Time to pitch!

Session 2

AgriTech4Egypt
Innovation Challenge

LAMARCKII
anyone.anywhere

Precision AI Beekeeping System

13 June 2024

Introduction

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Innovation Challenge



Beekeeping Technology
Begin 5000 yrs. ago



Same Technology
Mid 1950's



Current Technology
1851-2024

Problem

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1 – Bees Colony Collapses

Climate Changes → Bees Stress → Weak colonies

Pests & Diseases → Low Honeybee Products Yields Low Pollination → Food Security !!

Problem

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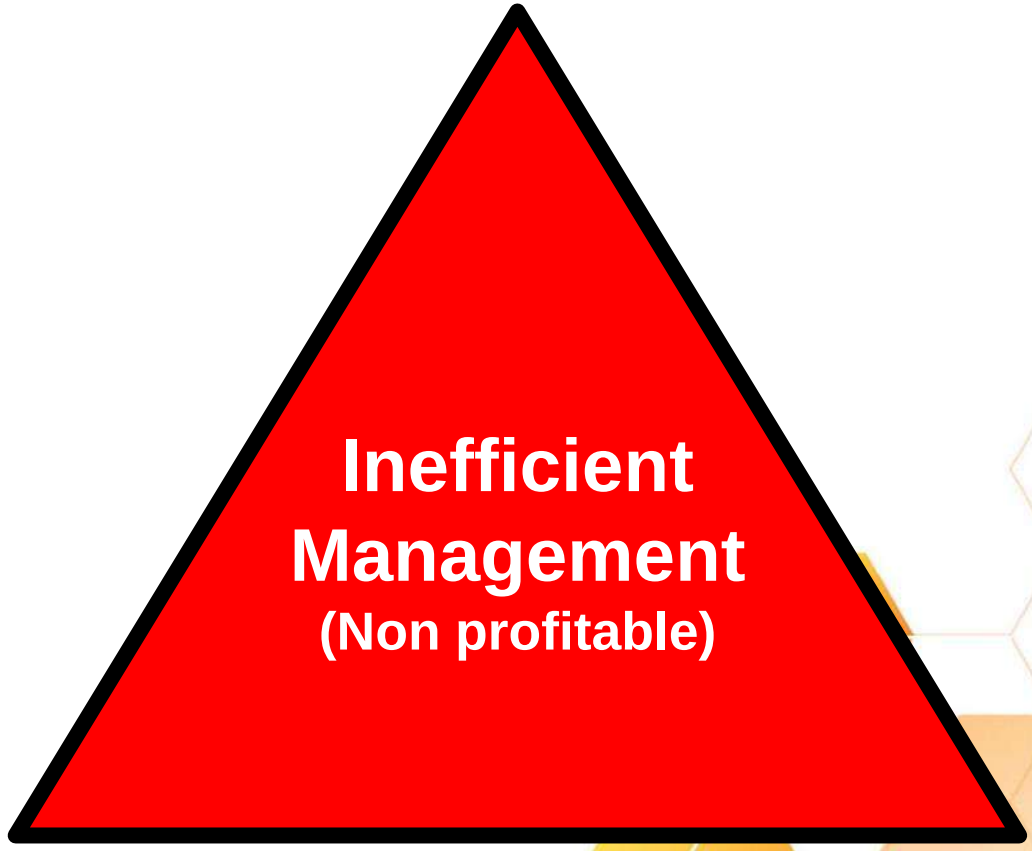
2 – Traditional Beekeeping Practices

- Labor intensiveness & Time consuming
- Lack of data driven insights
- scarce of experienced pro-beekeepers



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Problem

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NO Bees = NO Food

Solution

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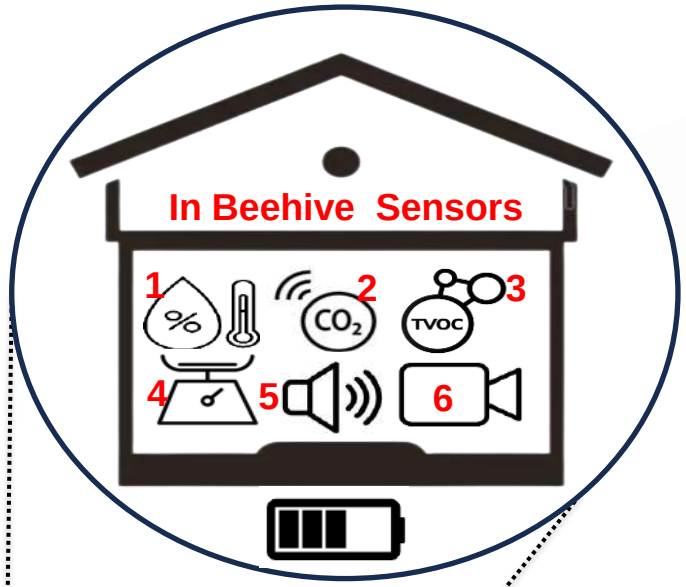
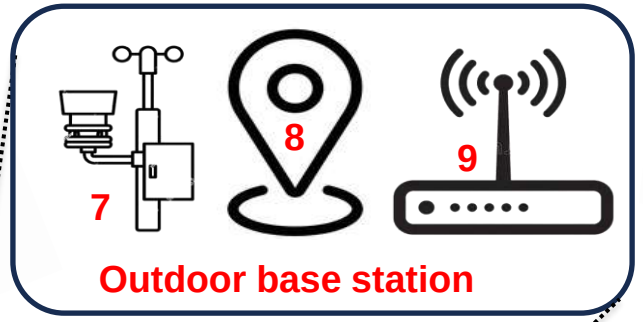


BLE



Outdoor base station

GPRS



GSM Base station



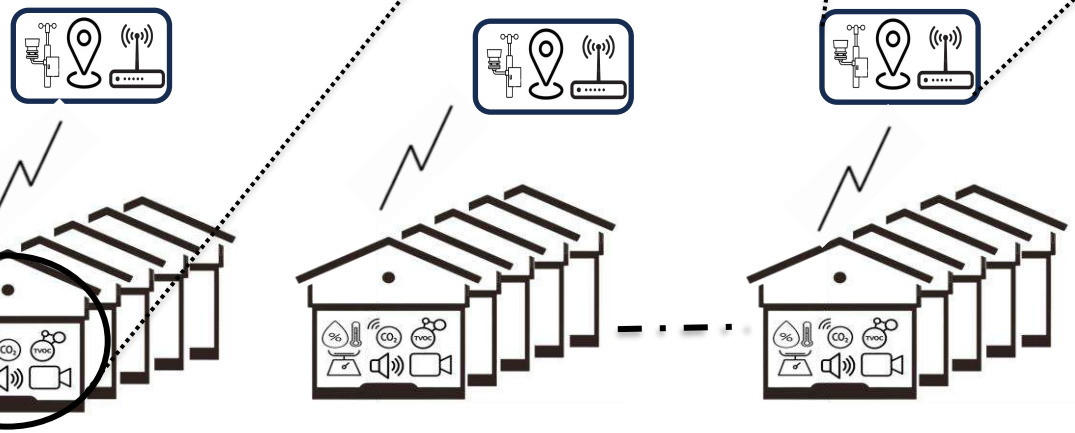
Solar Powered



Cloud Server – Database
Storage – Process – Analysis
AI: Machine learning & Big Data algorithm



Central Dashboard



Apiary 1 Apiary 2 Apiary N



Beekeeper mobile app
Real time data Alerts
Data management

1. Temperature ^{o}C & Humidity RH%
2. CO_2 (Air Quality) ppm
3. Total Volatile Organic Compounds ppb
4. Scale Kg
5. Microphone
6. Camera
7. Outdoor weather station (T, RH, Wind, etc.)
8. GPS location and Fencing
9. Wi-Fi/GSM/LoRa Gateway

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Solution

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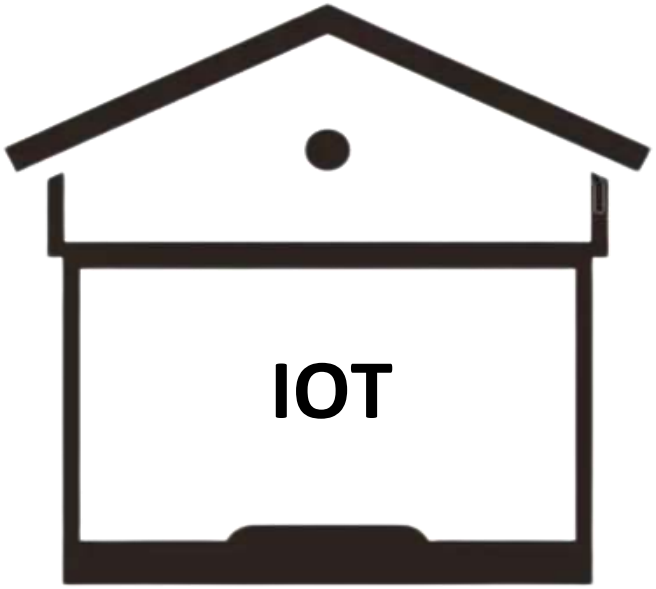
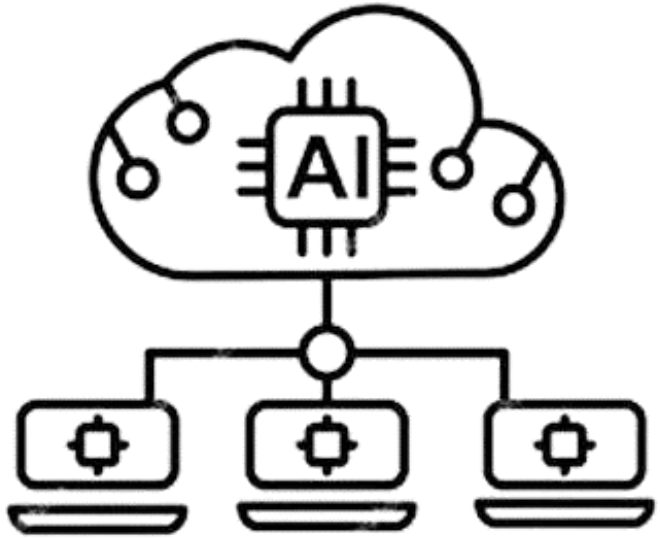
Innovation Challenge







Beehive
Live Monitoring
247

AI Powered
Analytics,
Prediction & DSS

User Friendly
Realtime
Notifications

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Features

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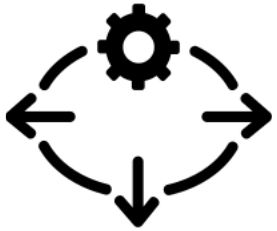

Decision Support System



Health Checkup



247 Monitoring



Remote Support



Diseases Detection



Eco Friendly



Money Saving



Time Saving

Validation & Traction

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Pilot Project



Cairo University Apiary
Field Testing
1 year+

Early Users Feedback



Hajj: Ismail Eltman, one of
Larger Honey Producer in
Hessat Shabshir, Tanta
3000+ Beehives

Partnership



First Client Project with
"Mousaffa"
Premium Honey Producer

1st Block Chain Package

Pipeline Project : Big Grower Farm
(1000 Feddan in Farafra Oasis – New Valley)

Market Analysis

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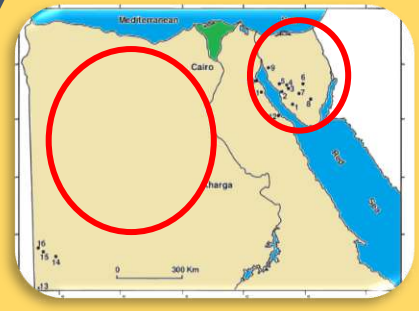
Global Market 100M Hives

EMEA Market 40 M Hives



Egypt
2 M Hives

- 16 Million Feddan Cultivated
- 50% Requires bees
- 16 Million Hives Gap



Beekeepers



Big Growers



Research Canters & Universities



Schools

Value Proposition

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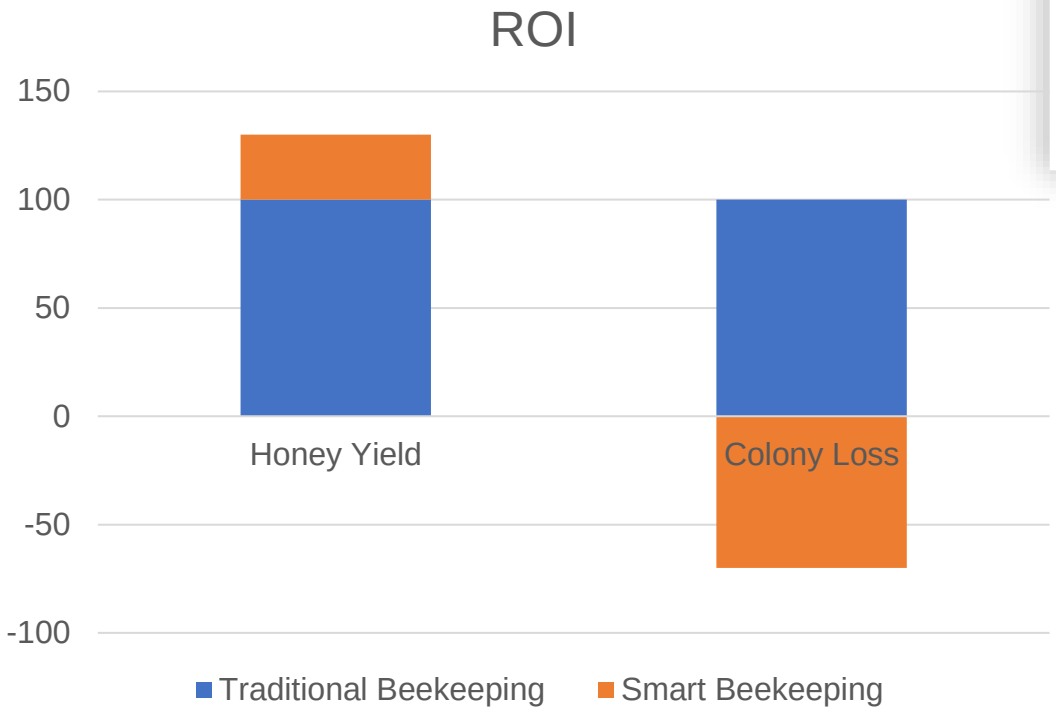
Honeybee Products (Honey, Pollen, etc)

Guaranteed by Technology



100% ROI

Honey Yield +30%

Colonies Loss -70%

Competitive Analysis

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	Real-Time Data Monitoring	AI - Powered Insights	User Friendly Interface
beefage	✓	✗	✗
3Bee for Business	✓	✗	✓
apic.ai	6 Sensors ✓	✓	✓
LAMARCKII anyone.anywhere	9 Sensors ✓	Disease Detection ✓	ع Arabic ✓

We have 2 Patents under preparation and review

Business Model (Revenue)

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B2B

Hardware

Hub/Apiary : 10,000 EGP
Tag/Hive : 1,000 EGP

Software SaaS

Yearly subscriptions
Apiary : **100 EGP**
Per/Hive : **10 EGP**

Consultation Support

Customized Pricing

Per visit: **500 - 3000 EGP**
Per Call: **50 - 200 EGP**

Financial Metrics

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Achievement

50 users @ 2025
200 users @ 2026
500 users @ 2027

Generated Sales

5M EGP @ 2025
20M EGP @ 2026
50M EGP @ 2027

Return on Investment

ROI
40%

Road Map

2024

Product development

Products Launching in November

2025

Sales Egypt (50 Apiary)

Product Development

2026

Sales Egypt (200 Apiary)

Sales abroad and export – EMEA

Global certificates



SDG's

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11 Direct Goals
6 Indirect Goals

Team

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1.Eng. Waleed Salam — **Founder and CEO, Lamarckii**

BSC Electronics, MBA, Master of modern beekeeping technologies

2.Dr. Yasser Yehia — **Bee Science Technical Consultant, Lamarckii**

Assoc. Professor, Entomology Dept. Faculty of Agriculture, Cairo University

3.Dr. Reda Abdelwahab — **AI Technical Consultant, Lamarckii**

Professor, Dean of Faculty of Computers & AI

4.Dr. Asmaa Anwar — **Bee Research Consultant, Lamarckii**

Professor, Head of Honeybee Research Center, ARC,MALR

5.Mrs.Amany Helmy — **BDM, Lamarckii**

+ 6 Employee Team Members

Q & A?!

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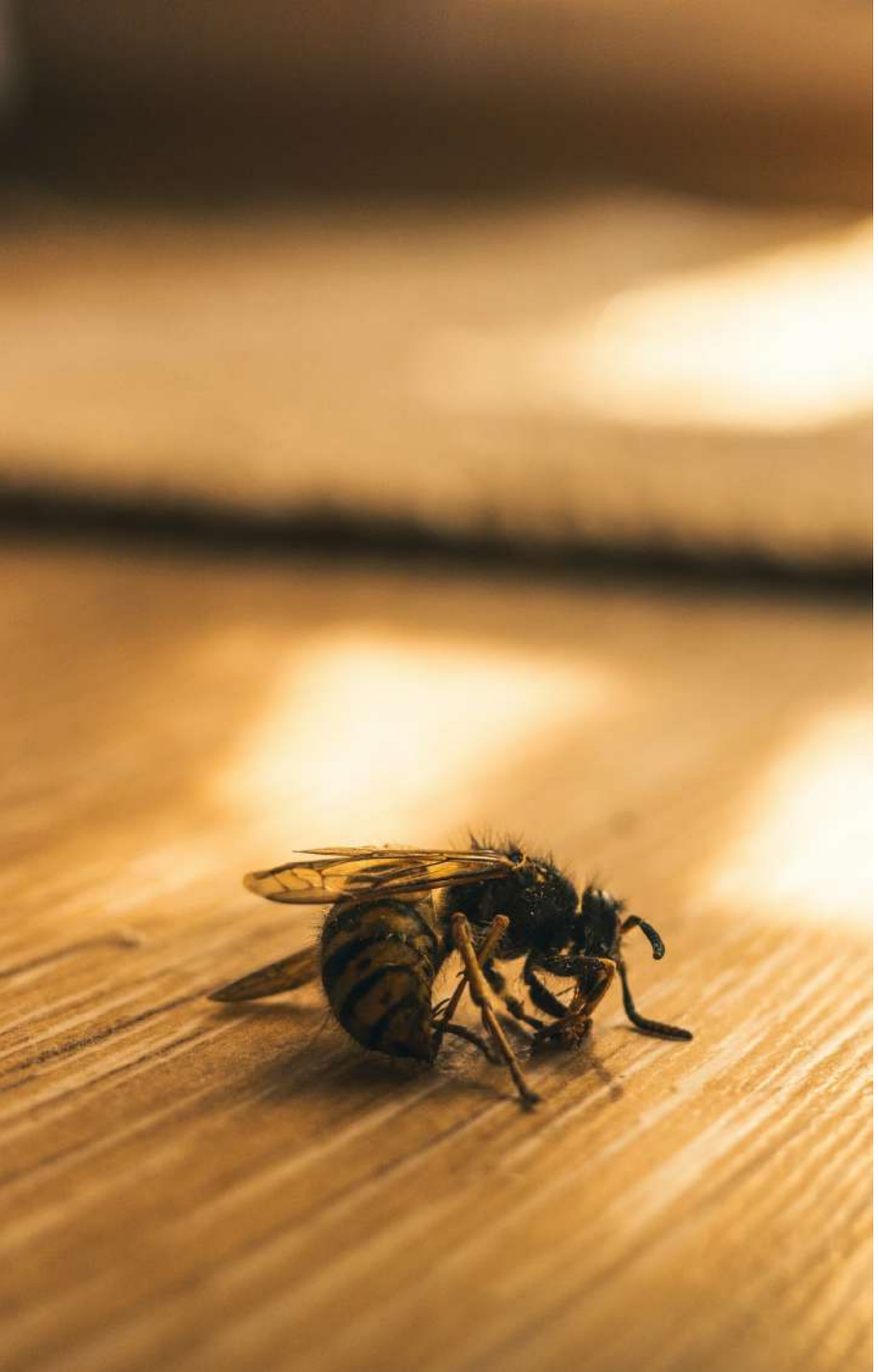
ECOBEES
Let it Bee
Website: www.ecobees.store

Bees are critical pollinators

- They pollinate 70 of the around 100 crop species that feed 90% of the world.
- Honey bees are responsible for $30 billion a year in crops.



Problems



Declination of
bees population



Money
losses



Crops
declination



Lack of funding
for beekeepers

Causes

Vandalism & Security

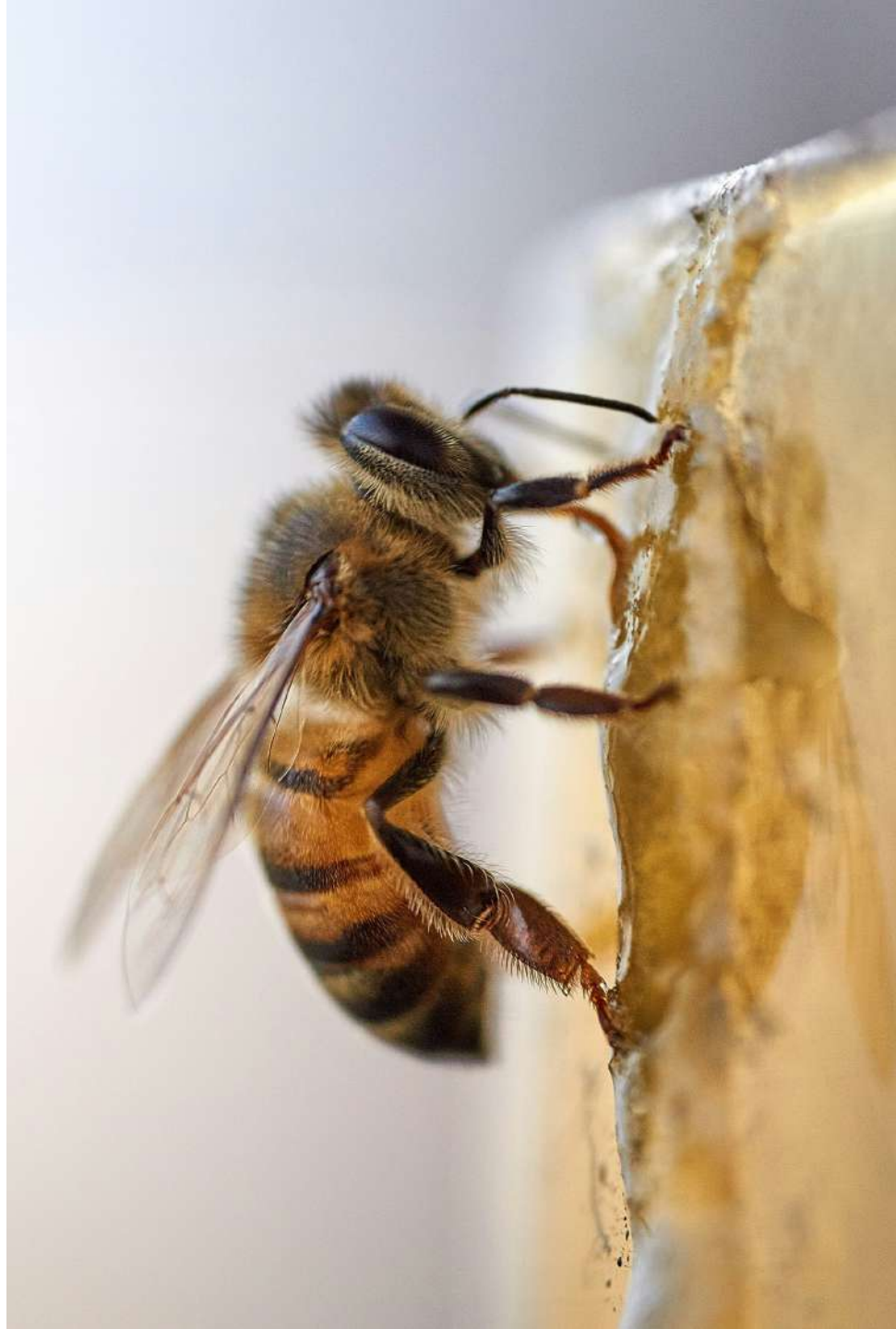
Physical inspection

Diseases threats

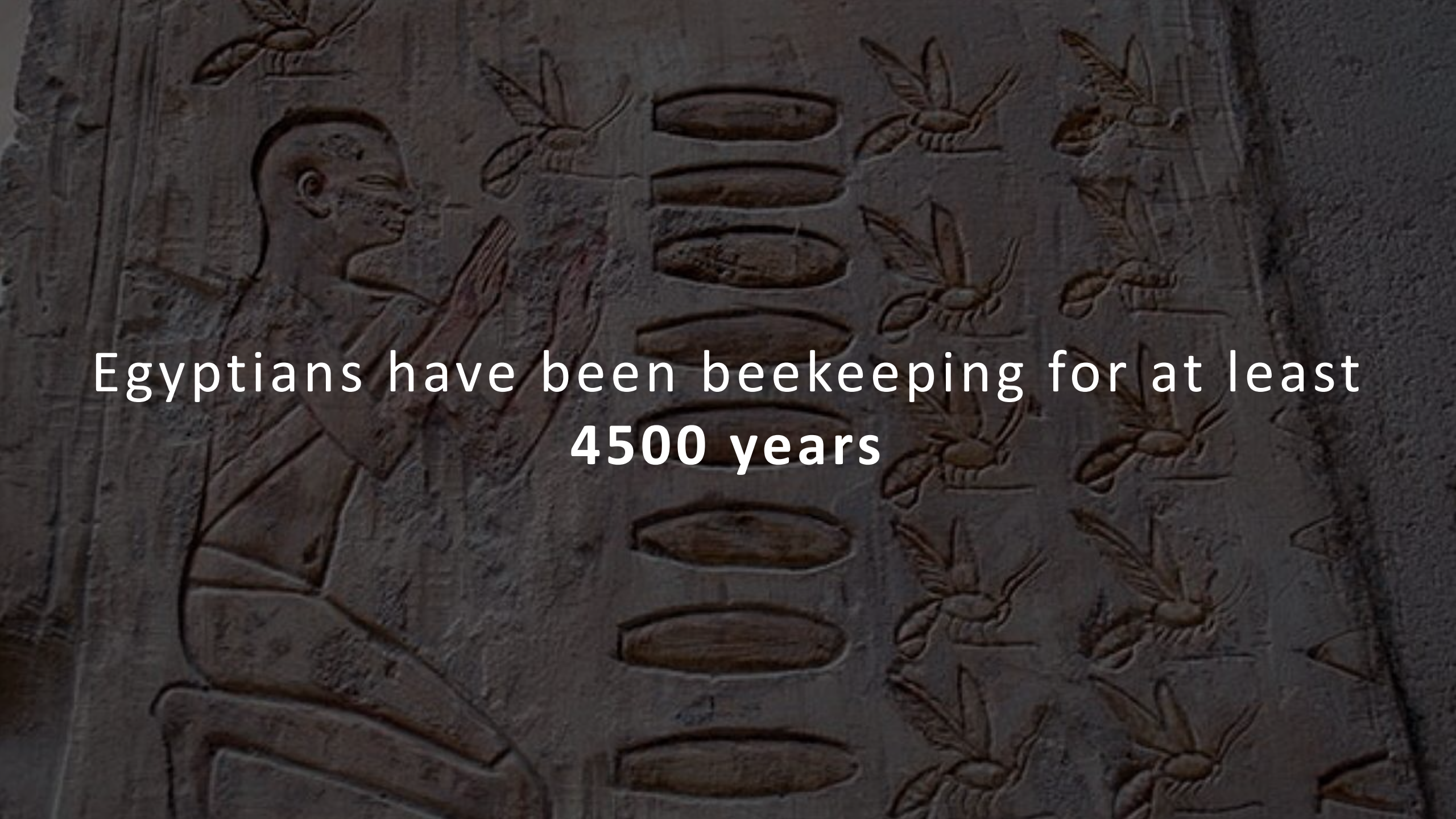
Climate change Side impact

Pesticides threats

Unstructured market




Our story


Egyptians have been beekeeping for at least
4500 years



Facts in Egypt beekeeping field

Egypt saw an increase in beehives from 1960 to 1990, peaking at 1.7 million, but a steep decline occurred from 2005 to 2015, reducing the number to around 800,000

Honey production per hive declined from an average of 10 kg in the 1980s to about 5-6 kg per hive today

A significant portion of Egypt’s agricultural productivity relies on pollinators, with about 25% of total agricultural production requiring pollination

The loss of pollinators poses a significant threat to crop yields and the economy, with a potential annual economic loss estimated at US$2.4 billion (3.3% of 2003 GDP)

Market value

US$ 24.7 million in 2022 with a CAGR of 6.4% during the forecast period 2023–2031

Around 820,516 hives

Around 25k families involved in the beekeeping industry

Honey-related exports last year was USD 300 million, according to Agriculture Ministry figures

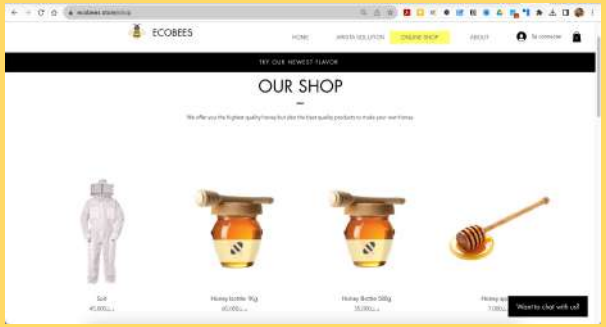


A fully sustainable and complete ecosystem for beekeepers and bees

1
Bio-products



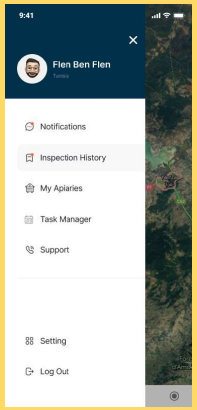
2
E-Marketplace



3
TOBEE
(IoT Hardware)



4
TOBEE
(Mobile App)

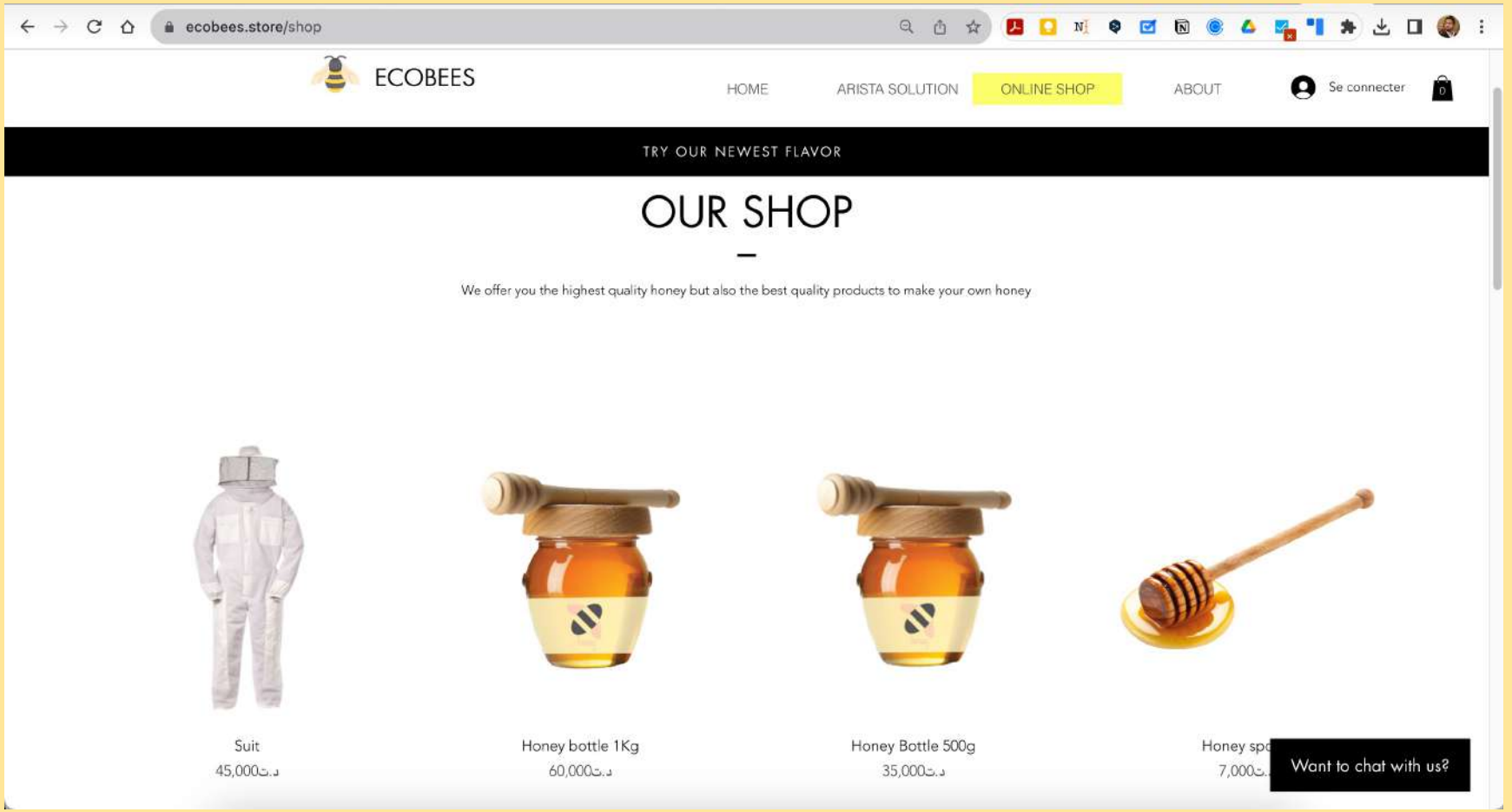


Bio products





Online marketplace (E-commerce) for the Beekeeping industry



- Beekeeping equipment and tool
- Beekeeping products such as honey and pollen
- Beekeeping product in gift packages and collaborations

TOBEE V0.1
(IoT Hardware)



Internal & external temperature

Humidity detection

Sound frequency detection

All day scale for hive's weight

Waterproof device

Real time & precise Geolocation

Hive cover sensor

Thermal camera & Pesticides sensor **SOON**

Easy to install device inside and outside the hive

TOBEE V1.0
(Mobile App)

Data
measurements

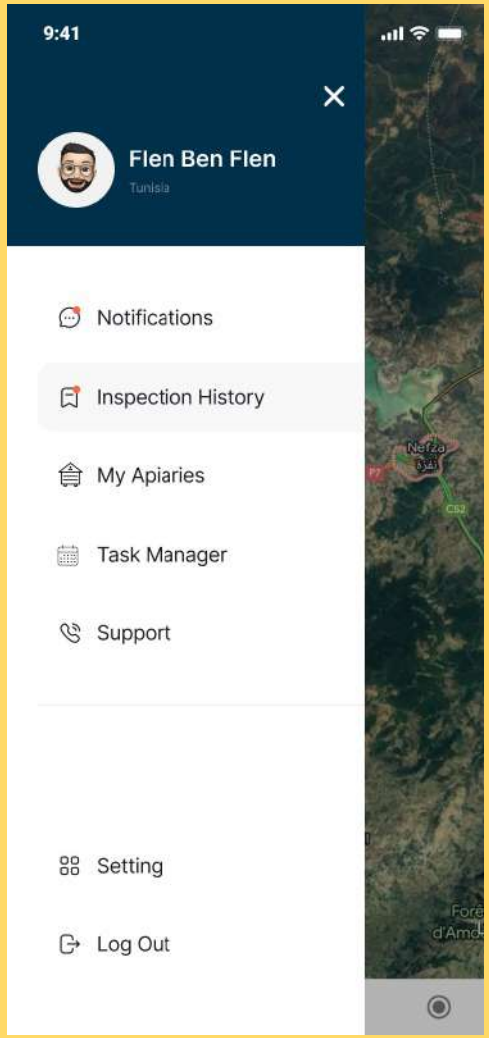
Data
analysis

Action
planning

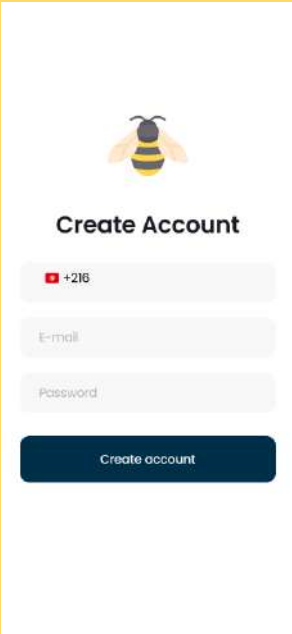
Guided
inspection

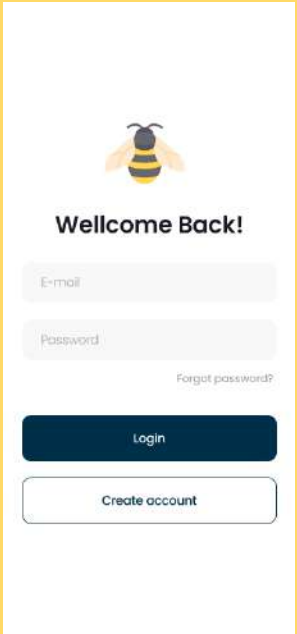
Vandalism
Alerts & Battery monitoring

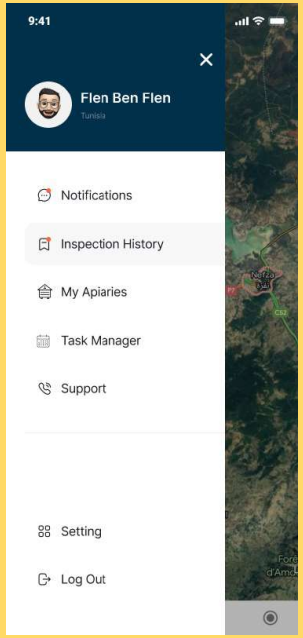
Cloud
Geolocation

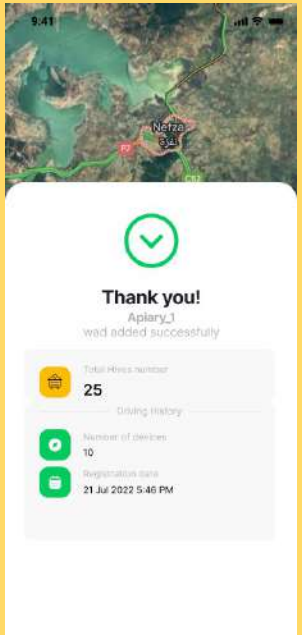


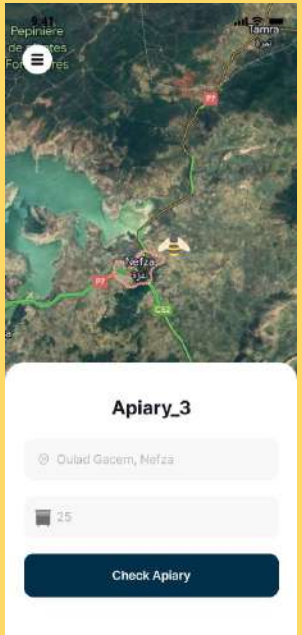

Ecobees

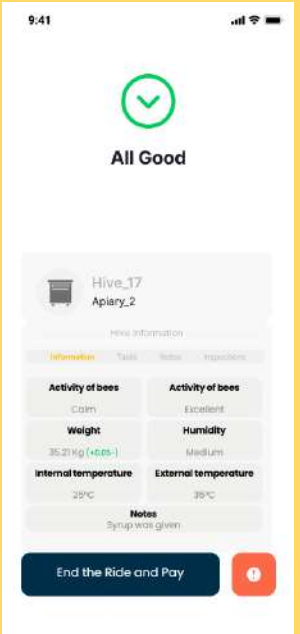

Create Account
+216
E-mail
Password
Create account

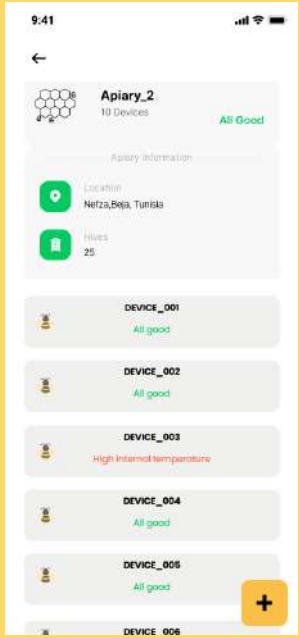

Wellcome Back!
E-mail
Password
Forgot password?
Login
Create account

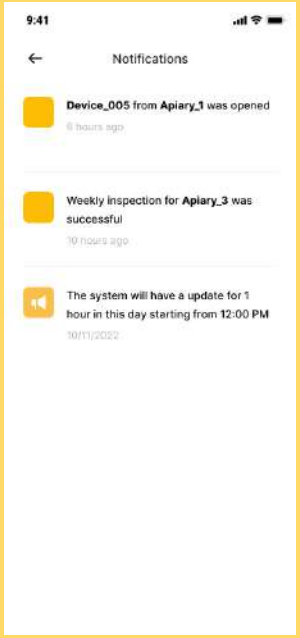

9:41
Flen Ben Flen
Tunisia
Notifications
Inspection History
My Apiaries
Task Manager
Support
Setting
Log Out

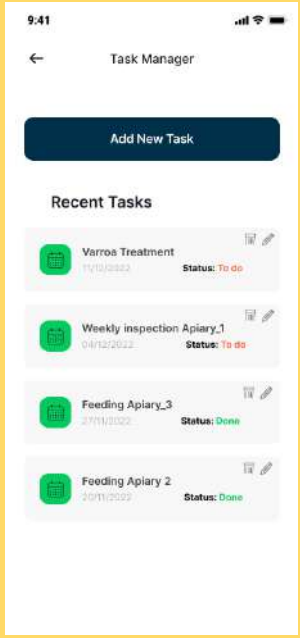

9:41
Thank you!
Apiary_1
was added successfully
25
10
21 Jul 2022 5:46 PM

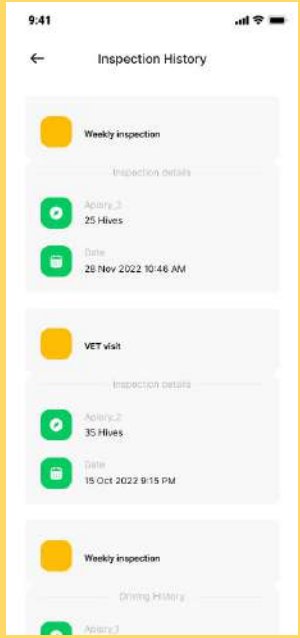

9:41
Apiary_3
Oulad Gacem, Nefza
25
Check Apiary

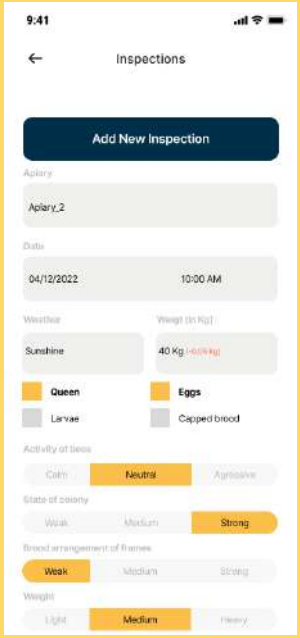

9:41
All Good
Hive_17
Apiary_2
Activity of bees
Calm
Activity of bees
Excellent
Weight
Humidity
Medium
Internal temperature
External temperature
Notes
Syrup was given
End the Ride and Pay

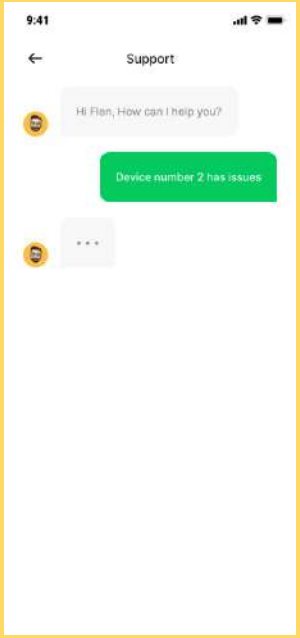

9:41
Apiary_2
10 Devices
All Good
Nefza,Beja, Tunisia
25
DEVICE_001
All good
DEVICE_002
All good
DEVICE_003
High internal temperature
DEVICE_004
All good
DEVICE_005
All good
DEVICE_006


9:41
Notifications
Device_005 from Apiary_1 was opened
Weekly inspection for Apiary_3 was successful
The system will have a update for 1 hour in this day starting from 12:00 PM


9:41
Task Manager
Add New Task
Recent Tasks
Varroa Treatment
Status: To do
Weekly inspection Apiary_1
Status: To do
Feeding Apiary_3
Status: Done
Feeding Apiary 2
Status: Done


9:41
Inspection History
Weekly inspection
25 Hives
28 Nov 2022 10:46 AM
VET visit
35 Hives
15 Oct 2022 9:15 PM
Weekly inspection


9:41
Inspections
Add New Inspection
Apiary_2
04/12/2022
10:00 AM
Sunshine
Queen
Eggs
Larvae
Capped brood
Neutral
Strong
Weak
Medium


9:41
Support
Hi Flen, How can I help you?
Device number 2 has issues

Competitors

	ECOBEES	IRIS TECHNOLOGIES	
Modular	✓		✓
User-friendly	✓	✓	✓
Arabic language	✓	✓	
Non IoT features	✓		
Cost	**Starting from 70 USD**	Starting from 130 USD	Starting from 210 USD
Marketplace solution	✓		

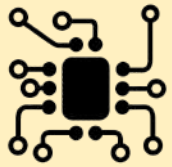
Pricing & Revenue streams (B2B & B2C)



Sale of our beekeeping Products
(Prices between 30 and 100 USD)



Transactions' fees on the ecommerce marketplace
(15% on every transaction)

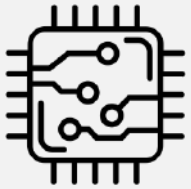


Sale of our hardware beekeeping solution
(Between 70 & 150 USD per device)



Subscription on our beekeeping mobile app
(10 USD/Month)

Traction and development stage



V1.0 Launched & pilot projects implemented with 15 beekeepers



E-marketplace transactions
More than 10 000 USD in revenues



More than 300 Kg sold in 2 years

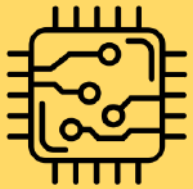
We got
Funding & Network & Assistance from

EXPO LIVE INNOVATION PROGRAMME

SOFT LANDING PROVENCE AFRICA CONNECT

Funding needed

50 000 USD



R&D collaborations



Marketing & Partnerships



Technical assistance



Pilot projects

Team



Ali Dhaouafi
Cofounder and COO

- 40 years of professional experience in Topography and management of operations
- More than 15 years of experience in Agriculture and beekeeping



Mohamed Trabelsi
Electronics & Embedded systems engineer

More than 4 years in embedded systems, hardware design engineering



Ahmed Dhaouafi
Beekeeper
More than 4 years in beekeeping



Elyes El Abed
Full stack and mobile Developer
More than 3 years in front & back dev, mobile dev and security



Mejda Khaled
Marketing manager
More than 4 years in product design, marketing and branding



Mohamed Dhaouafi

Cofounder and CEO

- Engineering degree in Electronics
- Masters in management
- FORBES 30 UNDER 30
- MIT TECH REVIEW U35
- TIME MAGAZINE NEXT GENERATION LEADERS
- Obama Foundation Africa Leader

Impact



Active real-time database and active mapping system



Improve and measure beekeeping performance as well as crops



Improve, protect and monitor bees’ health



Give new and better economic opportunities for beekeepers and consumers

ECOBEES

Let it Bee

contact@ecobees.store

AgriTech4Egypt
Innovation Challenge

geneina

Geneina is focused on encouraging better green spaces. Through our services and products, we aim to provide and maintain for our customers locations their plants, vertical growing systems, and food production systems

AgriTech4Egypt
Innovation Challenge

The Problems



URBANIZATION

INDUSTRIAL REVOLUTION



Water scarcity



food security





CLIMATE CHANGE

Our Solution: Micro Data, Macro Impact



Controlled Environment Agriculture (CEA)



Soil-less Farming Efficiency



Data-Driven Insights



Regional to Global Impact

Our Existing Products



HARVEST BOX V2



COMPACT HARVEST V2



GREEN POD MINI

Our Target Market



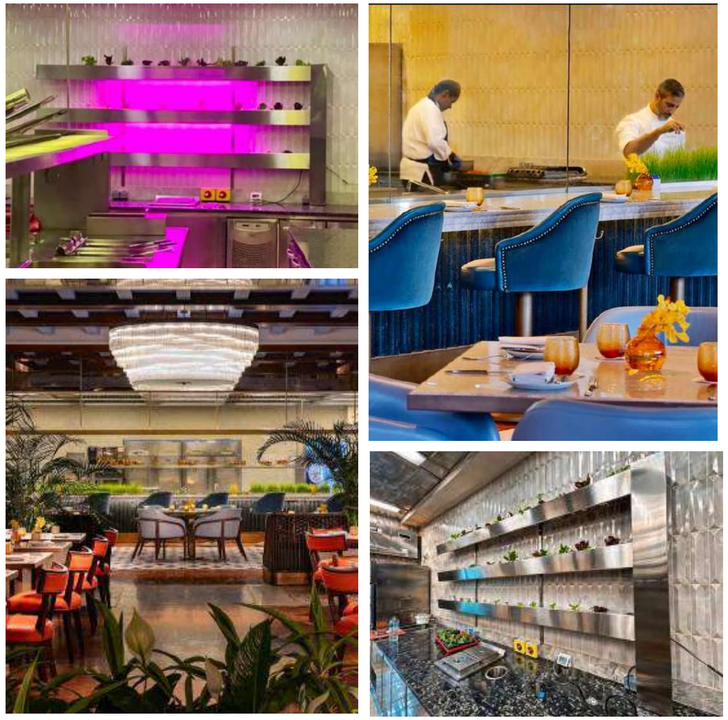
Our Existing Clients

WESTIN HOTELS & RESORTS



THE WESTIN HOTEL: PALOMA RESTAURANT

WALDORF ASTORIA HOTELS & RESORTS



THE WALDORF ASTORIA - HELIOPOLIS

WESTIN HOTELS & RESORTS · Hilton CAIRO NILE MAADI · WALDORF ASTORIA HOTELS & RESORTS · THE RITZ-CARLTON®

AgriTech4Egypt
Innovation Challenge

Our Value proposition



SPACE EFFICIENT



WATER CONSERVING



PESTICIDE FREE



NON-SEASONAL



DATA DRIVEN



BEAUTIFUL

AgriTech4Egypt
Innovation Challenge

Competitive analysis

	Geneina Green Systems	Babylon Micro-Farms	Freight Farms	ZipGrow	Spread
Focus Area	80 %	60 %	40 %	50 %	60 %
Technology Use	90 %	80 %	50 %	40 %	80 %
Market Approach	90 %	90%	80%	60%	50%
Unique Offerings	100%	70%	90%	60%	80%

Our Business Model



Retail



Educational Institutions



Restaurants and Hotels

Stage 1: B2B Market:

- Subscription-Based Model
- Design and Installation Fee
- Monthly Subscription
- Ownership

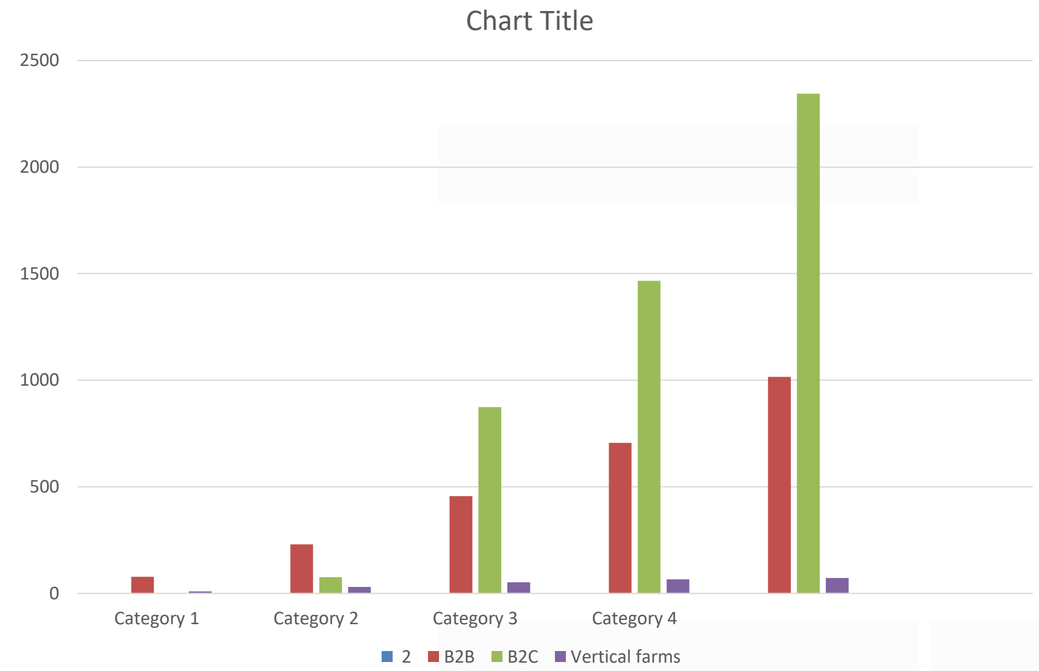
Stage 2: B2B Market:

- Product Sales
- Subscription Package
- Smart Application

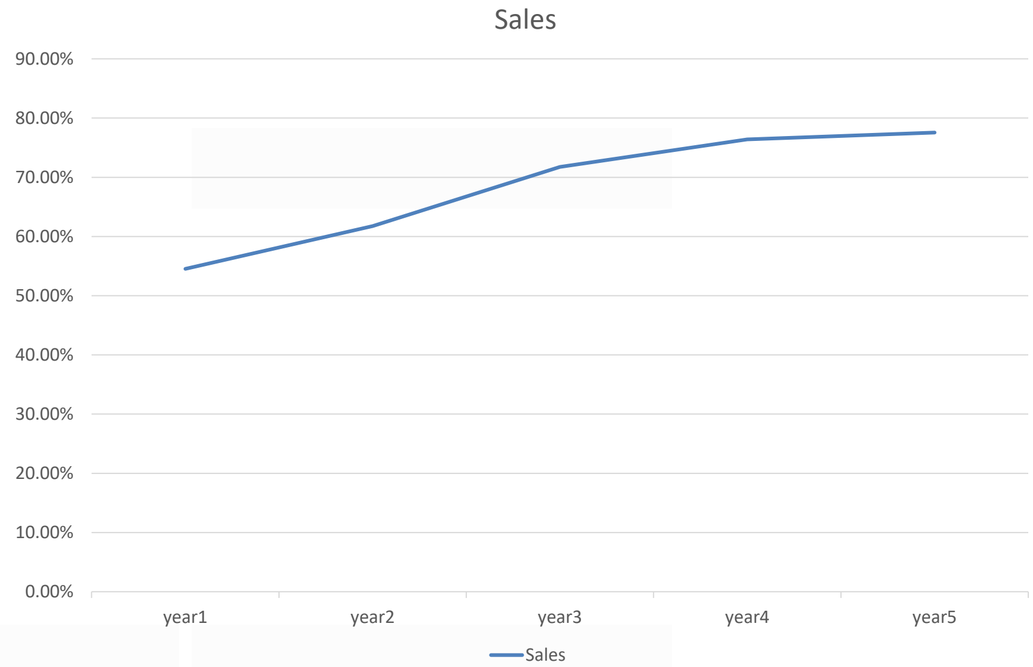
AgriTech4Egypt
Innovation Challenge

Financial projection and Traction

Key Revenue Streams:



Profit Margin



Geneina Team



Alaa Khatab

Agriculture Specialist at Geneina Green system



Mohannad Medani, Managing Director

10 years of experience in Private Equity, working across various sectors. Co-founder and CIO of Triumvirate Capital with transactions totaling over $100 million



Seif Salama, CEO

a visionary entrepreneur with a passion for sustainable agriculture. He founded Tulima, a successful startup enhancing crop yields for local farmers. Now, with Geneina Green Systems Ltd., Seif aims to revolutionize urban farming with advanced hydroponic systems for hotels, restaurants, and commercial buildings. His commitment to excellence and sustainability drives Geneina's innovative projects

Thank You

At Geneina, we're more than just a provider of advanced hydroponic solutions; we're your partners in cultivating a greener, more sustainable future. Every product, service, and advice we offer is a step towards a world where advanced agriculture is accessible, efficient, and enriching for everyone. Join us in this journey to revolutionize green spaces, one hydroponic solution at a time.

+20 1000 88 72 83

www.geneina.org

28 Al Shahid Ahmed Wasfi, Almazah, Heliopolis, Cairo, Egypt

AgriTech4Egypt
Innovation Challenge



Eco-peel

(Recycling banana peels 4 Zero waste)

AgriTech4Egypt
Innovation Challenge

Problem

- The factories utilizing bananas often lack proper methods to dispose of banana peels in environmentally friendly.

- Lack of organic fertilizer in Egypt and its import from abroad

- Low purity of silica extracted from sand

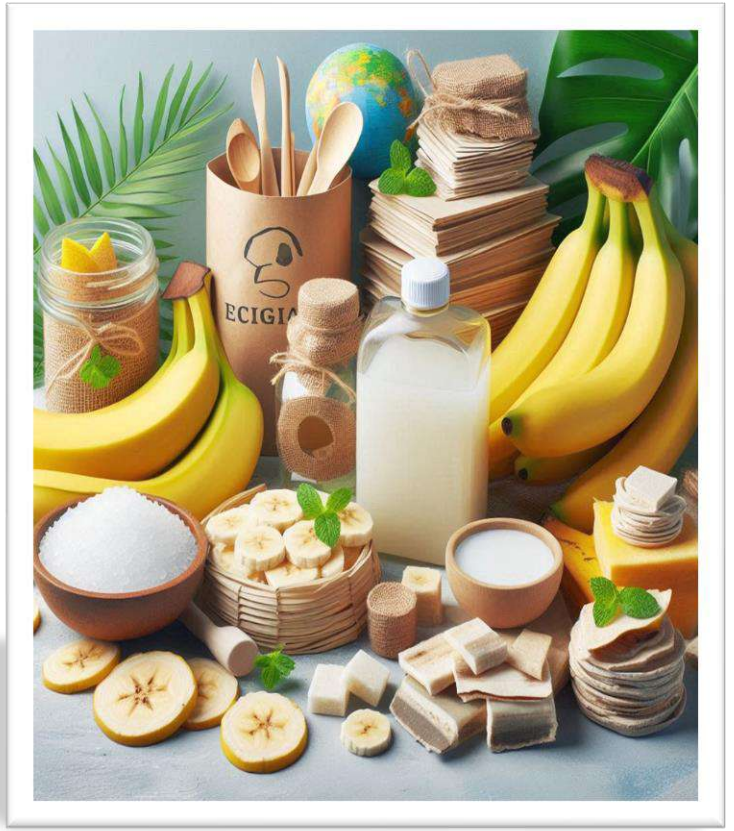
36 million tons of banana peels annually.



AgriTech4Egypt
Innovation Challenge

Solution

- purchasing banana peels from factories that utilize bananas, such as juice factories, and then converting them into silica material, organic fertilizers, and pulp paper.



- Describe the product concisely – how it works and solves the problem

AgriTech4Egypt
Innovation Challenge

Solution

- producing organic fertilizers from banana peels
- Describe how it is mainly different than the current solutions – only high level

- "Producing silica from banana peels,

with a purity level of 98%, surpasses silica extracted from sand, which typically has an 85% purity rate. Therefore,

it would be superior for optical lenses."







AgriTech4Egypt
Innovation Challenge



Target market:

1. Farmers whose need organic fertilizers
2. The factories that use silica in the production of medical lenses.
3. The factories that use pulp paper

market size

- We will start in Sohag, Egypt, which accounts for 73% of Egypt's production.

Title: Analytical Economic Study of Banana Production in Sohag Governorate Author: Dr. Hatem Mahmoud El-Senousy Senior Researcher - Institute of Agricultural Economics Research)

Then, we will expand to Latin America, such as Ecuador and Brazil.

Latin America's banana exports account for approximately 68% of global exports.

AgriTech4Egypt
Innovation Challenge



Unique Value Proposition

- High purity silica from banana peels 98%
- Organic fertilizer production is being increased to reduce external imports, as the import rate has reached 50% of fertilizer imports.
- All competitors use the whole banana fruit, but we only utilize the banana peel.

AgriTech4Egypt
Innovation Challenge

Our Competitors

FEATURES	ECO-PEEL	E-ABNANDY	BARKA FOR FERTILIZERS	MISIR ADFO PULP PA
PRODUCTION	BANANA PEELS	SAND	FIRTILIZER	PULP
PURITY	98%	85%	-	-
FIRTILIZERS	16%	-	20%	-
PULP	25%	-	-	32%
IMPACT ENVIRONMENT	90%	55%	64%	50%

AgriTech4Egypt
Innovation Challenge

Business model

Eco-peel is B2B

Eco-Peel sells its products, such as fertilizers and eco-friendly(Silica-pulp paper) materials derived from banana peels, directly to businesses or organizations

AgriTech4Egypt
Innovation Challenge

Financial projection and Traction



revenue streams

- Sales of organic fertilizers
- Sales silica and pulp paper
- Subscribtions

key metrics

- Eco Peel's processing capacity allows for the recycling of 10,000 tons of banana peels per year
- Eco Peel could aim to collect around 80% of this amount, which would be 12,000 tons partnerships industries companies
- agriculture suppliers in sohag00:18 AM

AgriTech4Egypt Innovation Challenge



Eman Ahmed

Founder Eco-Peel



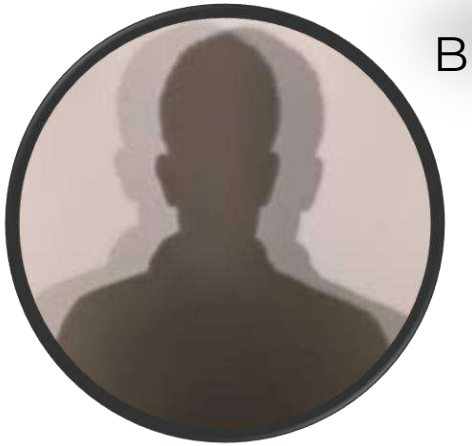
Abdelrahman Gamal

Agriculture specialist



Merna Samy

Business developer



Youssef Tarek

Agriculture Specialist

AgriTech4Egypt

Innovation Challenge

Everlend

Financial inclusion for everyone

PROBLEM

05 Million

Smallholder farmers get poor and low yields due to poor quality seeds
They also lack market for their produce

$27 Billion

Agri-Financing Gap for Smallholder farmers and yet they contribute over **30%** of Africa's GDP. (McKinsey)

Source: FAO Report (2022), WFP (2023)

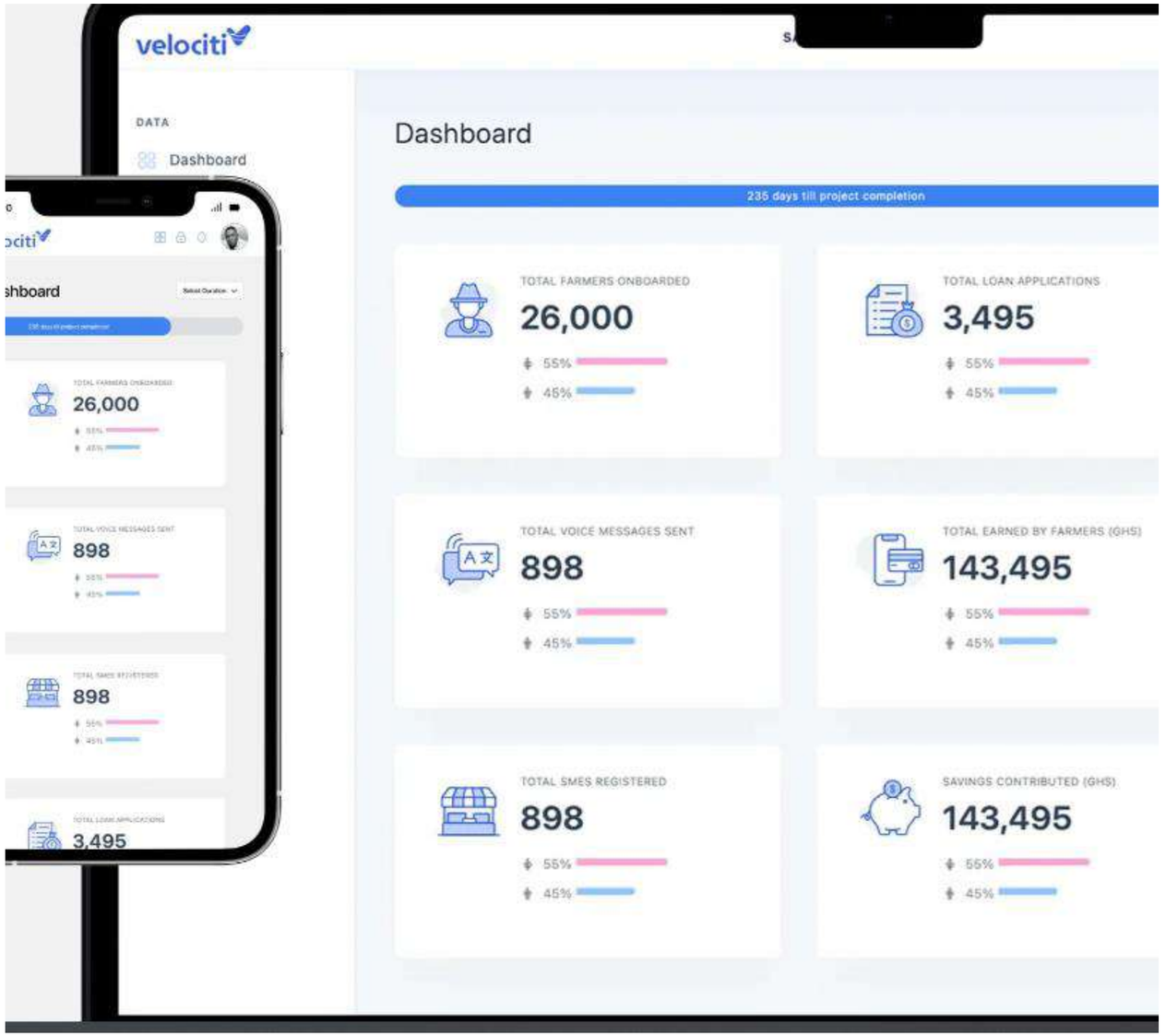


SOLUTION

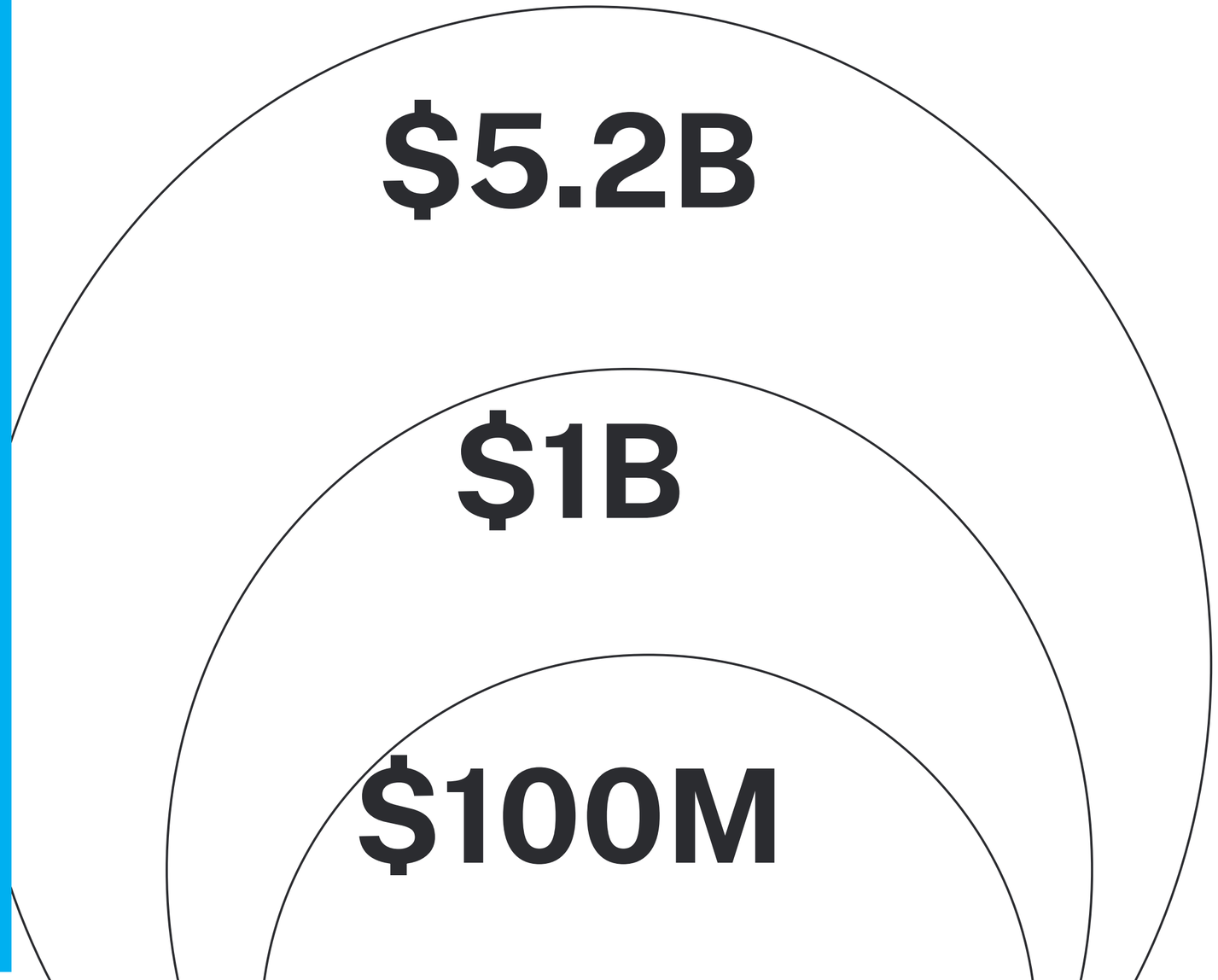
Seed Credit

Seeds as Loans

Online market place



MARKET OPPORTUNITY



TAM

Total Addressable Market (TAM)
5.2 B

SAM

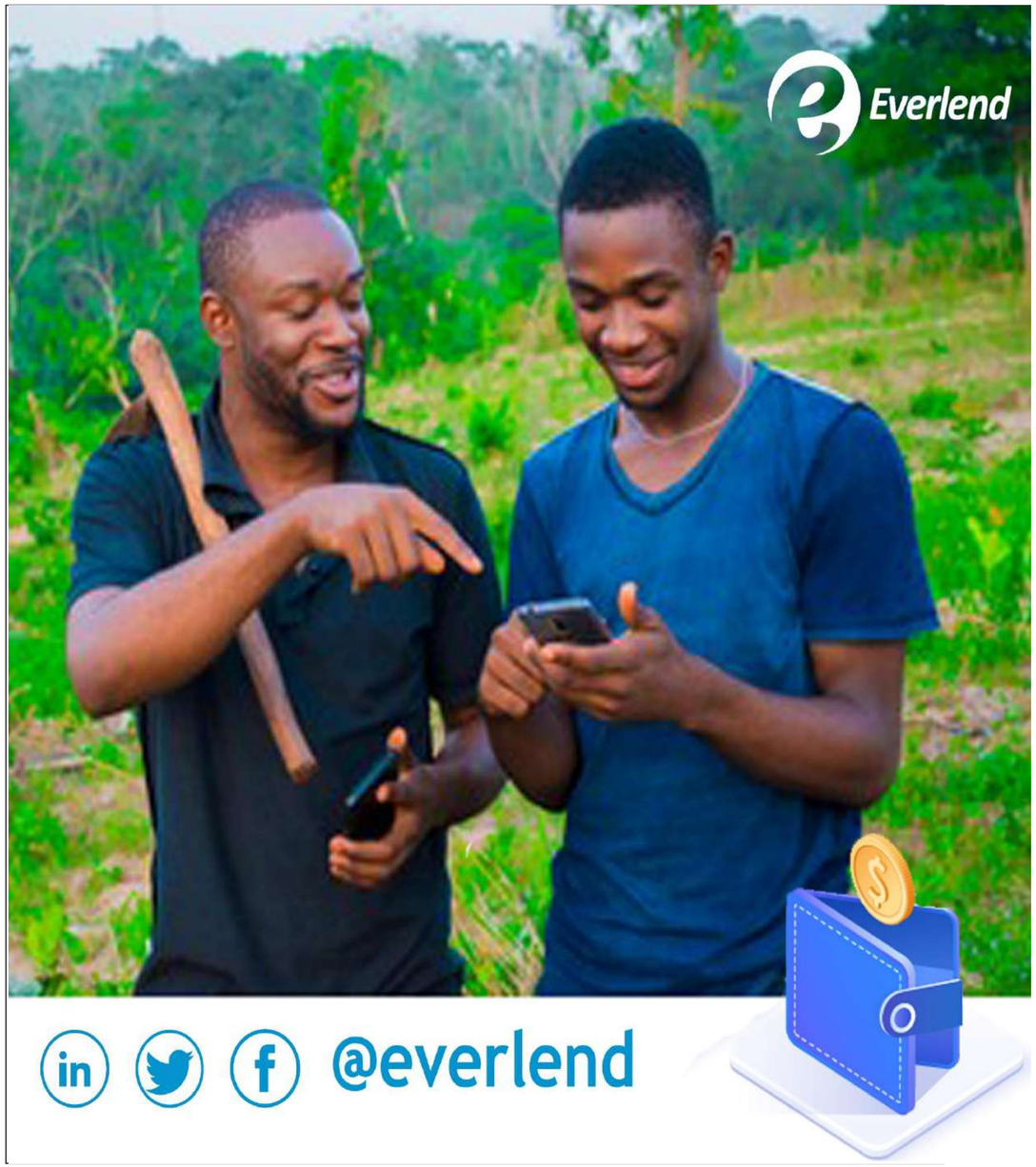
Serviceable Addressable Market (SAM)
1 B

SOM

Serviceable Obtainable Market, SOM
10%

VALUE PROPOSITION

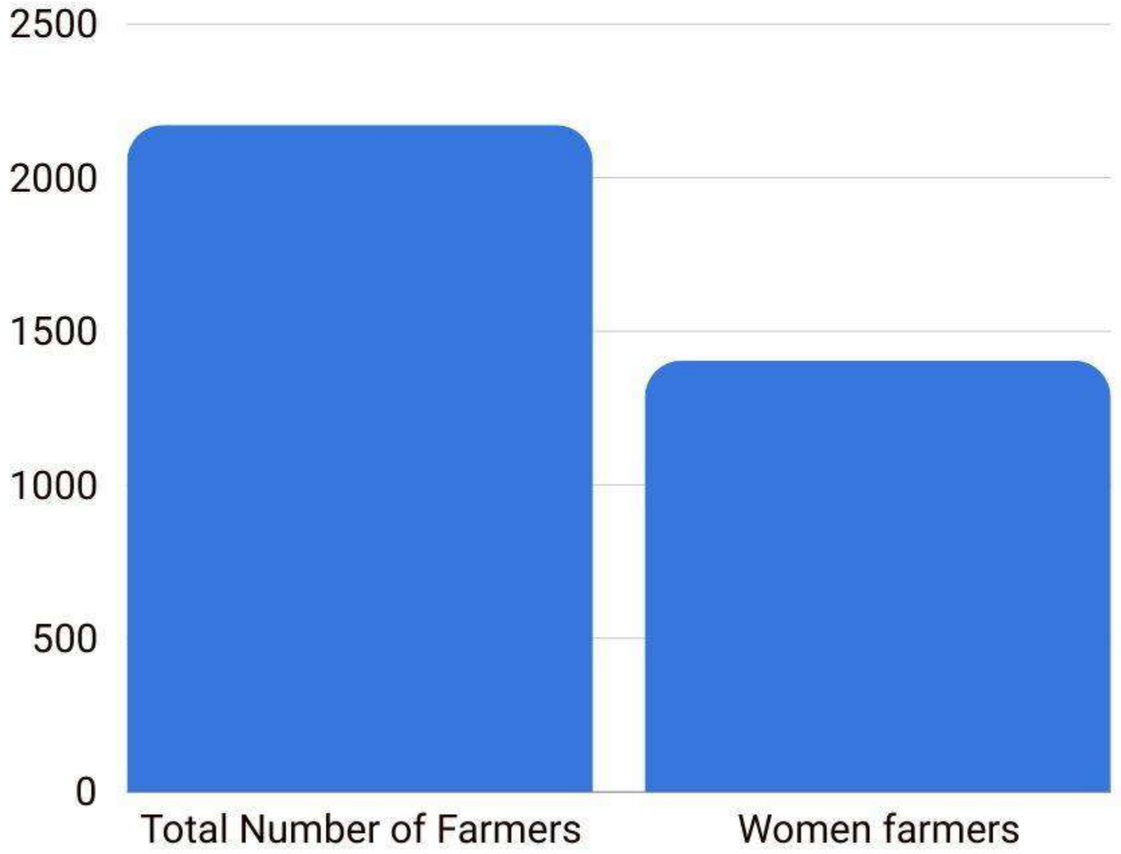
- *Farmers access climate resilient first generation crop seeds for planting on credit using a mobile application.*



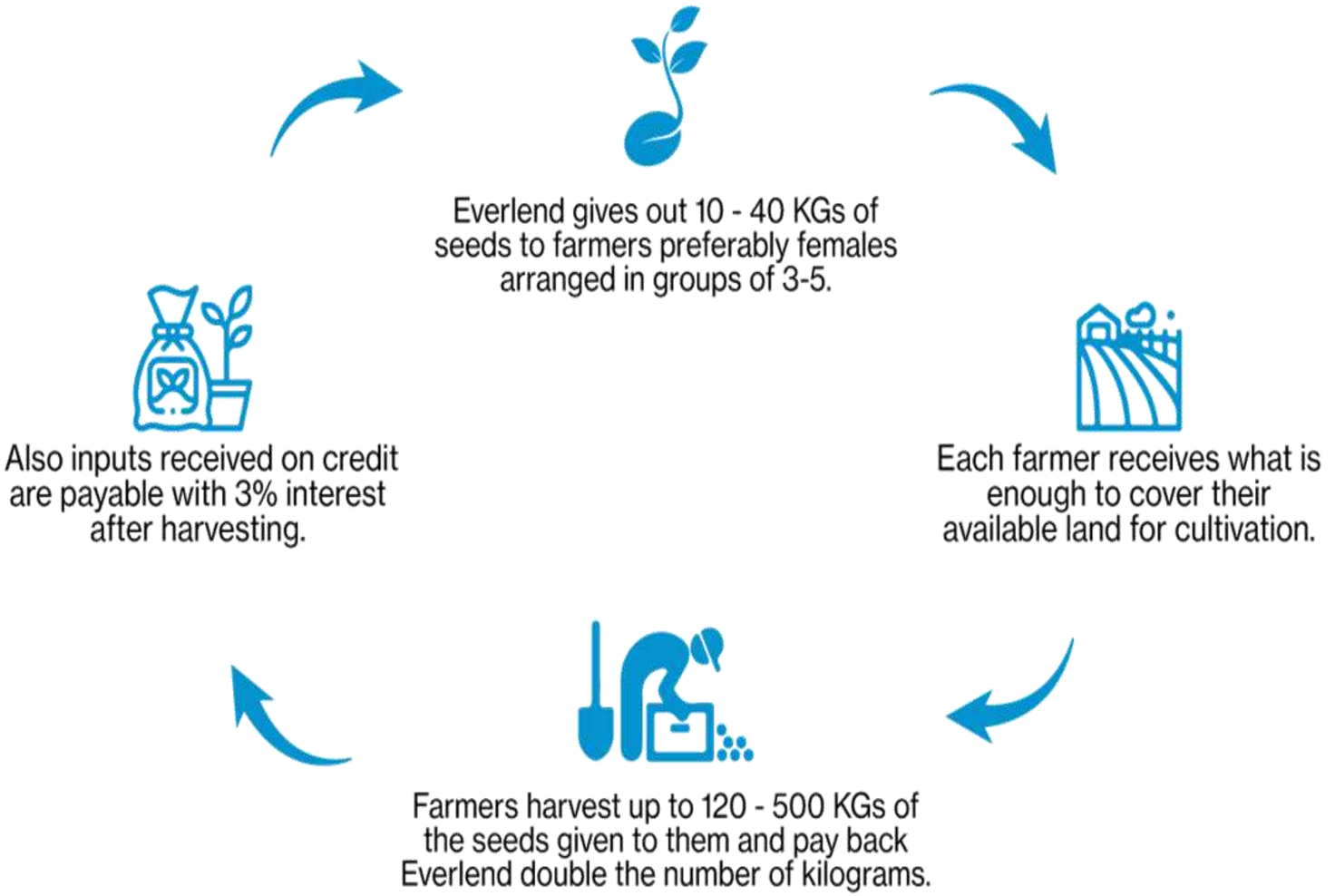
COMPETITIVE ADVANTAGE

Company	Interest rates	Flexibility	After Sales services
Everlend Agritech Ltd	Low	High	YES
Commodities Credebt	Low	Moderate	NA
Cropsa Egypt	High	Low	NA
Mozare3	Moderate	High	NA

TRACTION


2500
2000
1500
1000
500
0
Total Number of Farmers
Women farmers

BUSINESS MODEL



We Make Money:

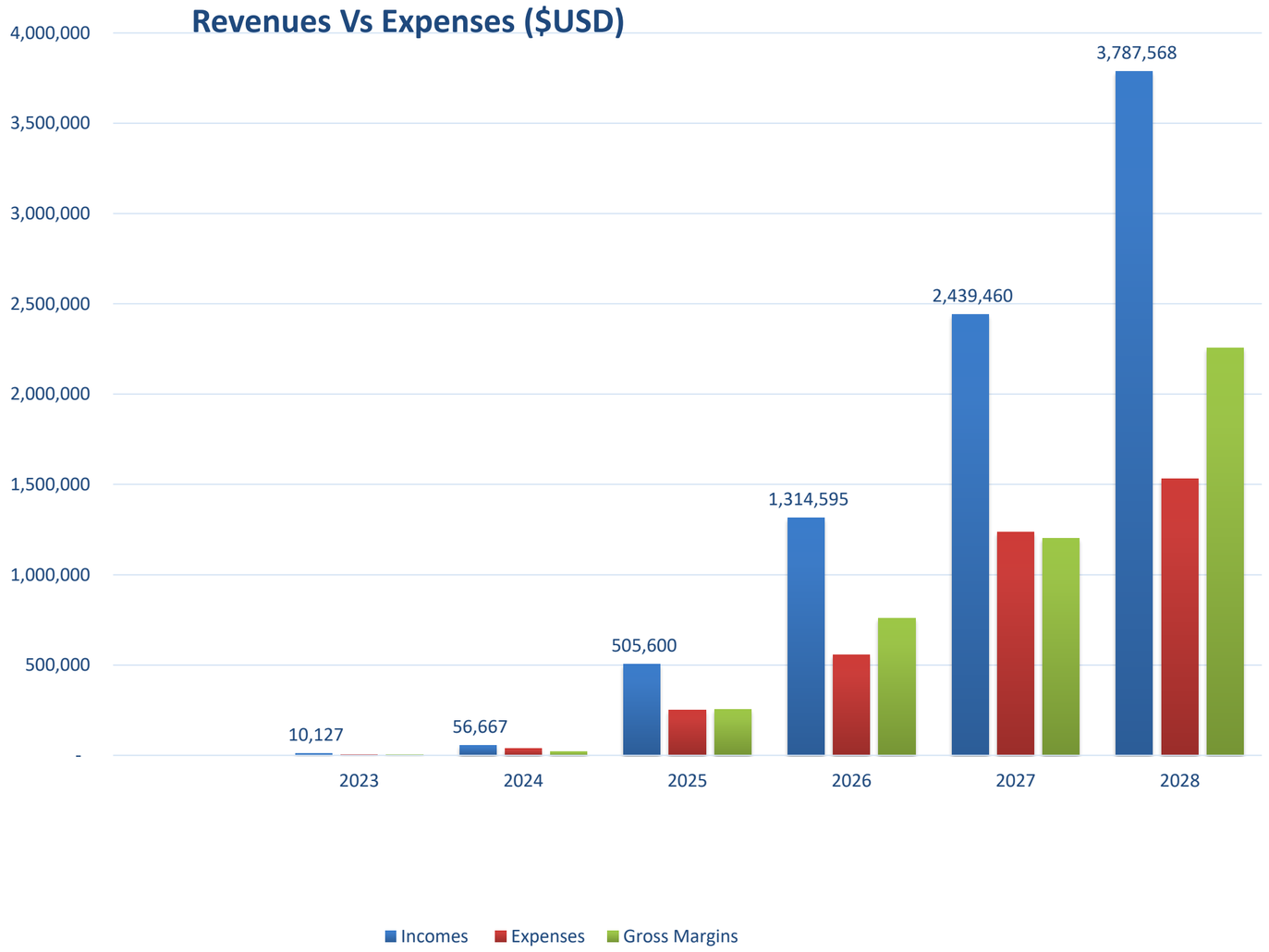
Current:

- Sale of Seeds Repaid
- 5% Fees on loans

Later;

- Carbon Credits
- Subsricptions & Commissions

FINANCIAL PROJECTIONS



Unit Economics

CAC: $50
LTV: $5,00

Drivers;

- **Cost of Seeds**
- Agent Commission
- **Transport & Logistics**

We'll become financially sustainable while achiving our social and environmental mission

OUR TEAM

- **Over 20 years**, spanning from Climatetech, Innovation, Agriculture and Technology.

- We boost of over 50 Seedcredit Agents



Emmanuel Twesigye
Co-Founder & CEO



Peron Nateisa
Co-Founder & CMO



Danson Nahabwe
Co-Founder & CTO



Nuwagira Nicholas
Agronomist

JOIN US…..

O U R V I S I O N…

….To Create lasting profits for the next 10 Million Smallholder farmers and SMEs in Africa by 2030….

EMMANUEL TWESIGYE,
Co-Founder/CEO, Everlend Agritech lt
temmanuel@everledug.com

Thank You



Biotech Hub

Produce natural and affordable raw materials through the recycling of agricultural waste.

AgriTech4Egypt
Innovation Challenge

Problem

Globally

Chemical Synthesis



Huge Chemicals
Large Emissions

Natural Product



Very expensive



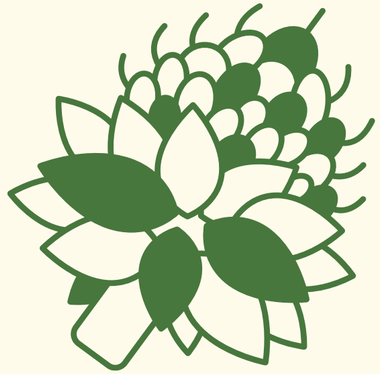
MENA region

1. No manfacturing
2. High technology cost
3. Inflation
4. Delivery Time (exporting)

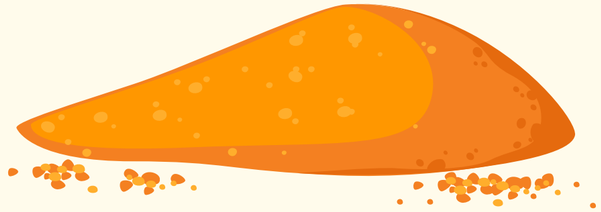
Solution



Palm



Palm waste



Beta-Carotene



Cosmetics



Food

Our First Product

AgriTech4Egypt
Innovation Challenge

The Opportunity

Average palm waste is 70 kg

Average waste from each palm annually

40 kg used
Recycled

30 kg not used
Not recycled

20



Million palm trees in Egypt

600k tons



Unused palm waste

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Innovation Challenge

Some Uses of Beta-Carotene

(Snacks, juice, yogurt and more
in the Food & Beverage industry)









(Retinol, sunblock and more
in the Cosmetics Industry)







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Innovation Challenge

Value Proposition



Lower Cost

Cut the cost by **52%** of the traditional solution



Natural Product

Manufactured from natural materials which reduce the greenhouse gases



Income for Farmer

Solve waste handling for the farmer and increase their income



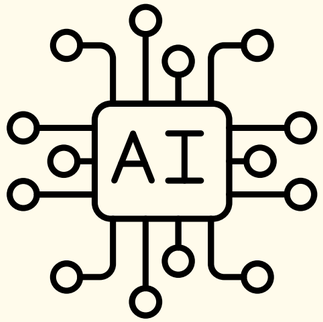
Reduced Delivery Time

Local Product

Our Technology

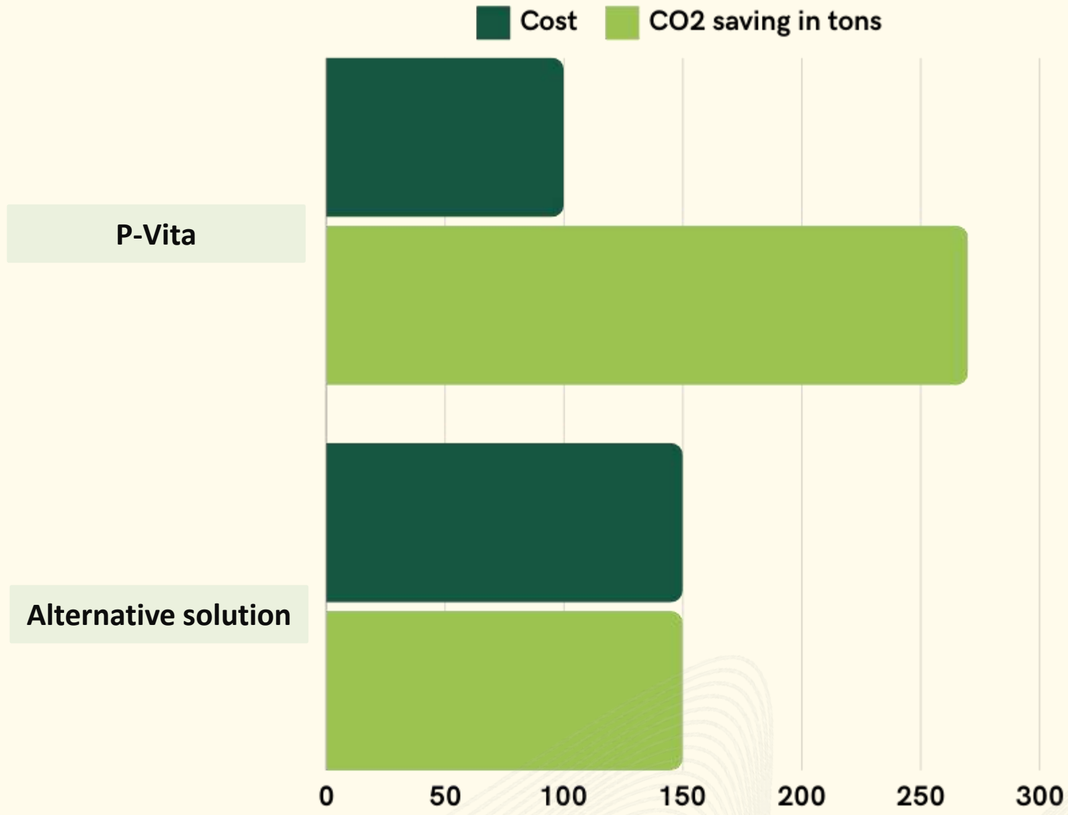


Machine learning algorithms



Smart sensors driven by AI

Cost & CO2 saving with and without using our product in a year



Total CO2 Saving = **56k** tones of CO2 reduced per year

*impact forecast website

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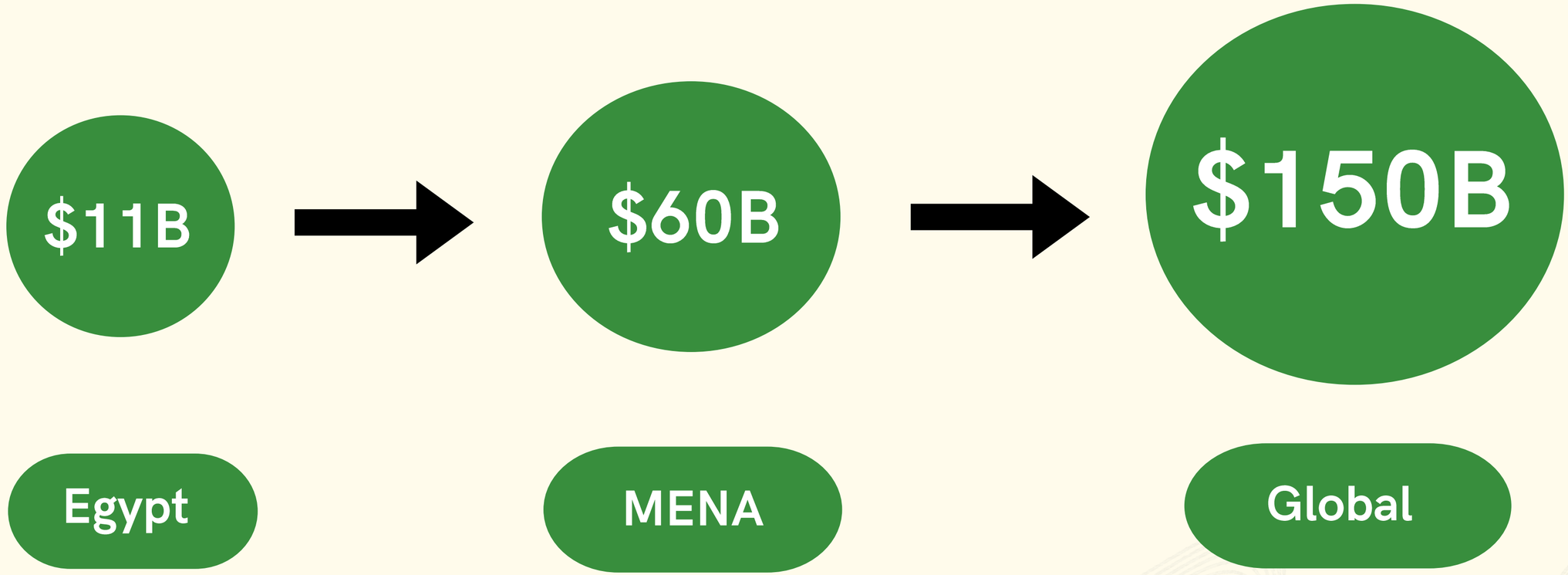
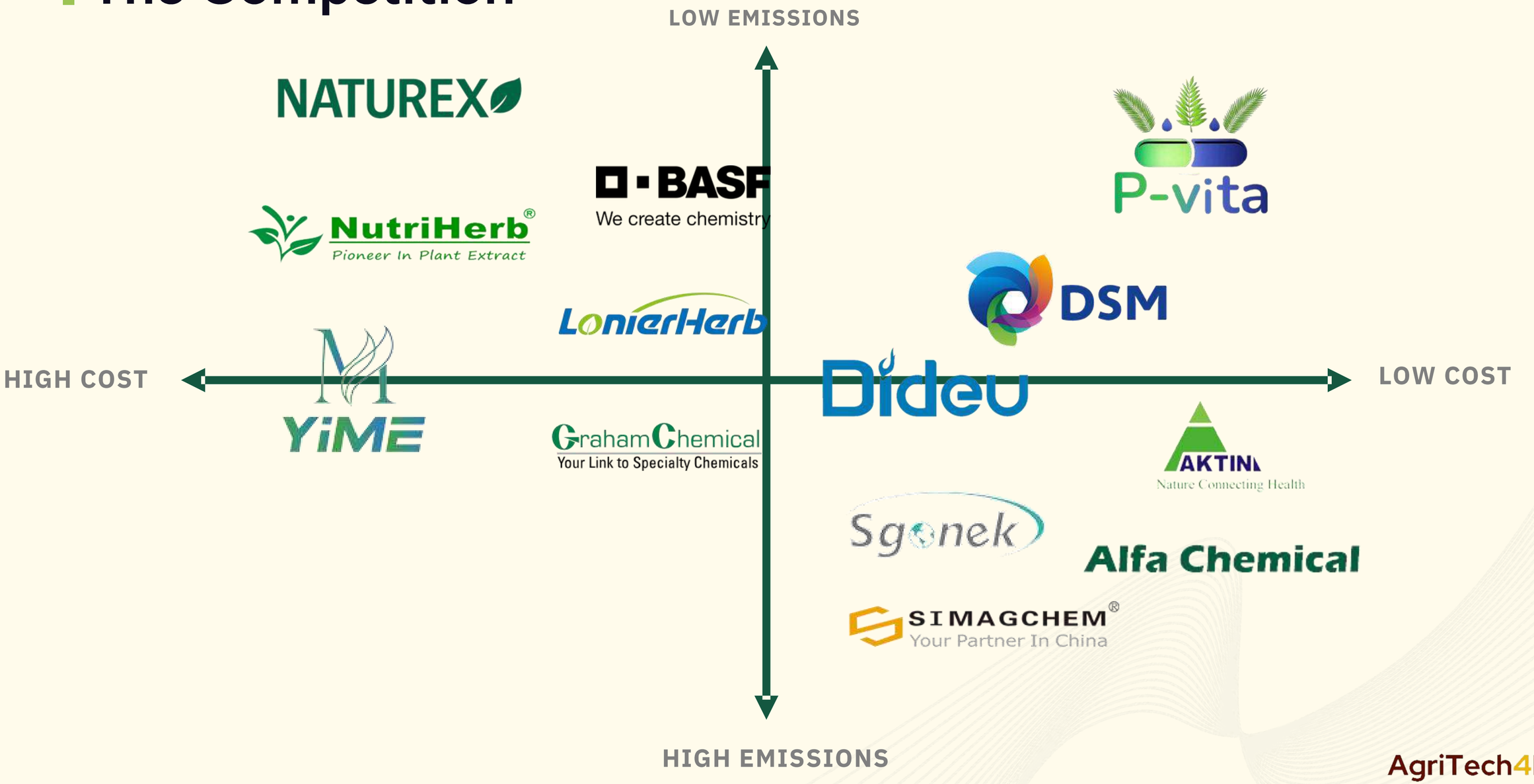
Innovation Challenge

The Market Size of Natural Raw Materials



Market size in 2021 from Allied Market Research

The Competition



Pricing Model

Our competitors

$185/kg

Chemical synthetic
Price ranges from $160 - $210/kg

$320/kg

Natural Beta-carotene
Price ranges from $280 - $360/kg

P-Vita

$240/kg

Natural Beta-carotene

B2B Model

AgriTech4Egypt
Innovation Challenge

Traction

Sold to 5 businesses in 8 Months

→

80 kg (out of 4 palm trees)

→

$12,000

Our products is certified by analysis from Department of Chemistry and Nawah Scientific

P-Vita’s Roadmap for 24 Months after Investments

	Research	Development	Demonstration	Production	Licenses
Beta-Carotene					
Pectin					
Glycerin					
Omega-3 Fatty Acid					
Stay tuned, For more 11 Upcoming Products					

Color Codes

Before Investments

After Investments

P-Vita's Awards

1st Rank worldwide in Hack for earth at COP28
(Environmental Challenge)

1st Category in Greenish Competition

Top 5 Teams in youth Challenge 3.0
(UNICEF)

Mega Green Acceleration powered by Astrolabe, Sabic, and PepsiCo

2nd place winner in Underdog Tech award
(Powered by InDrive)

500 Global Seed Bootcamp 3 Alumni

1st Place in climate challenge UGRF12

Cohort 5 for Plug and Play

Impact

Sustainable Development Goals (SDGs)









Our Team



Eng. Mohamed Tarek

CEO

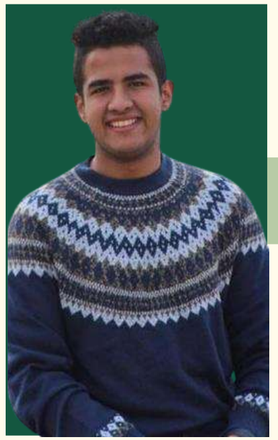
Environmental Engineer
at Zewail City
Ex. ReNile



Dr. Naglaa Mohamed

Technical Specialist, CSO

Biomedical Sciences at Zewail City
Ex. Technical Consultant at MEVAC



Dr. Hamdy Atef

AI & Modeling specialist

PhD at Pittsburg University



Ms. Zainab Elwakeel

Communications Specialist

+2 Years of experience in
Communication & Sales Field



Mr. Kareem Manadelo

Legal Specialist

Startup Legal Counsel
at legal Clinic

AgriTech4Egypt
Innovation Challenge

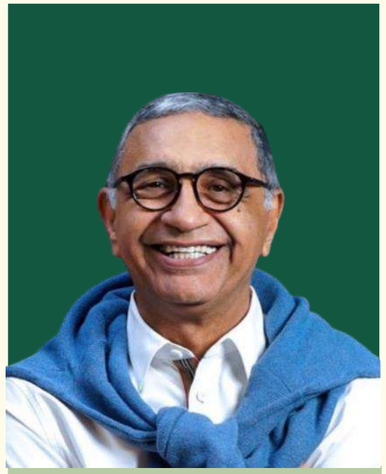
Our Advisory Board



Eng. Ezzelddin H. Zahzah

Executive Advisor

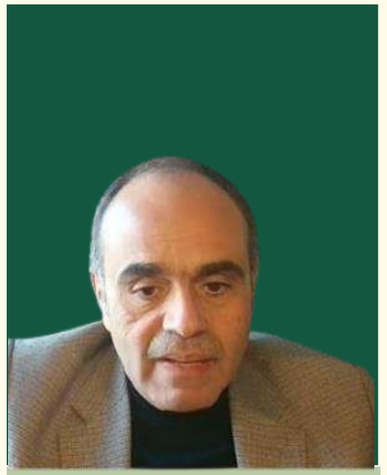
Program Director @500 Global in Egypt



Eng. Tarek Roushdy

Investments Advisor

Founder of UI investments



Dr. Alaa Eldin Adris

Technical Advisor

Professor of Management of Technology



Dr. Ahmed Saleh

Business Advisor

Executive Director of Innovation and Entrepreneurship Center

AgriTech4Egypt
Innovation Challenge

P-Vita



Thank You

Ready to contribute to a sustainable planet?
Contact us now.

+20 106 707 8918

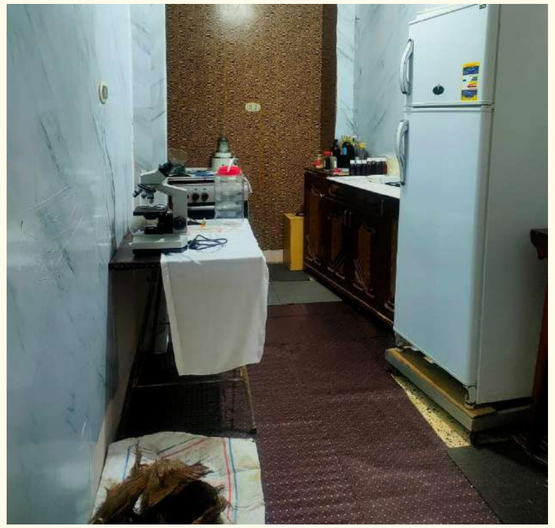
m.tarek@p-vita.com

Our worker at our pilot palm site

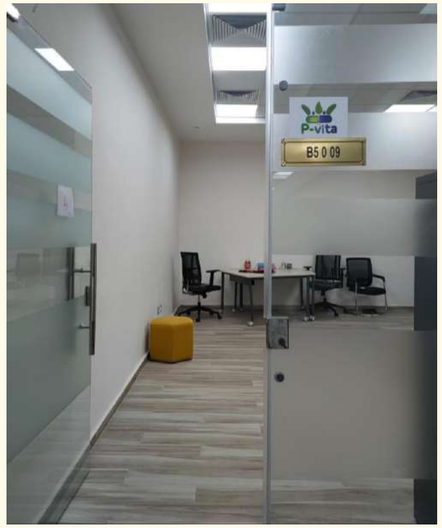




Our Journey



Started with Small R&D Kitchen
In Sharika around the lands



Then our Office in Cairo

Preparing our Small Lab in Cairo
around analysis centers



Prepare Production Facility in
Fayoum with Abda

Business Model

B2B

For Cosmetics and Food & Beverage

Companies

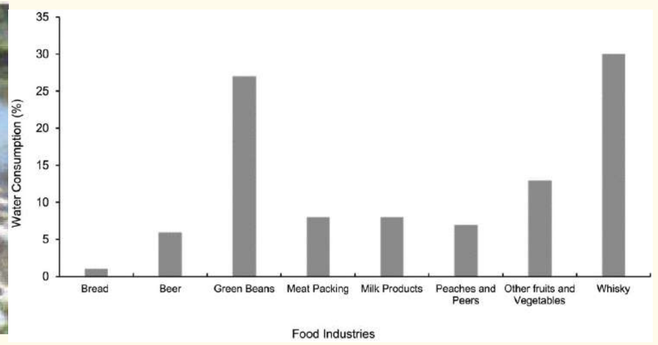
Process License Model

Pollution Problem Agricultural runoffs, Chemical pollution, Biological pollution

Pollution

- F&B contaminants are toxic to aquatic life—most often reducing an organism's life span and ability to reproduce
- Up use of the large amount of water for F&B as shown below

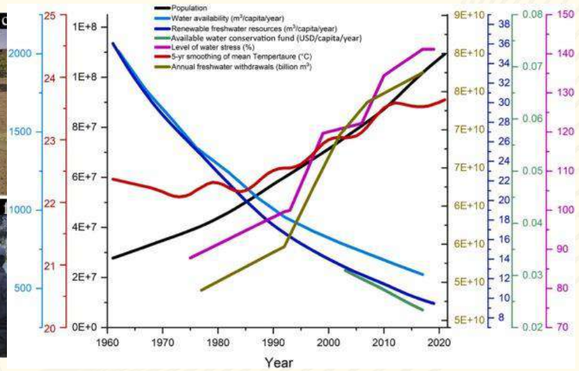




Agricultural runoffs

- Agricultural run-off has damaged water quality in Qarun Lake, 2017 and it increase whenever the population increase as appear below.





AgriTech4Egypt
Innovation Challenge

Nina
ENERGY

We leverage **voluntary carbon markets** to fund the implementation of pyrolisis equipment in **middle-income countries**. Our machines transform **agro-residues** into a type of **biochar** that can yield **carbon credits**

AgriTech4Egypt
Innovation Challenge



File Photo: The city of Cairo and the Pyramids of Giza are seen from an aircraft, in this December 4, 2009 (Photo: Reuters)

Annually, **1 million tons of agroresidues** (sugar cane bagasse, grape prunning, and rice husk) -that could be transformed into biochar- are **open burned, releasing CO_2** back to the atmosphere.

AgriTech4Egypt
Innovation Challenge

OIL &GAS

*Recycle pipe scraps
*Labor (welders)

PYROLYSIS MACHINE

BIOCHAR & CARBON CREDITS



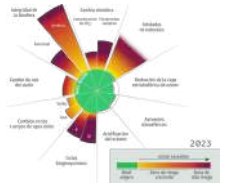
Use biochar in the **full spectrum** of applications

VOLUNTARY CARBON MARKETS

CASH!

FARMERS & AGRO-RESIDUES

AgriTech4Egypt
Innovation Challenge



☑ RIGHT TECHNOLOGY ⟶ FULL SPECTRUM OF APPLICATIONS



























AgriTech4Egypt
Innovation Challenge

Table 1. The available agriculture residues from crop residues of typology 1.

Typology 1 Crops	Sugar Cane	Sugar Beet	Wheat	Maize	Rice	Potatoes	Onion (Fully Grown)	Sorghum	Sweet Potatoes	Cotton	Beans (Fully Grown)
Byproduct1	Bagasse	Leaves	Straw	Stalk	Straw	Leaves	Leaves	Straw	leaves	Stalk	Stalk
Byproduct1 yield (t/ha)	34	32	8.4	11.5	13.5	21	46	14	20	12	7
Area of main crop (Mha)	0.14	0.22	1.20	1.10	0.55	0.17	0.08	0.15	0.01	0.09	0.06
Soil conservation (%) [14,24]	5	5	10	4	7	5	5	5	5	7	8
Moisture content dry basis [25]	75	75	15	15	15	65	85	15	65	15	10
Handling and transport losses (%) [24,26]	10	10	9	9	9	10	10	9	10	9	5
Storage losses (%) [22]	10	10	10	10	10	10	10	10	10	10	10
Other uses (%) [14,21]	72	75	100	60	50	0	0	100	0	13	100
Total byproduct (Mt/y)	0.49	0.70	0.00	3.23	1.79	1.19	0.57	0.00	0.08	0.44	0.00

15 sugar processors,
8 processing sugarcane
7 processing sugar beets, plus one under development.

*https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Sugar+Annual_Cairo_Egypt_EG2023-0006.pdf

AgriTech4Egypt
Innovation Challenge



Local labor

(Digital Manufacturing & Virtual Reality)



Services

(LCA)



Carbon credits

(Managing registries and marketplaces)

We ensure carbon markets deliver **prosperity** in the **global south**. How? Installing and keeping local all the **high added value and critical services**, namely: i) **local labor** to construct, implement, operate, and provide maintenance services to pyrolysis machines (hardware), ii) using local **LCA services** to supply required data by Carbon Standards & Methodologies (), iii) linking services of third party audits, iv) **Operating Registries** of carbon credits along with several **marketplaces**.

AgriTech4Egypt
Innovation Challenge

Carbon must not be a new **commodity**. We (the global south) must develop the added value components of the game!

	PRICE [USD $]	DELIVERY TIME [months]	DEVELOPMENT OF LOCAL VALUE CHAIN
Nina Energy Limited			
European pyrolysis technology developers.	3 x	4 x	**none**
Asian pyrolysis technology developers.	1.25 x	2 x	**none**

AgriTech4Egypt
Innovation Challenge

B2B

- Licensing of Pyrolysis Reactor Construction.



- $ per reactor sold.
- Warranty

- Carbon Sequestration Projects with Biochar.



- Continous income per tCO2

AgriTech4Egypt
Innovation Challenge

2023 Company incorporation in UK

2024 (January) Pre-seed round. $175,000

2024 (March) First pyrolysis reactor sold to Italy $40,000

2024 (August) Start of local manufacturing of reactor in Italy $30,000

2024 (July) Start of seed round. $4 Million dollars

2025 Production start of 22 reactors facility in South $2,7 Million Dollar

2025 Start pilot project in Egypt

- Total invoice by 2026, USD 6 million dollars.
- Expected company value by end of 2024 $26 Million

AgriTech4Egypt
Innovation Challenge



Andrés Novillo, Eng.

Chief Executive Officer (CEO)

+5 years of experience in the automotive industry
+3 years in Banking
+8 years leading e-commerce, ecological science-based start-ups.



Mario A. Heredia S, Dr, Eng.

Chief Scientific Officer (CTO)

+20 years experience in thermochemical conversión of residual biomass, numerical modelling, reactors design, participative action research.



Jonathan Coba, Eng.

Product Engineer

+9 years experience in Digital Manufacturing, CAD/CAM modelling. CNC machines, industrial mainteinance and agroindustry supply chain.

OZ-TECH
Innovate Cultivate Grow

AgriTech4Egypt
Innovation Challenge

OZ-TECH



We are building the future of smart farming machines.

OZ-TECH
Innovate Cultivate Grow

AgriTech4Egypt
Innovation Challenge

Challenges

01

Labors force ⬇ 30%



02

Effort & time.



03

15% Planting losses.
25% ⬆ of food demand.

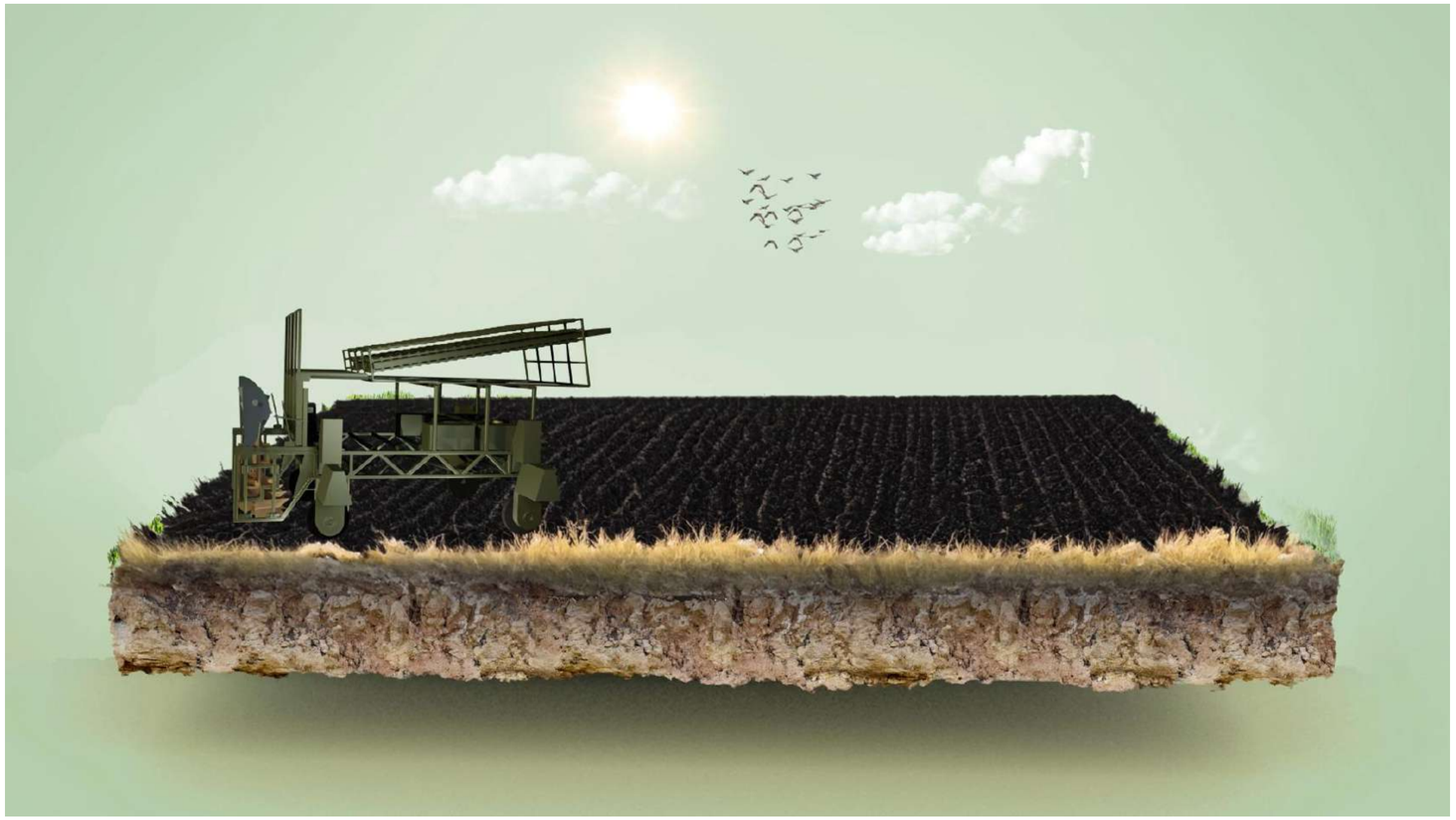


OZ-TECH
Innovate Cultivate Grow

AgriTech4Egypt
Innovation Challenge

Osiris 1

1 Acre in 40 mins
Food quality 15% ↑







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Innovation Challenge

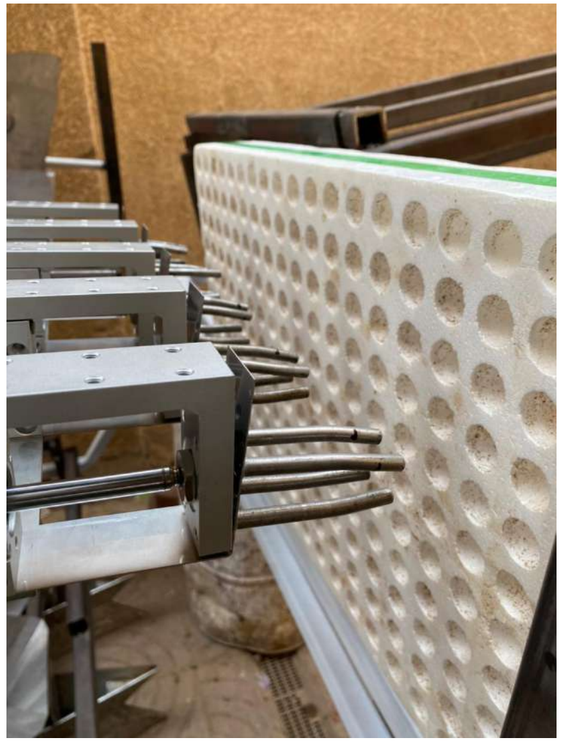
OZ-TECH
Innovate Cultivate Grow

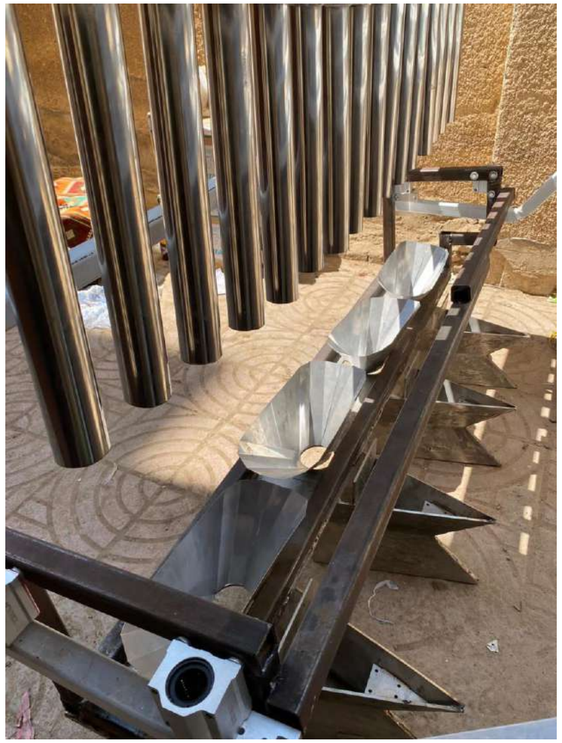
Osiris 1 manufacturing

1 Acre in 40 mins

Food quality 15% ↑







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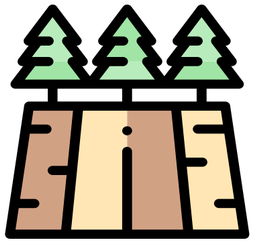
Customer Segments

B2B



Agriculture Companies Governmental Institution
(Ministry of Agriculture)

B2C



Medium landowners - more than 25 Acres

Small landowners - less than 25 Acres

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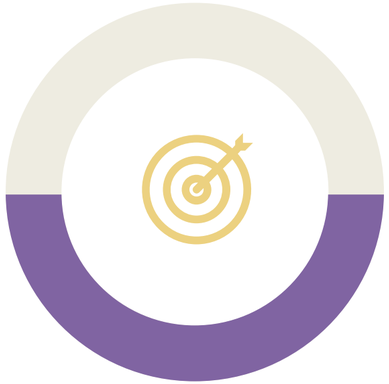
Revenue Streams



Renting &
Project Based
(2000 EGP/Acres)



Training fees

OZ-TECH
Innovate Cultivate Grow

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Innovation Challenge

Traction

Prototype and Testing



MVP February 2024



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Innovation Challenge

OZ-TECH
Innovate Cultivate Grow

Value proposition

Time saving

Eco friendly

Accuracy

Saving resources

Building sequence data base

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Innovate Cultivate Grow

Egypt Market Size

9.7M acres of cultivated area

TAM

Revenues USD **39B** in 2021

Reclaimed land **100k** acres

1.3M acres of cultivated area

SAM

30k acres of cultivated area

SOM

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Innovate Cultivate Grow

18 month roadmap

October 2024 - March 2025	April 2025 - August 2025	September 2025 - February 2026
• 2nd robot • Beheira	• 3rd & 4th robot • Beheira	•Monitoring & weeding • Al Wahat • 30k acres

OZ-TECH
Innovate Cultivate Grow

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Achievement

Funding by EU



Funding by giz



OZ-TECH
Innovate Cultivate Grow

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TEAM



Amr Gamal

Co-Founder
Product Design and R&D



Salma Sami

Co-Founder
Embedded System Developer



Mohamed Hamad

Co-Founder
Manufacturing & Process

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OZ-TECH
Innovate Cultivate Grow

Thank You

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Innovation Challenge

AGRIMOBILE NEXUS IN DIGITAL FARMING AND PRECISION AGRICULTURE

AGRIMOBILE NEXUS
in PADF

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Innovation Challenge

Problem

- ❑ No real-time information for the field crops conditions and market.
- ❑ This has been a source to the following problems
  - Excessive use of water in agricultural fields
  - Crop damage due to pest and diseases
  - Market Accessibility

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Innovation Challenge

Solution

- Agri Mobile Nexus: a mobile application linked to the field to sensors.
- Farmers will have access to different essential information from the field and markets including:
  - Humidity
  - Soil moisture
  - Temperature
  - Pests monitoring
  - pH
  - Prices of produce
- Validation by market research: interviews and questionnaires.

AGRIMOBILE NEXUS
in PADF

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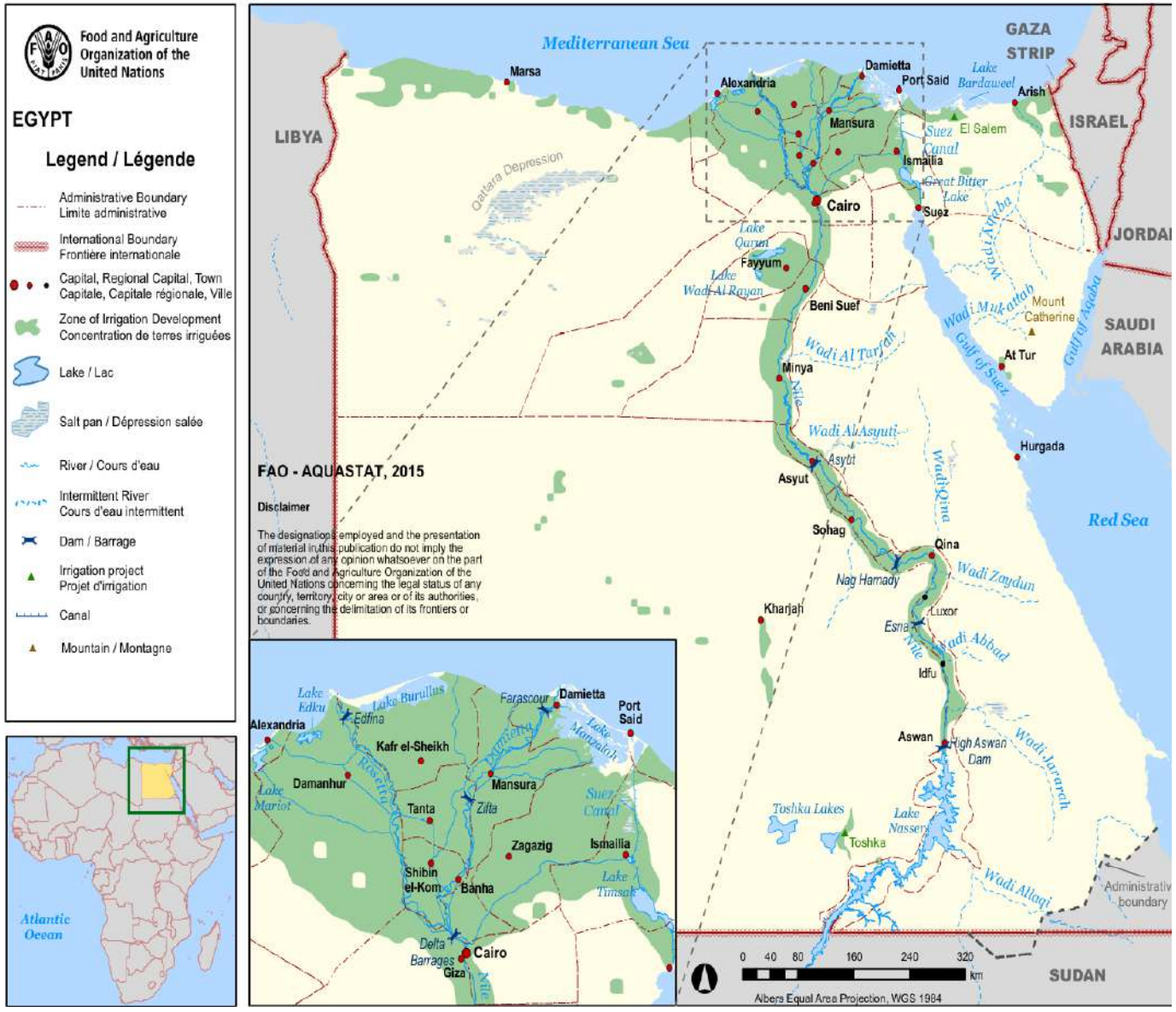
Innovation Challenge

Target market:

- Field sensor technology - farmers (approximately 20 million of people out of the whole population)
- End users of the agricultural produce - whole population



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Innovation Challenge

Value proposition

- Easy access to real-time information for field crops condition and market by farmers will:
  - ensure use of the right amount of water in agricultural fields
  - minimize crop damage due to pest and diseases
  - enable access to markets for agricultural produce
  - allow people away from their farms to remotely monitor their farms

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Innovation Challenge

Competitive analysis

Competitors	Criteria			
	Automation	**Quantity of services**	**Integration**	**Time to make decision**
Manual observation	Minimum	Few	No	Estimated
Sensor selling company	Minimum	Few	No	NA
Semi-automated sensor(chameleon)	Moderate	Many	No	Estimated
Soko yetu Agent App	Moderate	Few	No	Precise
Agrimobile nexus	Maximum	Many	Yes	Precise

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Business model

- ❑ Business to Customer (B2C) model
- ❑ Ways to which a business will generate revenue
  - App subscription
  - Reselling sensors from the manufacturing companies
  - Cost from installation of sensors and configuration of the app

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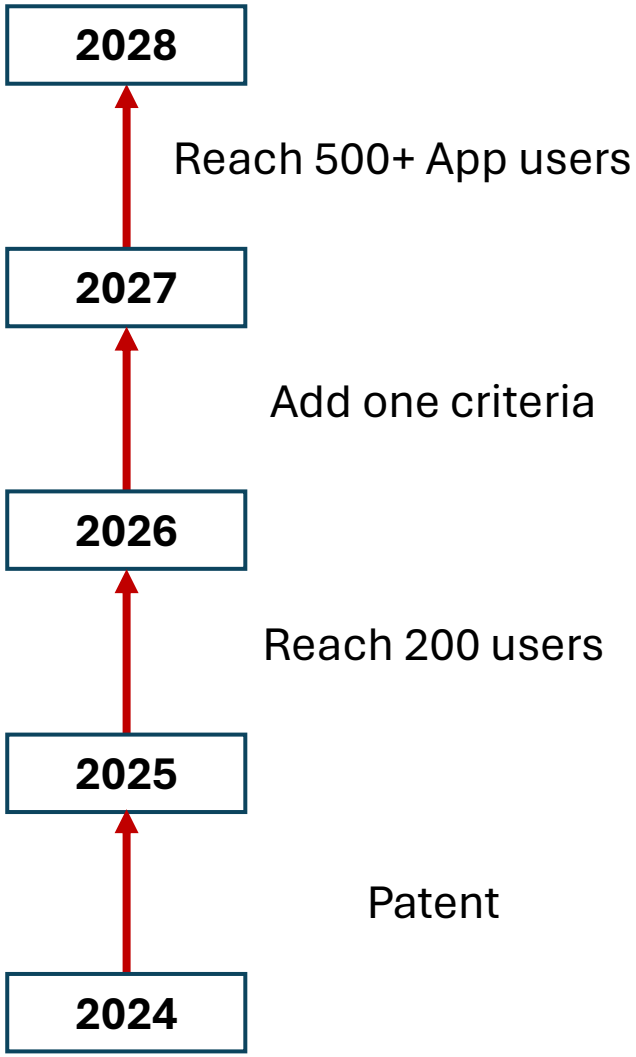
Innovation Challenge

Financial projection and Traction



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Innovation Challenge

Team:



Paulo Maganga
Agronomist
Field Advisor



Leah Abraham
Field technician
Team Leader



Josiane Irakiza
Computer Engineer
System Administrator

Joshua Justine
Agricultural Extensionist
Team Coordinator


AgriTech4Egypt
Innovation Challenge
AgroVisioners
Farm For All
Regenerative Zero Carbon Vertical Farming System

AgriTech4Egypt
Innovation Challenge



Our Disruptive Solution

Increase the organic food production of a **wide range of valuable crops**, up to 5-30 times, vertically :

- **98% less water (water extracted from humidity)**
- **80% Bamboo on our system**
- **100% Reduction in synthetic fertilizer costs**
- **100% Recirculate and reuse all remain organic sources (water, soil, crop waste)**
- **80% less operation cost using solar energy**



Target Market

Saffron, Leafy greens, Herbs, Microgreens, Roots Vegetables, Berries, Aromatic and Medicinal herbs

- **$10 billion TAM - CAGR 5.8%**
- **$2 billion 20% SAM**
- **$200 Million 10% SOM**

  a) Small scale Farmers b) Urban growers

  Regions: MENA, AFRICA, EUROPE



Value Proposition

Farm For All: Provide a zero-carbon regenerative farming system that can help growers and specific next generations, to grow organic fresh food utilizing all natural resources in combination with ai and vertical farming technology

AgroVisioners

Competitive Analysis

Recirculated Organic Vertical Farming System

	AGROVISIONERS	AGRICOOL	BOWERY FARMING	AEROFARMS
VARIETY OF CROPS	VERY HIGH	LIMITED	LIMITED	LIMITED
CROP YIELD	5-30 TIMES	4-7	4-8	5-8
OPERATING COSTS	VERY LOW	HIGH	HIGH	HIGH
PLANT STRESS WITH ERROR IN IRRIGATION	No > more than 3 days	Yes < less than 1 day	Yes < less than 1 day	Yes < less than 5 hours
ENVIRONMENT IMPACT	YES - Reduce Waste and increase soil biodiversity	NO	NO	NO
WATER SAVINGS	95 - 98%	90 – 95%	90 – 95%	95%

Business Model

Phase 1 - B2B Growers	Phase 2 - B2B Urban Growers	Phase 3 - Government Investments B2G
Provide a leasing option to Key Growers **(Farmers, Plant Nurseries)**	**Provide a leasing option to Urban growers** **(Restaurants, Supermarkets & Hotels)**	Target **government deals** and specific countries that are facing food security problems due to water scarcity and decrease of arable lands
Leasing fee 100€ Per Unit / monthly	**Leasing fee 100€ Per Unit / monthly**	

Projections

- Customer Acquisition Cost **(CAC)= €100**

  €20.000 / 200

- Lifetime Value **(LTV)**= **€6,000 per customer**

  €100(average revenue per customer) * 60(units)

- **Conversion Rate =** (300 / 1,000) x 100 **= 30%**
- We project acquiring 8,000 customers in 4 years
- **Leasing fee 100€ per unit / monthly**
- Projection turnover **€10 million in year 4**



Traction

Interest from the following customers

- Egypt / 3 farmers / more than 50 hectares
- Greece / 2 farmers / more than 20 hectares
- Cyprus / 7 farmers / more than 10 hectares
- Morocco / 3 farmers / more than 70 hectares



3 Co-Founders (17+Years)

14 team members (5 years collaboration)

7 Board of Advisors



Anargyros Koliokostas

CEO/Co-Founder

MBA, Extensive Agronomist Research Skills, with 8 Years of work experience in Finance and Business with multinational companies, establish his first business operation at the age of 13



Theoklitos Klitou

Co-Founder / Sustainability R&D

PhD Mechanical Engineering, Master's degree in Sustainable Energy Systems, BEng in Mechanical Engineering with First-Class Honours Swansea University



Andreas Klitou

Co- Founder / Engineering R&D

MSc Meng, Mechanical Engineering, University of Glasgow

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Innovation Challenge



Kadry GROUP

The Diesel of Poultry

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Innovation Challenge

problem

Health

Deficiency in :

- Nutrition
- Growth
- Immunity
- Quality



Market

- Shortage in feeds and feed additives
- High prices
- Closure many poultry farms
- Shrink in poultry market

Solution:

Poultry Feed Additives composed of herbal plants act as growth promoter and immunostimulant manufactured by the most updated nanotechnology techniques.



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Innovation Challenge

Target market

Poultry feed additive market size in Egypt almost **21.5 billion L.E***

Small Farmers represent 70% of poultry production (almost 23,000 farm)

Poultry home breeders represent 11% of poultry production

Targeted customers

Poultry feeding producers

Poultry feeding distributers



*According to Ministry of Agriculture and Land Reclamation

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Innovation Challenge

Value proposition

1
Local 100%

2
Increase growth (up to 50%)

3
Elevate immunity

4
Affordable & competitive prices

5
Decrease poultry life cycle one week

6
Advanced nanotechnology formulation

Natural ,Healthy ,Organic, Eco-friendly

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Innovation Challenge

Competitive analysis

	Kadry Group	Grow K Probio	Biopran
local			
Low Cost			
Natural , organic			
Growth promoter			
Immunstimulant			
FA particle size	Nanoparticles	Medium particles	Large particles

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Business model

Revenue stream

Direct sales



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Innovation Challenge

Financial projection and Traction





2022

-Startup registration

-Batch Production of 12 kg

2023

-Expansion in Fayoum and behira

- product validation

-Access to 10 breeders

2024

-Buying grinding machine for production

-Manufacturing nanomachine



2025

-Launching our product In Egypt

-Expansion in Egypt governorates

-Reaching to 100 breeders

2026

-Covering most breeders in Egypt

-Expansion in Africa

AgriTech4Egypt
Innovation Challenge

Team



Mohamed abd el- monem
operation manager
&clinical phase specialist



Mohamed Yousef
Vet Disease consultant



Mohamed Gamal
Poultry Nutrition
consultant
PhD in non-Traditional
poultry nutrition

Sara el-dakhly
Co-founder &Technical
manager
Mater in nanoscience and
nanotechnology



Gehan kadry
CEO &
Financial manger
MBA holder



Engy Mahmoud
Marketing manger



Aqualife-iFarms

AgriTech4Egypt

Innovation Challenge



Aqualife-iFarms

Bringing intelligent to the farm for the love of people, profit and planet.

AgriTech4Egypt
Innovation Challenge

Aqualife-iFarms





- **Low Productivity due Fish mortalities**
- **Low Market Visibility**
- **Water Use Efficiency**

816,000+

Egypt small holder farmers.

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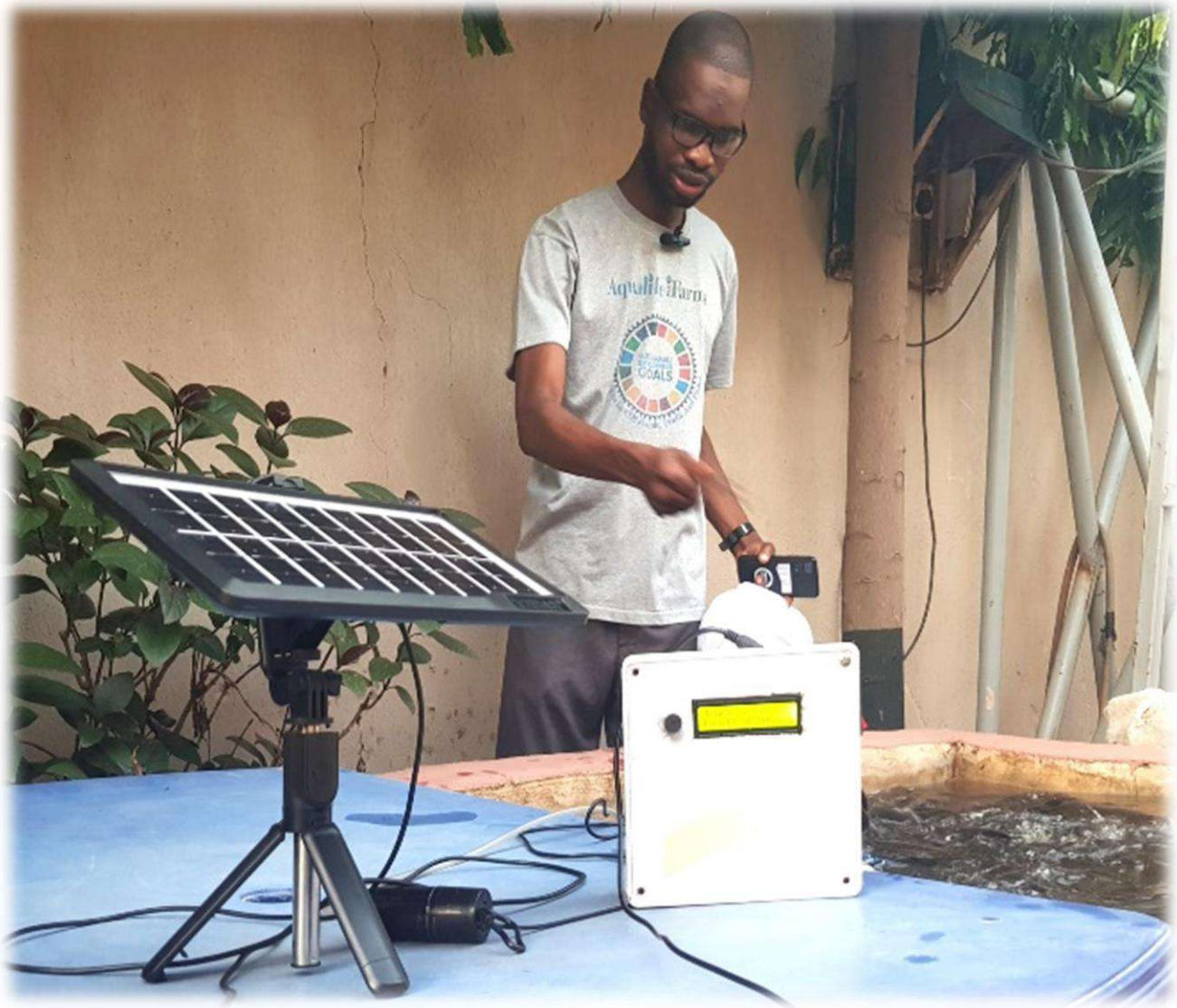
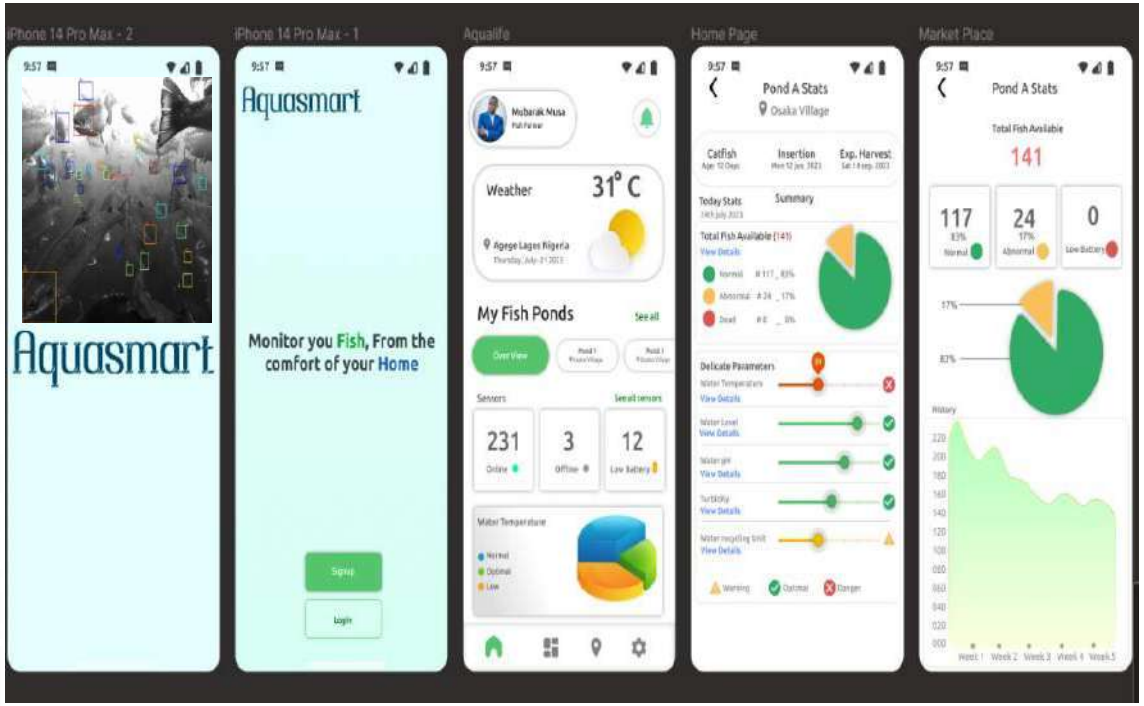
Innovation Challenge

Aqualife-iFarms





- **Real time monitoring**
- **Water use efficiency**
- **Reduce mortality**
- **Market access**
- **Instant troubleshooting**

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Innovation Challenge

Aqualife-iFarms





TAM



SAM
816,000

SOM
200,000

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Innovation Challenge

Aqualife-iFarms



Integrated Solution



One stop Market place



Instant troubleshooting

	Instant Troubleshooting	Marketplace	Integrated Solution	Circular Economy
Aqualife	Yes	Yes	Yes	Yes
ReNile	NO	NO	YES	YES
Cropsa	NO	YES	NO	NO
Bea Mahsolk	NO	YES	NO	NO

B2B MODEL

dts
direct tech sales





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Innovation Challenge

- **AgriTech for Egypt**
- **KAD Innovation Hub Grant.**





2024
Final Patent Filed and Operation document

Partners Secured

2025
Capture first 100,000 farmers and deploy solution and also the Market place.

2026
Expand user base to over 50% of women

2027
Pilot the Aquaponics

AgriTech4Egypt
Innovation Challenge

Aqualife-iFarms



Sufyan Binyamin CEO/ Biologist/ Aqua Entrepreneur



Mubarak Aminu COO/Business Developer



Fatima Binyamin CFO/Marketer



Kamaludeen Aliyu AI/IoT Engineer



Dr. Ibrahim Abdulrazaq CSO/ Aqua-Vet.

Thank You!

This project is made possible thanks to the support of our partners.

The AgriTech4Egypt Innovation Challenge is organized as part of

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Alliance Bioversity & CIAT

ICARDA Science for resilient livelihoods in dry areas

IFPRI INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

IWMI International Water Management Institute

أكاديمية البحث العلمي والتكنولوجيا THE ACADEMY OF SCIENTIFIC RESEARCH & TECHNOLOGY

وزارة التعليم العالي والبحث العلمي MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH

Chemonics Egypt Consultants

Berytech powering potential

PRIMA PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

CRAF CLIMATE RESILIENT AFRICA FUND

ALEXBANK Intesa Sanpaolo Group

syngenta foundation for sustainable agriculture

SEKEM

Networking lunch

Please make your way to the Restaurant on ground floor

Zaccari, C. (2024) AgriTech4Egypt Innovation Challenge: Bootcamp Pitch Day. Rome (Italy): Bioversity International and International Center of Tropical Agriculture. 328 p.