PlantArcBio

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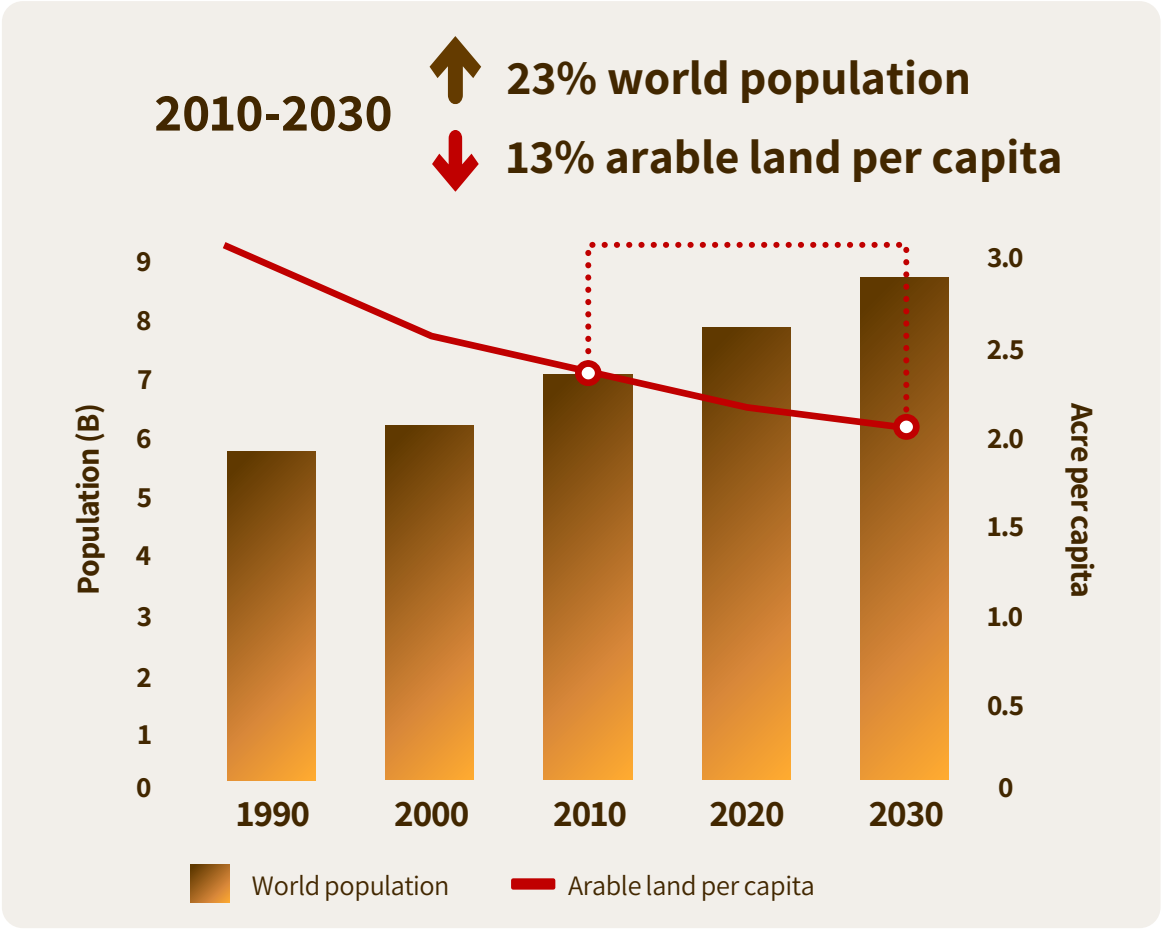
Genes made by Nature

The Need

Global Food Security Challenges

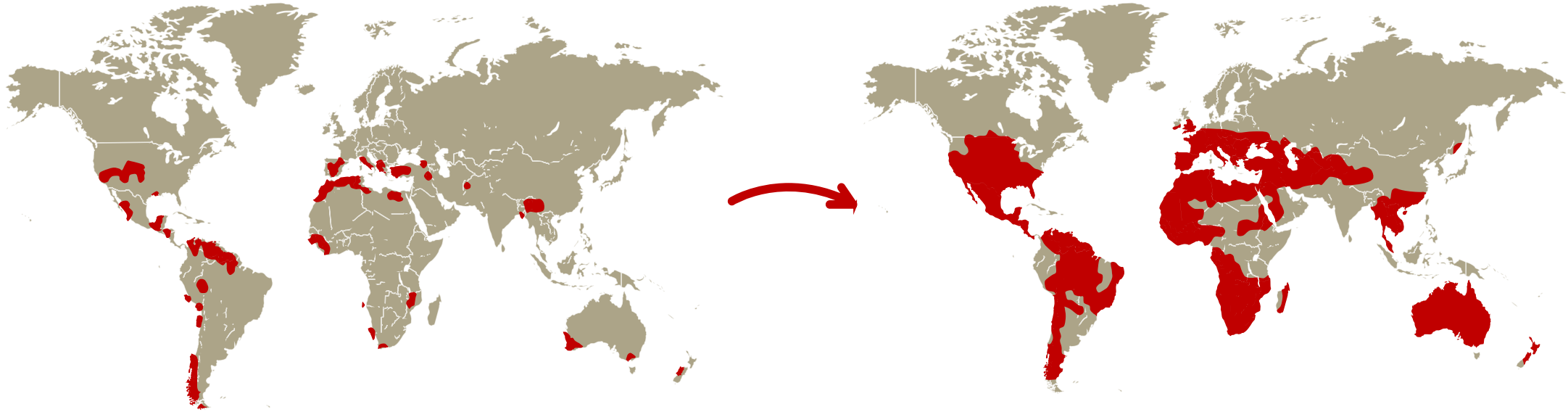
- Climate change, desertification
- Increasing population
- Less arable land available
- Pests and diseases destroy 40% of global crops
- Demand for sustainable agriculture



Source: FAO

Drought Prevalence is Increasing

2011 status **2050 prediction**



Drought in arable lands

U.S. agriculture losses due to drought:

$10-14 billion annually

PlantArcBio

Source Source

About Us

PlantArcBio

PlantArcBio

Our mission

We are addressing global food security challenges by leveraging our proprietary biotechnology platforms to improve plant performance and biologically control plant pests

Experts in Discovering & Leveraging Genes

Addressing Global Food Security

DIP ™
Gene Discovery for improving target traits in agricultural crops

DIPPER ™
Direct In Plant Platform improving genes for Gene Editing

RNAi and biological pest control and yield increase

IP Status

1

DIP™

- Basic patent – Method & Drought tolerance genes
  Granted in:
  USA, Europe, Australia, South Africa, Mexico
- Drought tolerance – 2 genes
- Herbicide (HPPD) Tolerance
  Granted in:
  USA, South Africa
- Herbicide (PPO) tolerance

1

DIPPER™

- Basic patent – Method & soybean promoter
  Granted in:
  Israel
- Modified Herbicide (PPO) tolerance

2

RNAi

- RPW control (Gadot)
  Granted in:
  USA, Israel, Morocco
- Topical application (ICL)

Our Team

Dror Shalitin, PhD
Founder and CEO

Limor Davidson Mund, MBA
VP Business Development

Nicholas Rutley, PhD
Chief Scientist

Ruchama Griba Salman, CPA
CFO

Team of PhDs and MScs

Plant physiology, molecular biology, biotechnology, genetics and breeding, agronomy, and plant protection

PlantArcBio

Board Of Directors

Dror Shalitin, PhD

Founder and CEO

Prof. Oded Shoseyov

Chairman

- Professor at the Hebrew University
- Scientific founder of 17 companies
- Board member in various biotechnology companies

Shmulik Barashi

Partner at Fortissimo Capital Group

Serves as board member in several public companies and Fortissimo's companies

Micha Danziger

Owner of Danziger Flowers

- Chairman at Danziger Flowers
- Chairman at Equinom

Amichay Rab, CPA

CFO at Seach Medical Group

Avi Zigelman, CPA

Outside Director

- Financial consulting, , arbitrations and mediations
- Outside director in leading Israeli companies

Ofra Yamin, CPA

Outside Director

- Partner at Shaham and Co. CPA firm
- Outside director in several companies

Advisors

Suzana Nahum Zilberberg

Strategic and business consulting

- Former BioLight CEO
- Former VP APAC in Teva
- Board members in several companies

Brad Shurdut (PhD)

Regulatory & Government affairs strategist

Former VP at Corteva Agriscience

DIP™

DIPPER™

RNAi

Technologies

PlantArcBio

DIP™ (Direct In Plant) – Discovery Platform

Millions of genes

Millions of genes in millions of plants

1-20 leading genes

Building a gene pool from nature
Samples from different locations in nature

Transforming all genes into plants at once (1 gene in each plant)

Applying selection to screen best performing plants to identify desired genes, e.g.:

- Water stress for drought tolerance
- Herbicide sprays for HT tolerance
- Nitrogen-limiting stress for fertilize use efficiency
- Etc.

- **Quick scan of millions of genes directly in model plants (weeks to months)**
- **Novel, unknown genes**
- **Direct utility in plants (not theoretical)**
- **Low cost per gene tested**

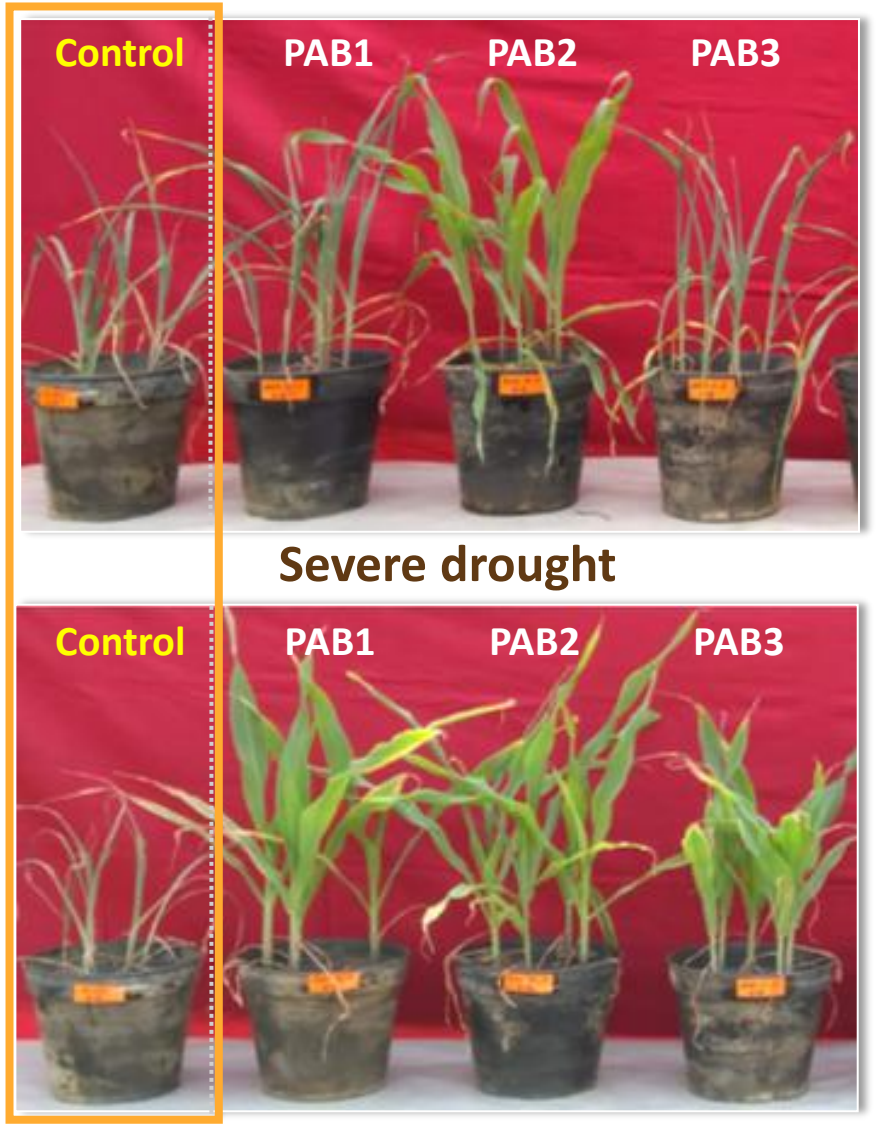
Drought Tolerance in Corn with our Genes

Trials performed by Rallis

100%

Recovery rate with PlantArcBio target genes after 22-28 days of water stress versus No recovery in control

PAB Target Genes	Days of water stress	Recovery rate (%)
Control – A188	**21**	**0**
PAB1	**22**	**100**
PAB2	**22**	**100**
PAB3	**28**	**100**
PAB4	**27**	**100**
PAB5	**23**	**100**
PAB6	**22**	**100**



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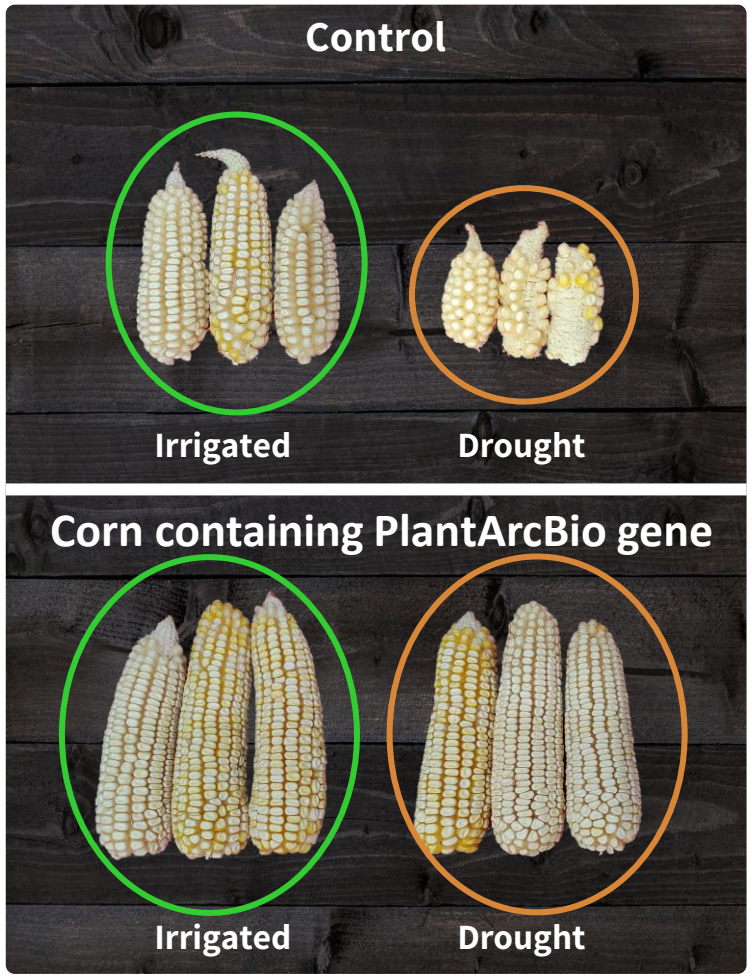
RALLIS INDIA LIMITED
A TATA Enterprise

Yield Increase in Corn – Unprecedented Results

Trials performed by Rallis

60-250%

Increase in the total kernel weight of corn plants containing PAB drought tolerance genes



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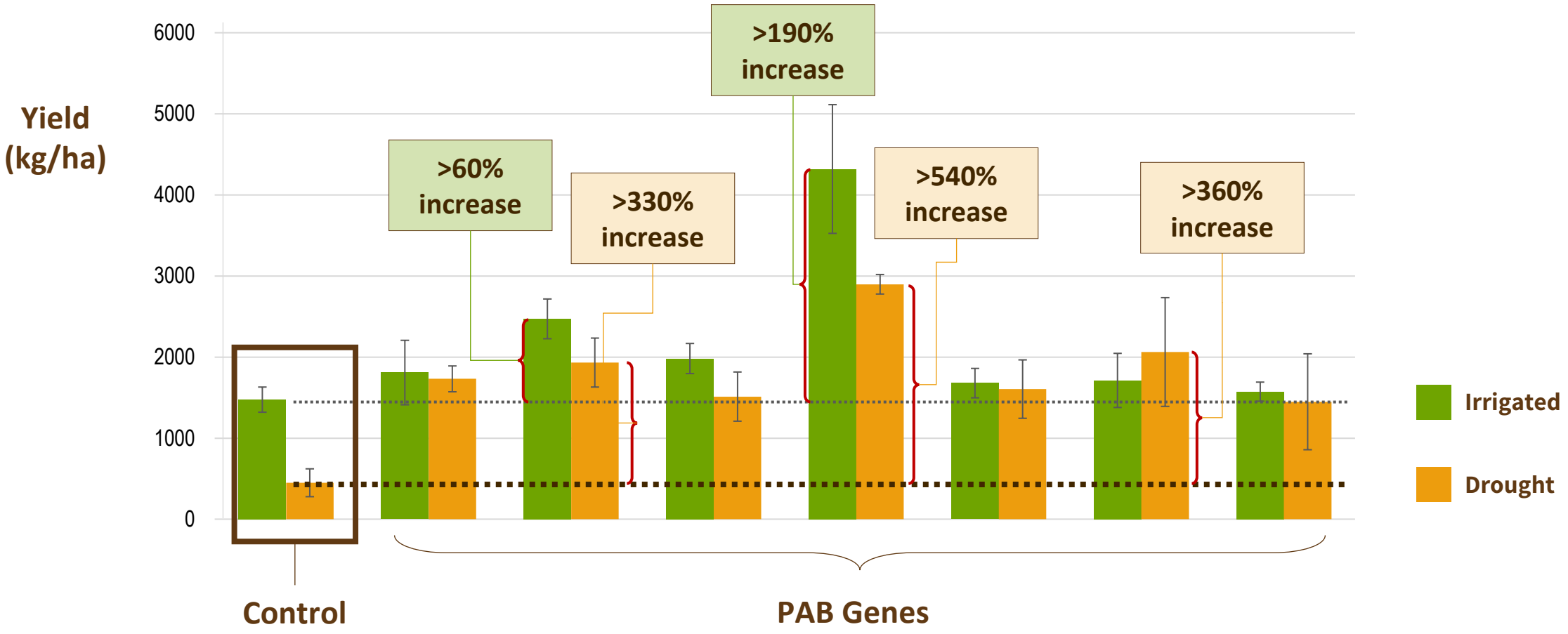
Press release

RALLIS INDIA LIMITED
A TATA Enterprise

Yield Increase in Corn – Unprecedented Additional Results



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RALLIS INDIA LIMITED
A TATA Enterprise

Corn is Just the Beginning…


Alfalfa


Canola


Wheat


Cotton


Rice


Trees


Soybean

Herbicide Tolerance (HT)

DIP ™ enabled us to discover excellent HT genes faster & cheaper

HPPD Inhibitor Herbicide Tolerance Gene

- Discovered a novel gene (patent-protected) enabling plant tolerance to a wide range of HPPD inhibitor herbicides.
- Gene showed tolerance to all tested group 27 herbicide compounds (model plants).
- **Was exempt from regulation in the US in Jan 2022 (for use in soybean and cotton).**

PPO Inhibitor Herbicide Tolerance Gene

- Highly resistant to Flumioxazin, Carfentrazone-Ethyl, Oxadiazon, and Oxyfluorfen PPO-inhibiting herbicides.
- Received a USDA-APHIS Approval in the US for planting and breeding soybean modified with a novel PPO inhibitor herbicide tolerance gene
- POC in soybean.

DIPPER™ – Discovery Platform for Gene Editing

IP Protected

The Need

Current gene editing processes are well designed for genes inactivation (knockout), however, for **genes improvement** they provide **limited, long, inefficient and expensive solution**

The Solution:

DIPPER™

Direct In Plant Platform for Edited Regulation

A disruptive, high-throughput method, essential for optimizing gene editing processes, such as CRISPR, to improve crop traits

Used for enhancing crop performance by **changing expression and/or altering the function of native genes**

Can be implemented for:

- Herbicide tolerance
- Protein and oil levels control
- Abiotic stress tolerance
- More

Fast & Efficient

Cost-effective

Suitable for many different traits and any species

DIPPER™

A high-throughput platform for identifying precise DNA modifications to improve native genes

1

Any target crop
Any trait

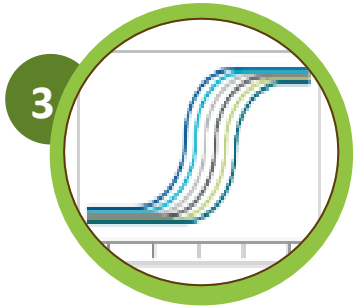
Screening 10^4-10^5 mutation library *in planta*

2

Several beneficial mutations

Identifying the top-performing variant

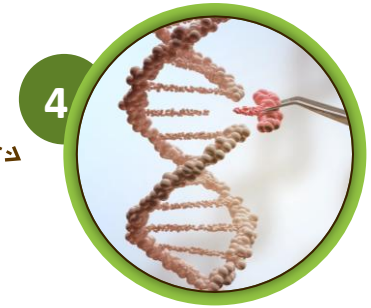
3



1 best performing mutation

Gene editing (CRISPR or other)

4



5

Optimized gene edited crop

DIPPER ™
by **PlantArcBio**

Gene editing
by **PlantArcBio or a partner**

PlantArcBio

Developing PPO Herbicide Group 14 Tolerant Soybean Using DIPPER™

1

Soybean PPO gene

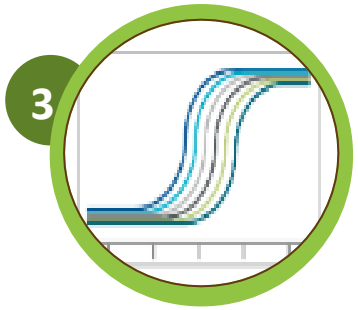
Screening 10^4-10^5 mutation library *in planta*

2

Completed

Identifying the top-performing variant

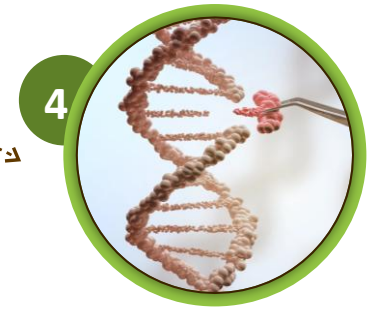
3



Completed

Gene editing (CRISPR or other)

4



In progress

Optimized gene edited crop

5

DIPPER ™
by **PlantArcBio**

Gene editing
by **PlantArcBio or a partner**

PlantArcBio

DIPPER™ Pipeline

Crop





Trait

Herbicide tolerance

Abiotic stress tolerance

Enhanced nutrition

- High Throughput
- Novel, unknown Mutations
- Enhanced gene expression
- Cost Effective

RNAi-based biological products

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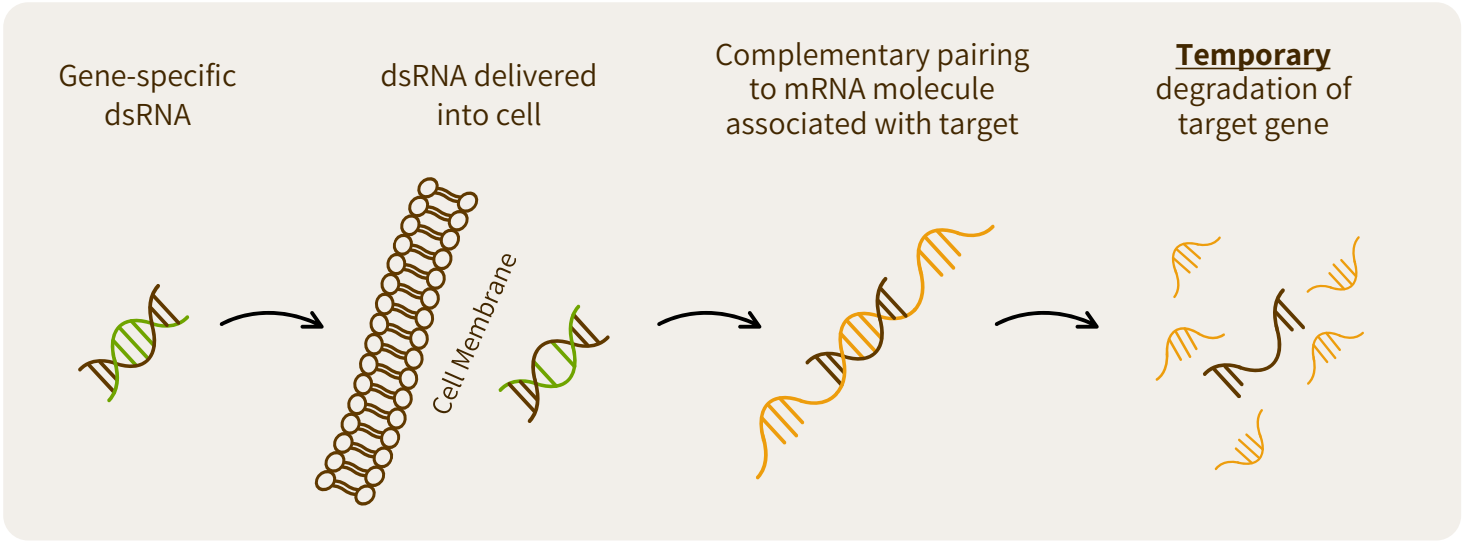
What is RNAi Technology?

RNA interference (RNAi) is a natural biological process in which dsRNA molecules temporarily regulate gene expression

- **For pest management** - RNAi approaches use a native process existing in pests, turning it against itself by targeting a specific, essential gene, temporarily degrading it, resulting in mortality of the pest
- For bio-stimulants - the company uses technology to temporarily change the expression of plant development genes, without permanent genetic modification of the plant

PlantArc Bio is one of the pioneering and leading companies worldwide in the development of green biological products based on RNAi for agriculture



Green

Non-toxic to the environment, bees, humans

Fully degradable

Short development and commercialization times compared to genetic modification

PlantArcBio RNAi Developments

5

Development and commercialization agreements

With strategic partners in the fields of biological pest control and yield increase

1st

RNAi product

To control the Red Palm Weevil is expected to reach the market in 2026 (Israel)*

Biological and ecological control of pests

- Collaboration with Gadot-Agro to control red palm weevil
- Collaboration with TMG to control cotton boll weevil
- More

Increasing crops yield

Collaboration with ICL in canola, rice and soybean crops

* Completion of the developments is conditional on R&D processes whose completion is not certain

Source

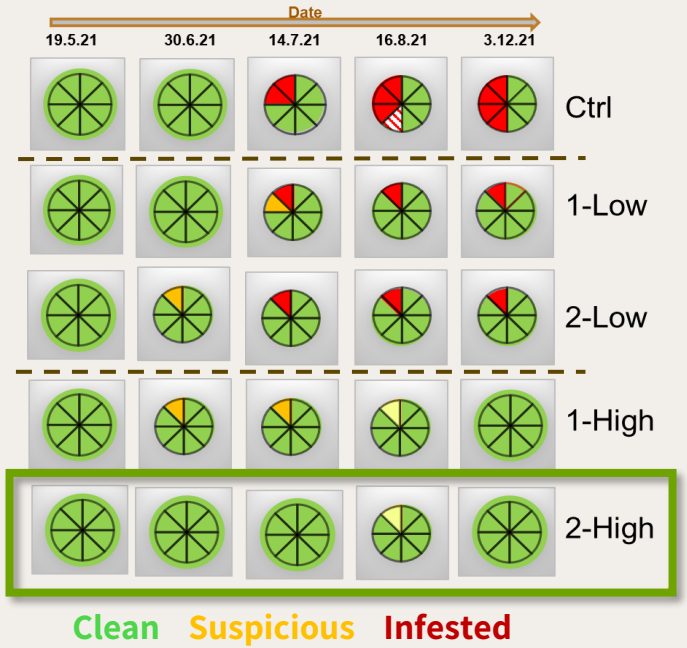
Pest Control – RNAi biological solution against Red Palm Weevil (RPW)

RPW is the most devastating pest of palms around the world

Market:

Annual losses of more than USD 213 million and USD 401 million in Egypt and Saudi Arabia, respectively

Positive results in Controlled Trial



- Novel **biological** pesticide
- **Targets specifically** only RPW
- **Green, non-toxic**
- **Application**: tree injection/spraying
- **Highly effective**
- **Commercial launch: 2026 (Israel)**

PlantArcBio

Source

GADOT Agro

Increasing Yields
Collaboration with ICL

Utilizing green exogenous biological applications to increase yield

- Collaboration since 2018
- We spray the plants once with RNA to temporarily reduce gene expression. The effect acts as a natural **bio-stimulant**
- This effect lasts for several days and results in increased crop yield
- Current crops: canola, soybean and rice
- Bio stimulants market:
  $3.9B in 2023, CAGR 11.6%
- **Expected commercial launch: 2027**

PlantArcBio

Let’s Plant the Seeds of Change Together!

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