



BioArmix™

Turning Nature's Predators
Into
Crop Protectors

Dr. Tzvi Zvirin CEO & Co-Founder



● BIOARMIX AT NUTSHELL

Innovative Solution

Pioneering the use of **naturally occurring, Non-GMO** predatory bacteria combats gram-negative pathogens.

Significant Market Impact

Addressing **40%** annual crop loss from plant diseases with bacteria being a major contributor

Proprietary Technology

Encapsulation maintains viability as **dry powder at room temperature**, ensuring ease of storage and logistics.

Environmental Sustainability

Eco-friendly alternative to chemical pesticides, **reducing environmental harm** and promoting sustainable farming.

Experienced Leadership

Led by **a team of experts** with extensive backgrounds in biotechnology and agriculture

Recognized Innovation by EIT Food FAN!

Proven in the field with leading potato growers.



biotope by VIB



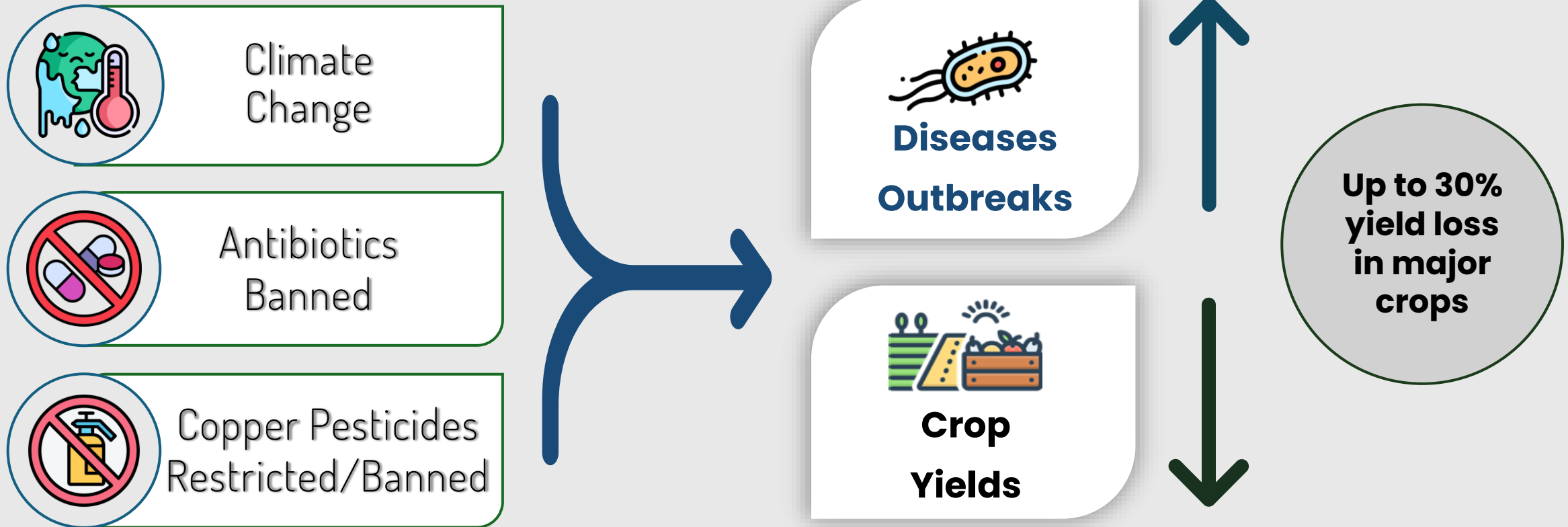
OUR VISION

Helping farmers
worldwide overcome
climate-driven crop
challenges and prevent
billions in yield losses.



THE PROBLEM: YIELD LOSS FROM BACTERIA

Climate change and restrictions on copper-based pesticides and antibiotics in agriculture intensify the frequency and severity of bacterial disease outbreaks.

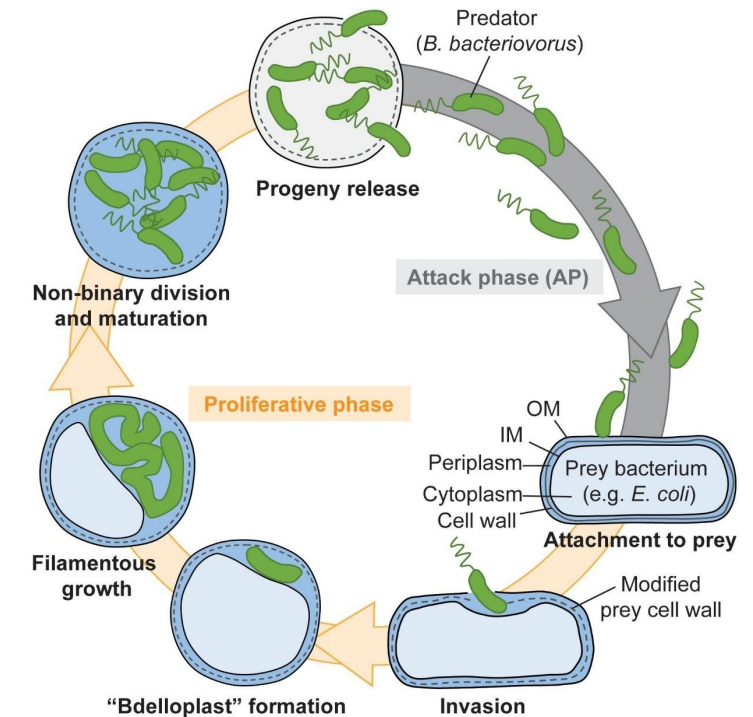


● OUR SOLUTION

Naturally existing, non-GMO, predatory bacteria

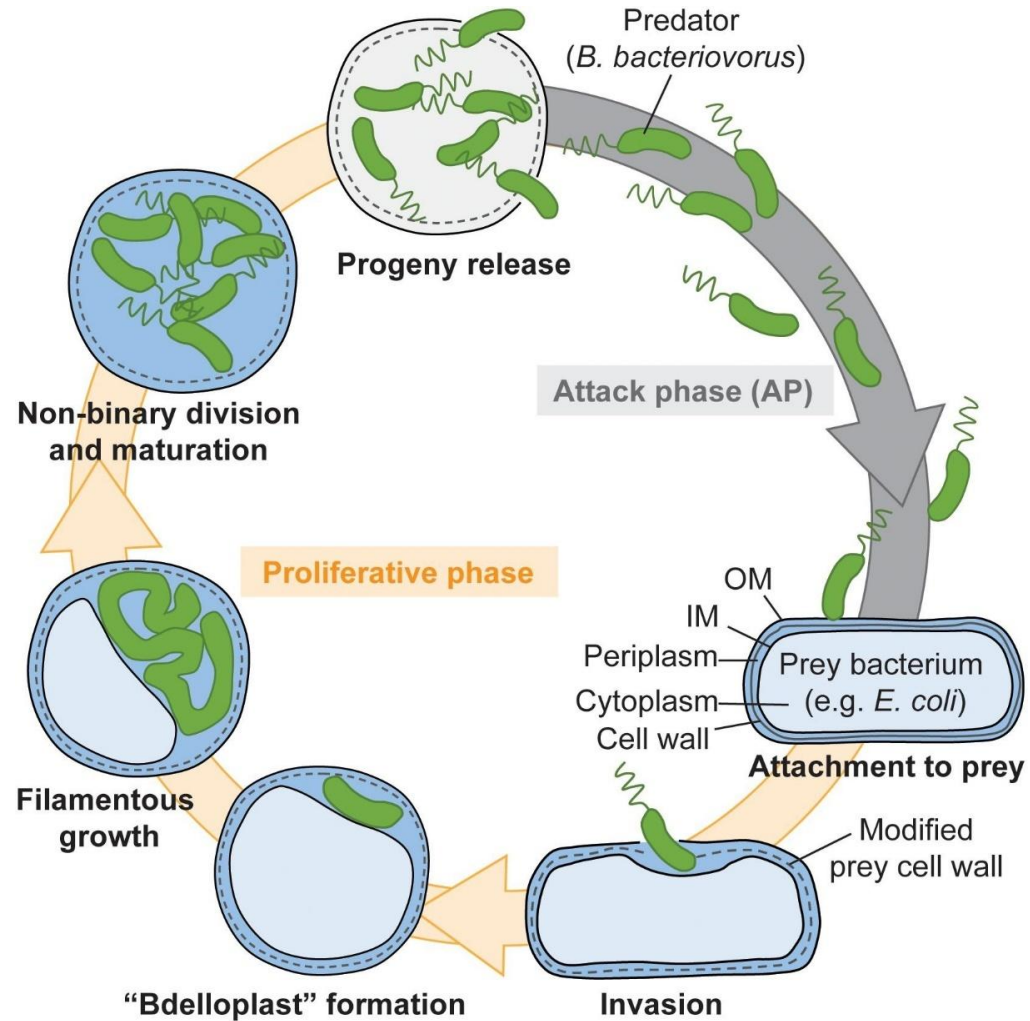


The Predatory Growth Cycle



Source: <https://doi.org/10.3389/fmicb.2019.03136>

OUR SOLUTION



We have a proprietary technology for combating bacterial-driven diseases by harnessing naturally existing, non-GMO, predatory bacteria.

● IP: MULTILAYERED DRY ENCAPSULATION

Unique dry powder encapsulation enables predator storage at room temperature for years.

Predator-prey synergistic grow system



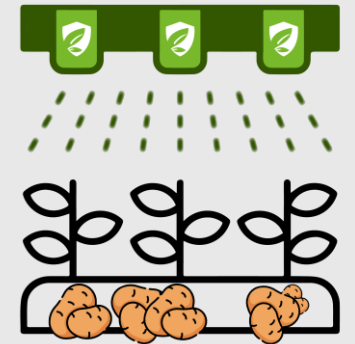
Proprietary product encapsulation



Dissolved in liquid on demand



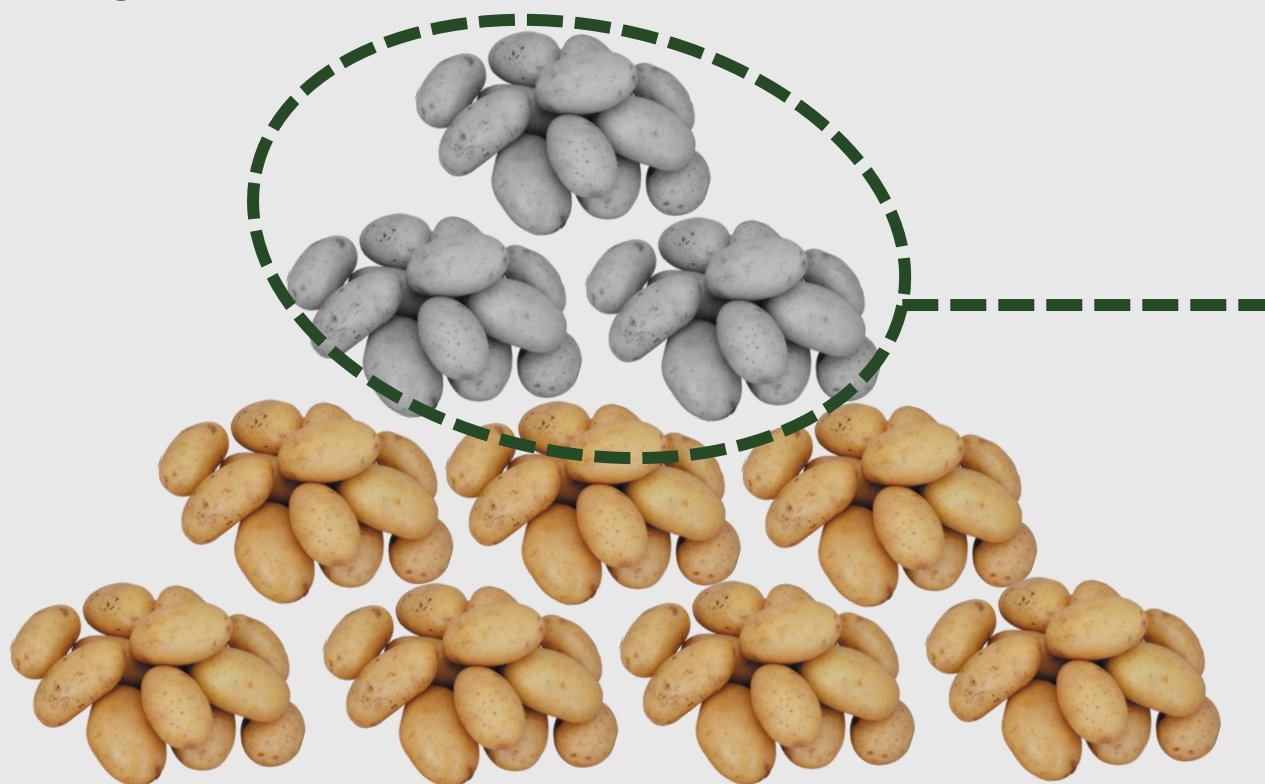
Seamless Use in Agriculture





SAVING FIELD CROPS: POTATO FIRST

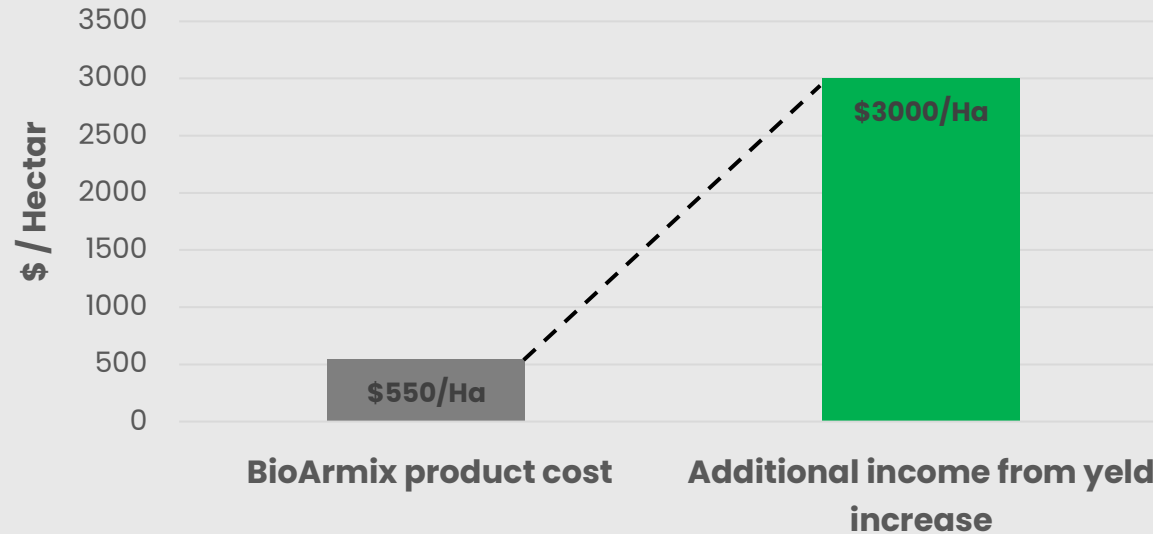
The **4th most important crop**, with an annual global production of over 370 million tonnes*. **Looses up to 30% to bacterial diseases** during various growth stages#.



**Addressing
\$20B
In Global Crop
Losses**

● FIELD-PROVEN TECHNOLOGY

Grower ROI Per Hectar



A total of **1 kg per hectare of BioArmix** boosts potato yields to deliver ~**5X ROI** per hectare even in top-performing seasons.



● TRACTION & ACHIEVEMENTS

Vertical	Lab Proven	Number of Paid Pilots in Progress	Geography
Potatoes	✓	6	Israel, Netherlands, Germany and the US
Sugar Beet	✓	1	Germany
Appel & Pear	✓	0	In development
Aquaculture	✓	2	Israel
Biofilm prevention	✓	1	Israel

* Full data available in the annex

● MARKET ENTRY STRATEGY

Regulatory-First Approach

Secure regulatory approvals in each target market before commercialization with potential emergency authorization pathways for accelerated market entry.

B2B Business Model

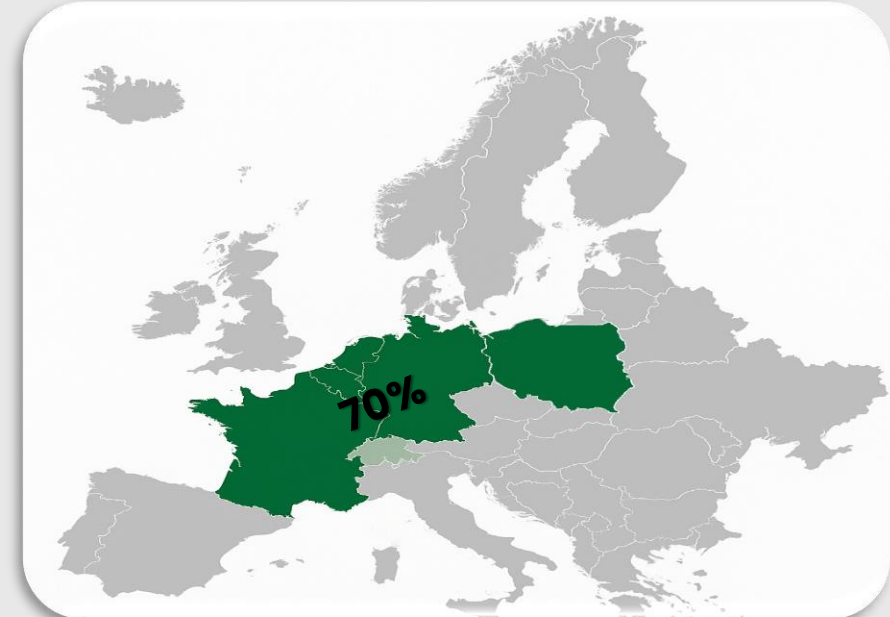
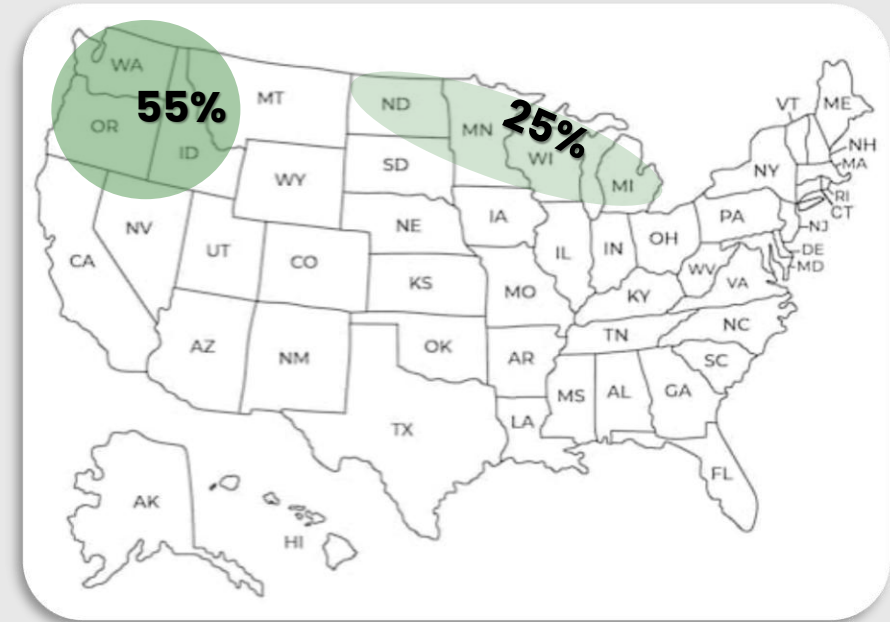
Targeting large-scale growers, seed producers, cooperatives, and distributors in a highly consolidated market, geographically and in terms of large players.

Strategic Partnerships

Forge strategic partnerships through distribution agreements with major agricultural suppliers, licensing deals with pesticide manufacturers, and collaborations with cooperatives and seed producers to drive market expansion and adoption.

Scalable Expansion Strategy

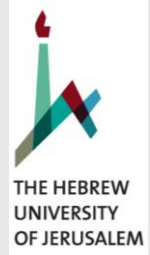
Leveraging early success to expand into additional crops and global markets.



● COMPETITIVE LANDSCAPE

	 BioArmix™	Bacteriophage solutions	Antibiotics	Cooper based pesticides
Bio pesticide	✓	✓	X	X
Application agnostic	✓	X	✓	X
Risk free for resistant bacteria development	✓	X	X	✓
Safe for the environment	✓	✓	X	X
Animal friendly	✓	✓	X	X
Available for use	In the Regulatory Process	In the Regulatory Process	Banned	Banned/Heavily Regulated

OUR JOURNEY



Spin-out from The Hebrew University of Jerusalem after 4 years of development with exclusive license for all fields.

Jan 24



Equity investment of **\$900K**

BioArmix Ltd. Founded under GO Innovation Incubator and Israel Innovation Authority

Feb 24



Strategic Partnership with YDLabs for process development established

May 24



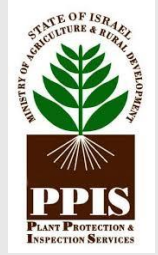
POC with potential partner, **Global leader** in Sugar Beet

Jul 24



Large Scale Field Pilot & Post Harvest Studies with the largest Israeli grower cooperatives (YAHAM)

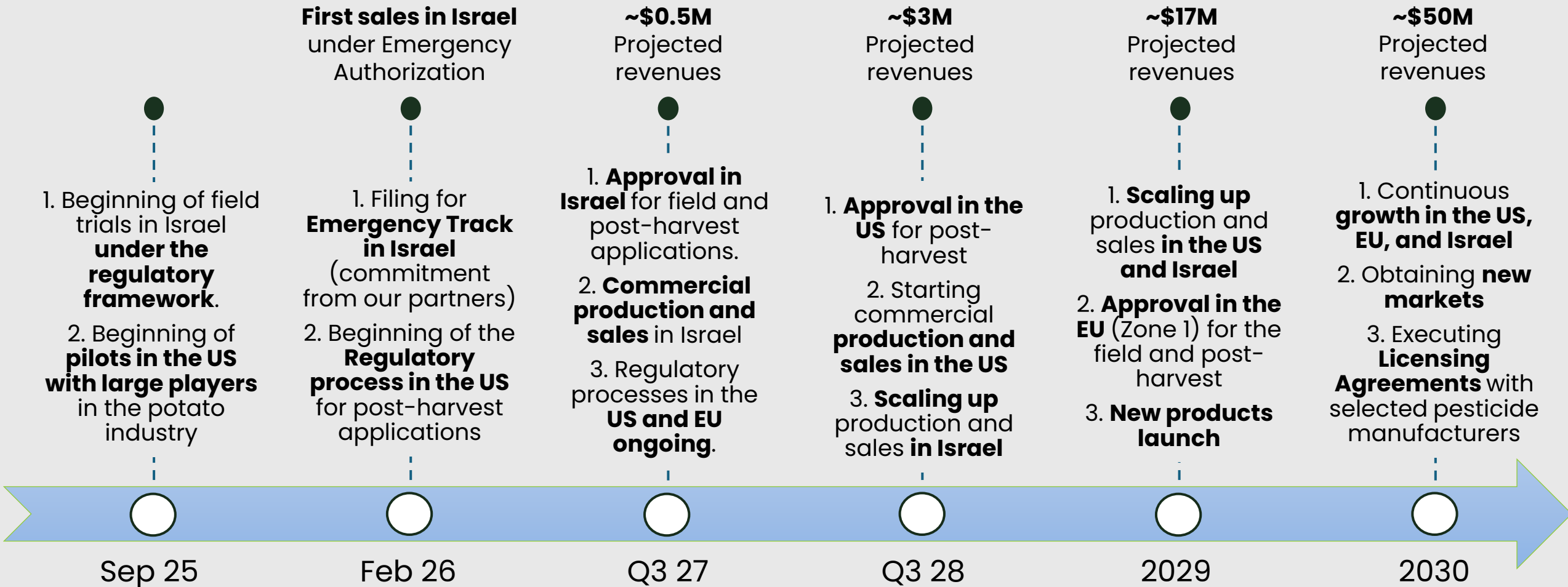
Sep 24



Bio Pesticide regulatory authorization: Submission for field studies in Israel

Jan 25

OUR WAY FORWARD



THE TEAM



Dr. Gal Sason

Co-founder & R&D Leader

Developed the technology hands-on from idea to proven POC. (HUJI, Sufresca)



Dr. Tzvi Zvirin

Co-founder & CEO

Former founder & VP BizDev at BioBetter Ltd.
Raised \$6M+ for several projects. (BioBetter, SmartResilin, RubisPro)



Dr. Shiri Elmedvi Baran

Process Development Leader

Proven process developer in different industries. (Salzman group, BioBetter and Yemoja)



Ghenwa Samara

Process Development Scientist

Ghenwa Samara is a BSc. MBA, an engineer specializing in fermentation process development



TBD

Student Position for Process Development



TBD

Agronomy Specialist



TBD

QA/RA Leader

THE ADVISORY TEAM

Scientific Advisory



Prof. Amos Nussinovitch
Co-founder & Scientific Advisor

A world-leading expert in food technology and encapsulation (HUJI, Sufresca)



Prof. Edouard Jurkevitch
Co-founder & Scientific Advisor

A world-leading expert in BALOs' ecology (HUJI)

Process Advisory



Dr. Moti Rebhun
Process Upstream Advisor

A world-leading expert in fermentation. CEO at Israeli Fermentation Society. CTO at YDLabs.



Mr. Michael Spevak
Process Downstream Advisor

Manufacturing Engineer with 30 years of international experience. Head of Downstream at YDLabs.

Business Advisory



Ms. Taly Nechushtan
Business strategy advisory

Co-Founder & Vice Chair at Innovopro, Board member, business builder, Renewable energy and climate tech expert.

Regulatory Advisory



NSR-Ag
Israel Regulatory Advisory

Founded by Dr. Tomer Feldmann is a leading Israeli consultancy for registration of crop protection products

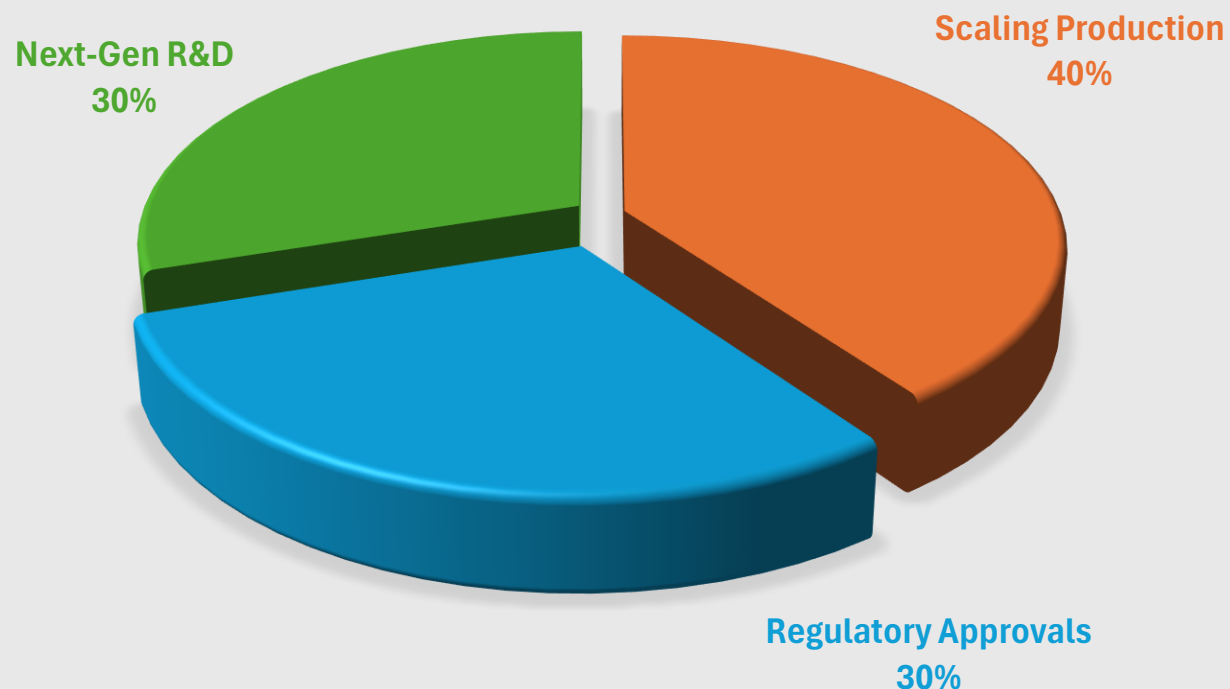


Intertek
US & EU Regulatory Advisory

Leading US & EU regulatory advisory agency covering many verticals, with extensive expertise in Food & Ag

● ROUND STRUCTURE ● & USE OF PROCEEDS

USE OF PROCEEDS



- **Funding Round:** Currently targeting a \$1-2M equity increase with existing investors committed to participation.
- **Runway & Profitability:** Our business plan outlines a total funding requirement of \$7 million to support operations through 2029, in alignment with our projected timeline to reach profitability.
- **Key Allocations:**
 - Scaling Production – Expanding capacity to support market entry.
 - Regulatory Approvals – Advancing U.S. (EPA) and EU authorization.
 - Next-Gen R&D – Developing future biopesticide innovations.
- **Capital Efficiency:** Manufacturing will be outsourced through a Co-Manufacturer model.



BioArmix™

Join us on our mission to empower farmers worldwide by helping them prevent crop losses and boost their yields.

Get in touch:

Tzvi Zvirin Ph.D., CEO

Tel: +972.52.6751014

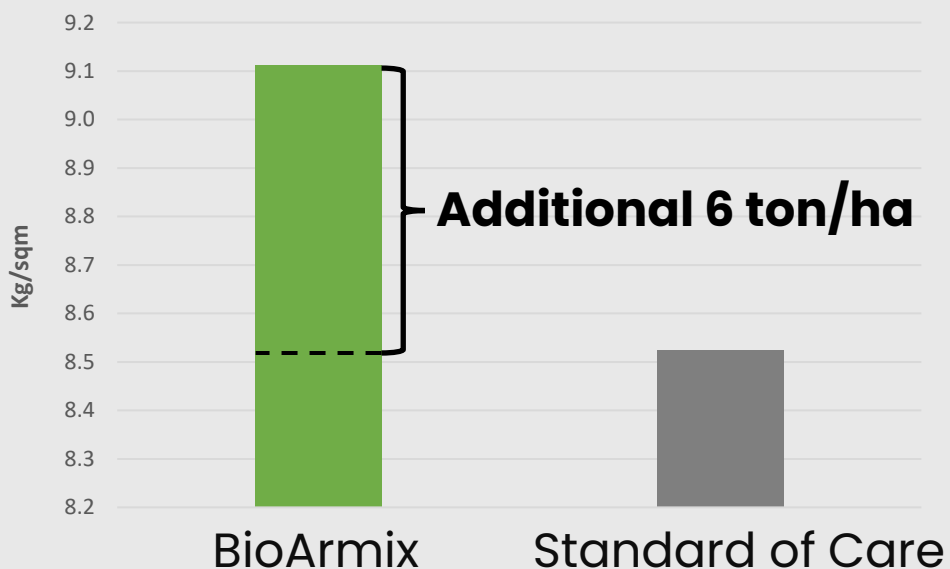
Email: tzvi@bioarmix.com



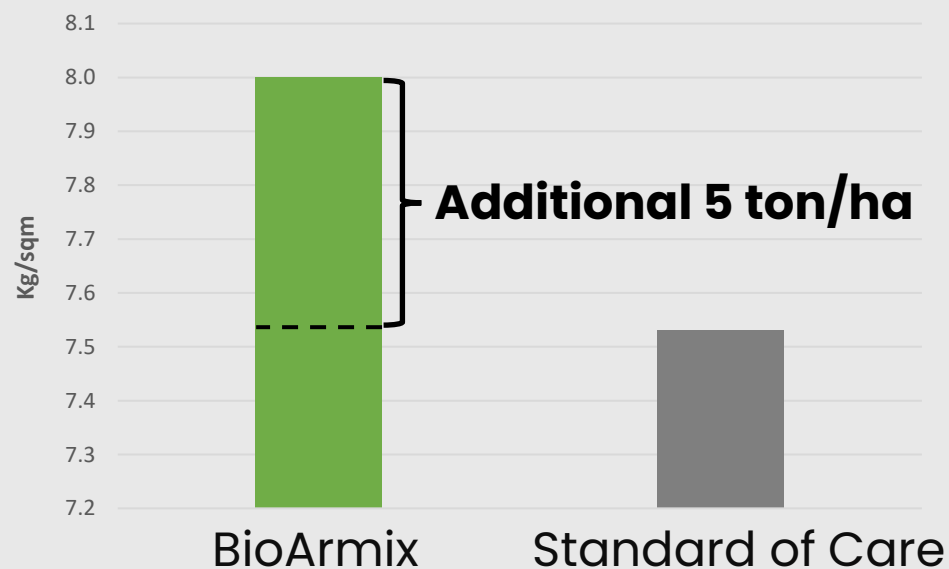
● POSITIVE INDICATION FOR YIELD INCREASE

We conducted 2 **seasonal field studies** with **Yaham & Gali Moshe**, the 2 **largest Israeli potato growers**. We compared different treatments to the standard of care (no artificial inoculation). We showed a **7% yield increase** in continuous treatment and a **65% decrease in decay potential** after a single application.

Treatment 1 – Spraying



Treatment 2 – Dipping



Product End Price:

Expected to be \$550/Kg

Treatment Volume:

1Kg/ha in 3 applications

Potato Price:

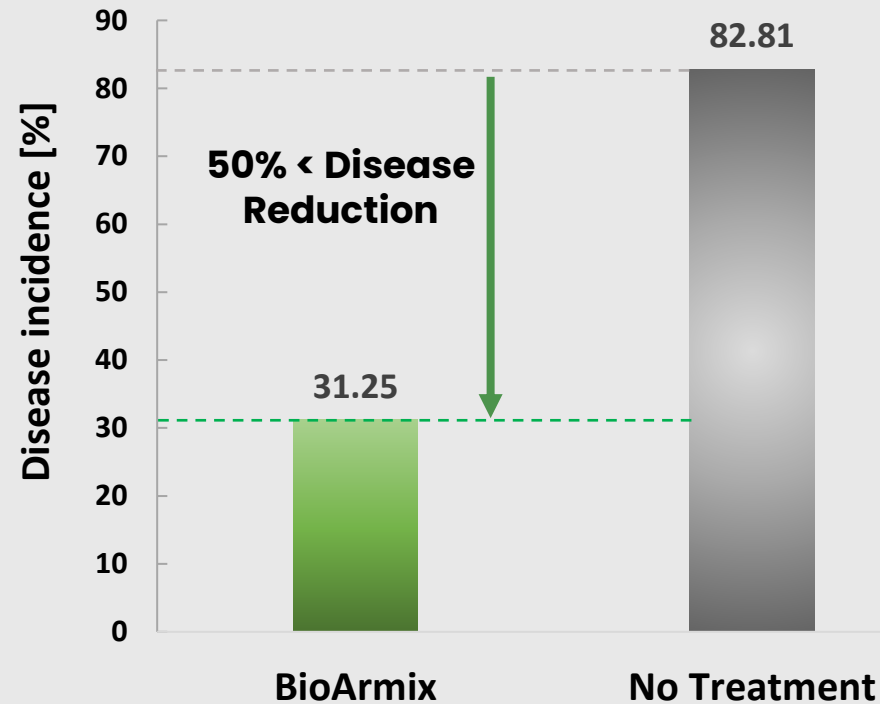
The current farm gate price is \$500/Tonne

$5.5 \times 500 - 550 = 2,200$
\$/ha Additional Income

● PROVEN DISEASE REDUCTION IN POTATO

Whole potatoes in soil infected with *Pectobacterium Brezilense*

 BioArmix™



NO TREATMENT



● POST-HARVEST TREATMENT SIMULATION

We aim to **replace hypochlorite in post-harvest treatments** with BioArmix, a sustainable and eco-friendly alternative. Independent testing by a laboratory under the Israeli Ministry of Agriculture has confirmed its efficacy, **showing first results nearly identical to hypochlorite**.



Agricultural Research Organization
Gilat Research Center
Plant Disease Diagnostic Laboratory



מינהל המחקר
מרכז מחקר
מעבדה לבדיקת מחלות צמחים
גילת נגב

Sample	Decay %
BioArmix	1.3
Water	5.4
Hypochlorite	1.1

● WIDE GLOBAL CATEGORIES FOR IMPLEMENTATION

**Field
Crops**



**Fruit
Trees**



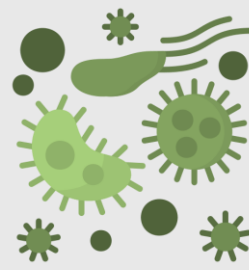
**Ornamental
Plants**



**Inland Fish
Farming**



**Biofilm
Removal**

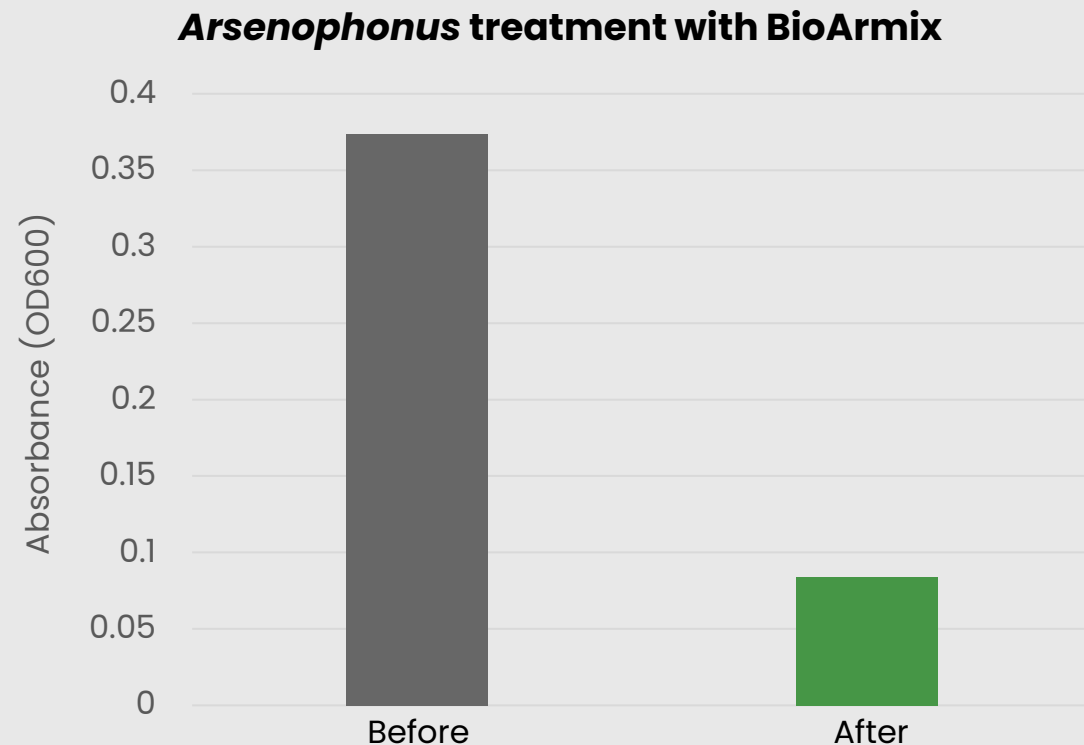


**Medical
Applications**



● SUGAR-BEET PATHOGEN PREDATION

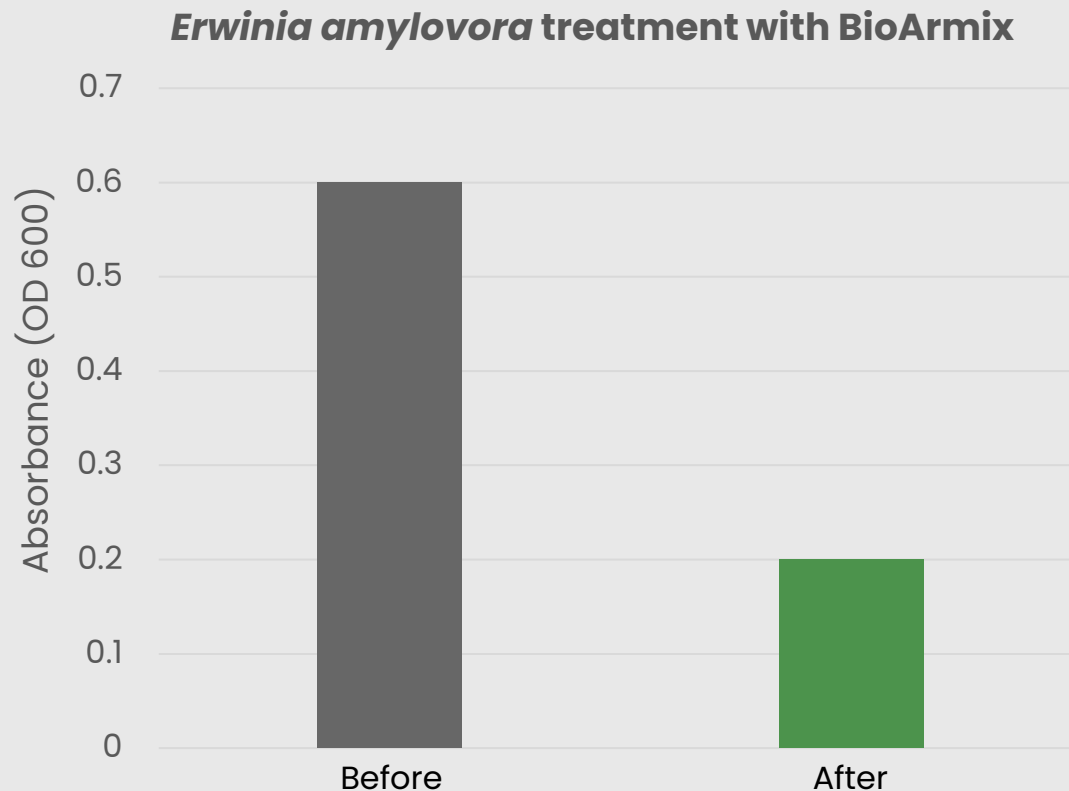
Arsenophonus Phytopathogenicus is a gram-negative bacteria **causing devastating SBR disease in sugar-beet in Europe**, and it is now spreading to potato crops as well. The disease is transmitted by the planthopper insect and has NO available solutions. **We show for the first time the ability to effectively eradicate *Arsenaphonus* bacteria in the laboratory.** This work was conducted in collaboration with European Corporation, and a large pilot is in the making.



<https://doi.org/10.1094/PDIS-04-23-0613-RE>

● APPLE & PEER PATHOGEN PREDATION

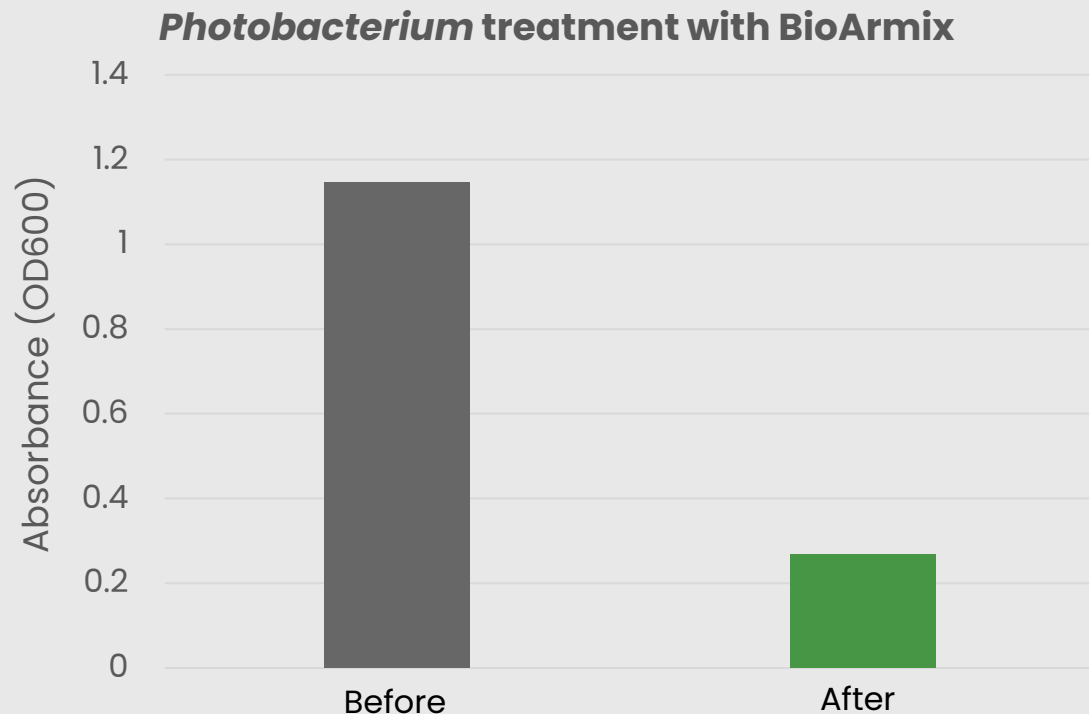
Erwinia amylovora causes fire blight, a **destructive bacterial disease** that **rapidly kills pome fruit trees** like apples and pears, often **leading to severe orchard losses**. In our laboratory studies, **fluorescently tagged predators** effectively prey on *E. amylovora*, with **successful predation** indicated by an **elevated fluorescent signal**.



<https://bugwoodcloud.org/images/384x256/1496144.jpg>

● AQUACULTURE PATHOGEN PREDATION

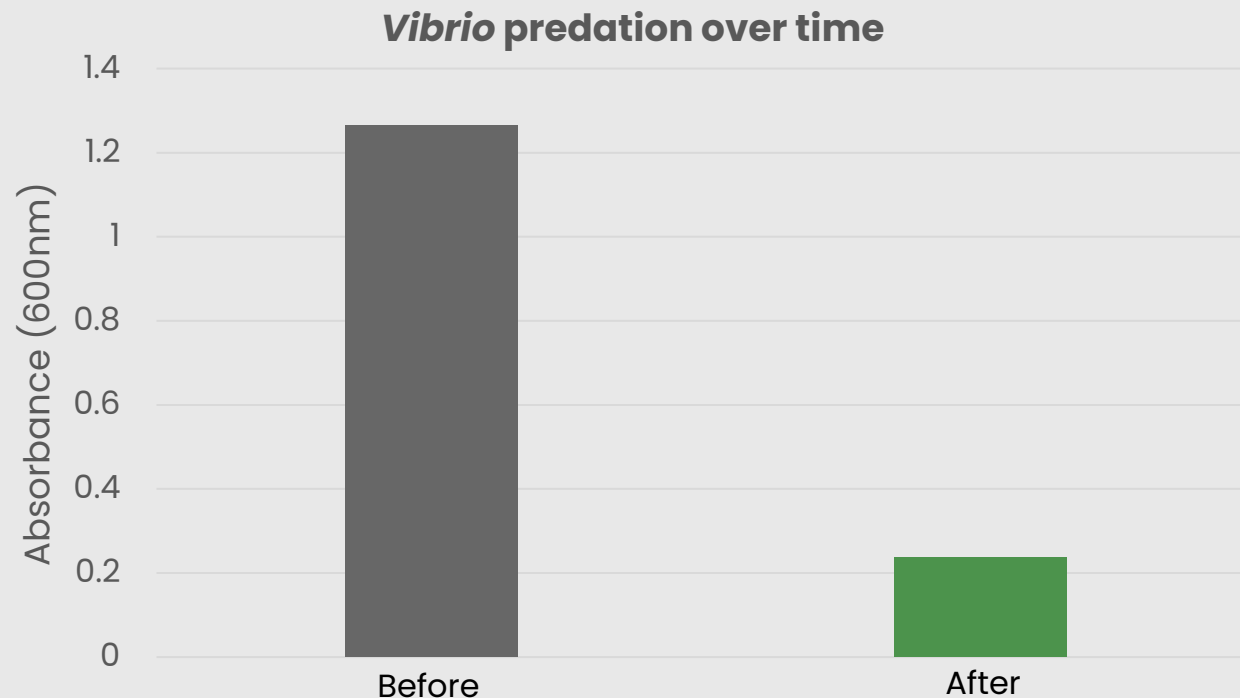
Photobacterium damsela causes severe bacterial infections in aquaculture species, particularly fish and shellfish. **Significantly impacting farmed species** such as **seabass, groupers, and shrimp**. Outbreaks **result in major economic losses** due to decreased yields, increased treatment costs, and trade restrictions. **We show the ability to effectively eradicate *Photobacterium* in the laboratory**. This work was conducted in collaboration with the Israel Ministry of Health. **A pilot with fish is in the making.**



<https://doi.org/10.1016/j.aquaculture.2018.12.088>

● AQUACULTURE PATHOGEN PREDATION

Vibrio alginolyticus is a pathogenic marine bacterium that causes vibriosis in aquaculture species, **affecting a large variety of fish, shrimp, oysters and mollusks**, especially in warm-water environments. Outbreaks **result in significant economic losses** due to reduced stock survival, increased disease management costs, and restrictions on seafood trade. **We show the ability to effectively eradicate *Photobacterium*** in the laboratory. This work was conducted in collaboration with the Israel Ministry of Health. **A pilot with fish is in the making**



<https://doi.org/10.1016/j.aqrep.2022.101459>

● PREVENTION OF BIOFILM FORMATION

We demonstrate **BioArmix's effectiveness in reducing the biological load** in irrigation pipes and **preventing biofilm formation** on injection-molded drippers. The proof of concept was conducted **in a real-world environment** in collaboration with a world-leading industrial partner.

