
<b>Total land area under active production</b>	Quantitative	Hectares	FB-AG-000.C	Not relevant to Beewise
<b>Cost of agricultural products sourced externally</b>	Quantitative	Reporting currency	FB-AG-000.D	Not relevant to Beewise



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