



Genes made by Nature

Partial convenience translation only of the Company's investors Presentation published in Hebrew on 5.11.2020. The Appendices included in the Hebrew version is not included under this translation. The full and binding text is the one included in the presentation published in Hebrew as aforesaid.

Nov 2020

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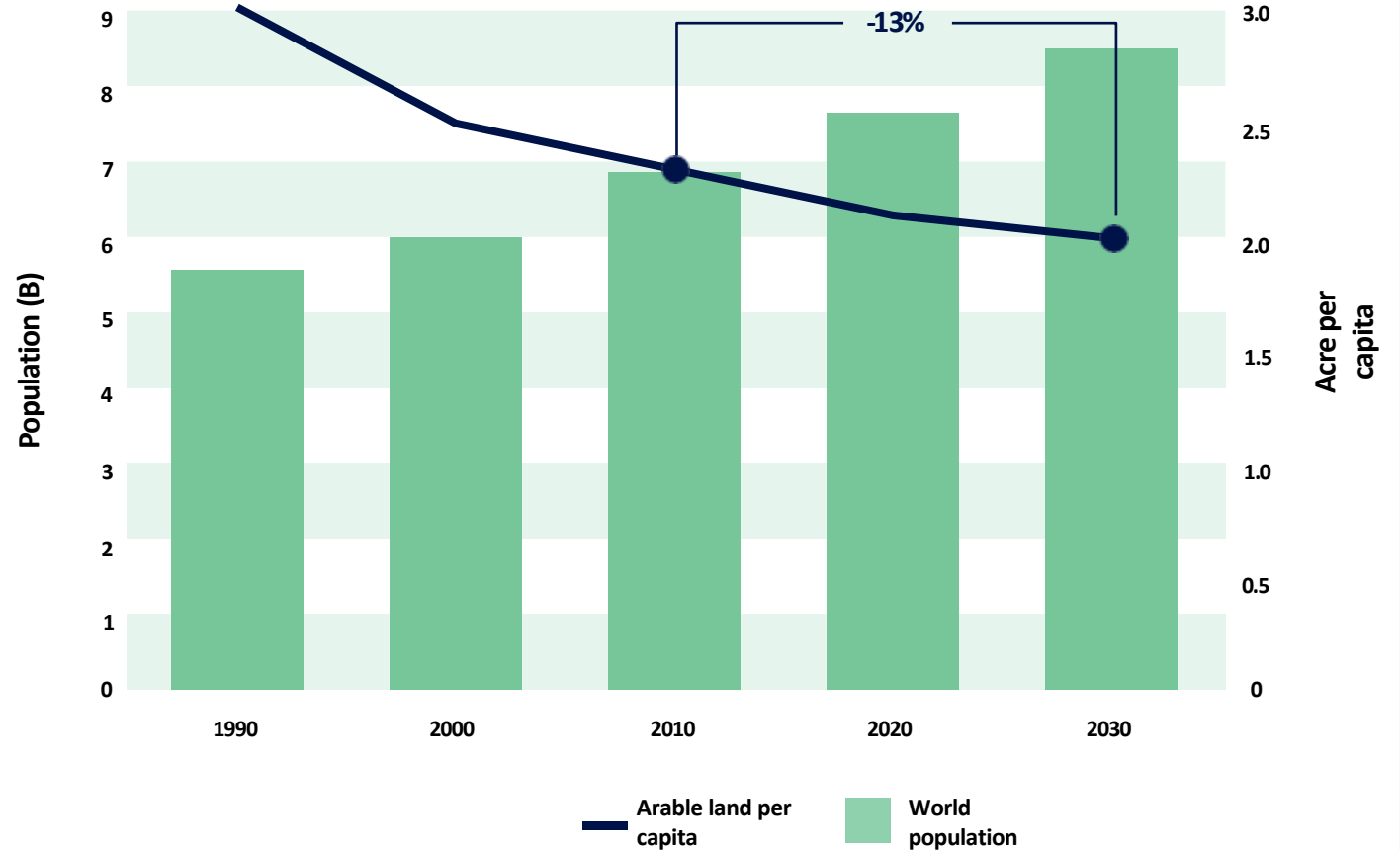
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The Need

There is a continuous critical need for world crops yield improvement, due to:

- Increase in world population
- Less available arable land
- Climate instability
- Regulatory requirements to improve food quality



PlantArc Bio Roadmap

Raising total ~15M NIS in 3 waves from same investors & Israel Innovation Authority grants

DIP* technology development

Gene discovery and product development

2014

2015

2016

2017


2018

2019


2020

Formation

Application of first patent on DIP*

Forming Targene** with Seach


Agreement with a pronounced Indian Seed Comp.

Agreement with one of the big 5 Seed Comp. and other


Collaboration Agreements with:

 **ICL** 

*DIP=Direct In Plant

** Portfolio company not reported in financial statement

The team

Management & Key Team



Dror Shalitin (PhD)
Founder & Co- CEO
Director



Eldad Meshoulam
Co- CEO



Roy Livneh (MBA)
CBO



Noam Grimberg (PhD)
CSO

Board members



Prof. Oded Shoseyov
Chairman
Hebrew University

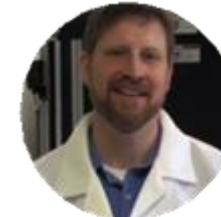


Amir Biram
CEO of JTLV



Shmulik Barashi
Partner at Fortissimo
Capital Group

Advisory Board



Todd Mockler (PhD)
Donald Danforth Plant
Science Centre.



Prof. Maurice Moloney
Bill and Melinda Gates
Foundation, advisor

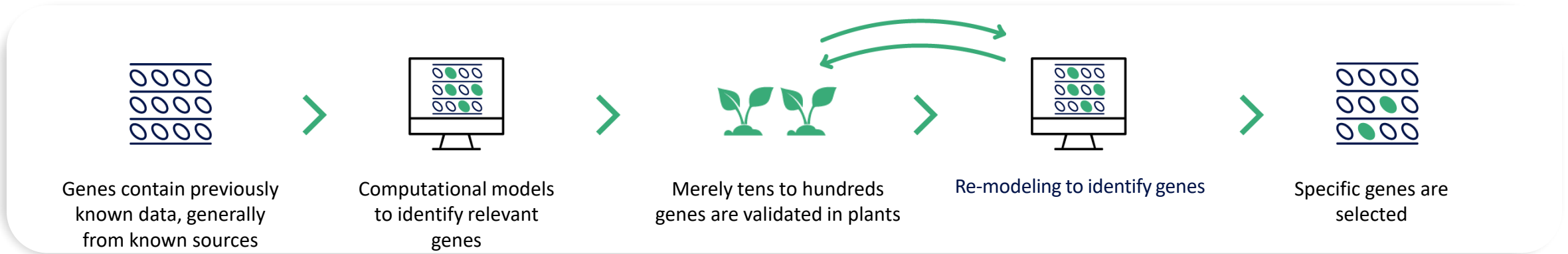
About us

Vision	Becoming world leading Gene Discovery company using our proprietary innovative IP protected technology
Active in	Since we established in 2014, we are active in R&D of gene discovery and improving important traits for plants (e.g. Drought res., Herbicide tol.), esp. for world agriculture
Products	The company is currently in advanced development of 6 products: 1) compound against the Red Palm Weevil 2) substance against soilborne disease and nematodes 3) biological compounds for yield increase 4) improving drought stress resistance in plants 5) herbicide tolerance plants 6) Gene discovery for production of APIs of cannabis* outside of the plant
End Customers	Our products shall be sold to worldwide Seed companies, Ag-chem companies and Plant Protection companies
IP	Five patents submitted on the gene discovery technology and other products achieved through it
Business Partnerships	6 business collaborations with world leading Seed and Ag-chem companies, holdings of 42% in Targene* in medical cannabis (together with Seach Medical Group Ltd.)

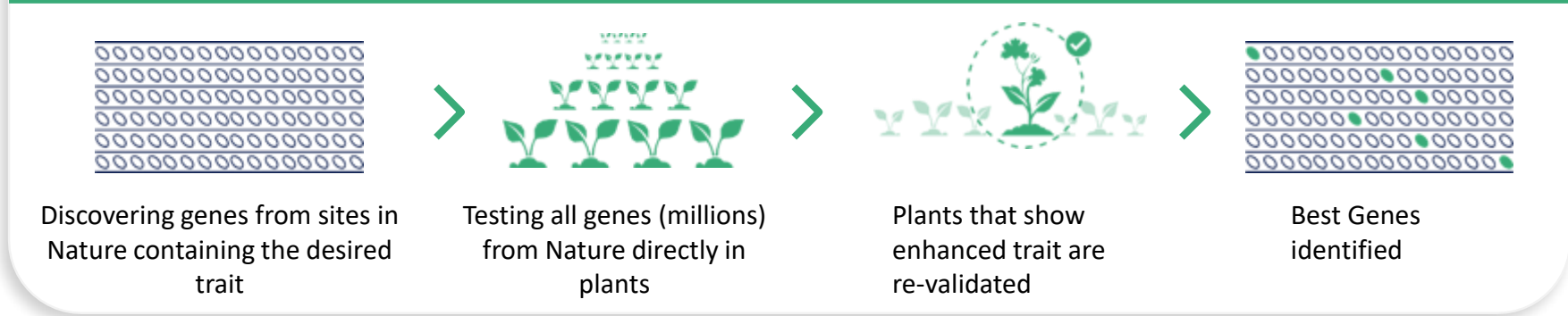
*Portfolio company not reported in financial statement

DIP* technology

Unique Gene Discovery process, IP protected



PlantArcBio Gene discovery & Direct Validation of Millions in Planta



- ✓ Genes are discovered promptly (weeks to months)
- ✓ Novel genes from Nature
- ✓ Direct utility in plants (not theoretical)
- ✓ Low cost per gene tested

Direct InPlant*

Implementing identified genes in 3 methodologies



Genetic engineering- Gene insertion to DNA

Insert genes into the plant, to improve/introduce traits



Gene Editing of plant's DNA

Improve traits by editing the DNA



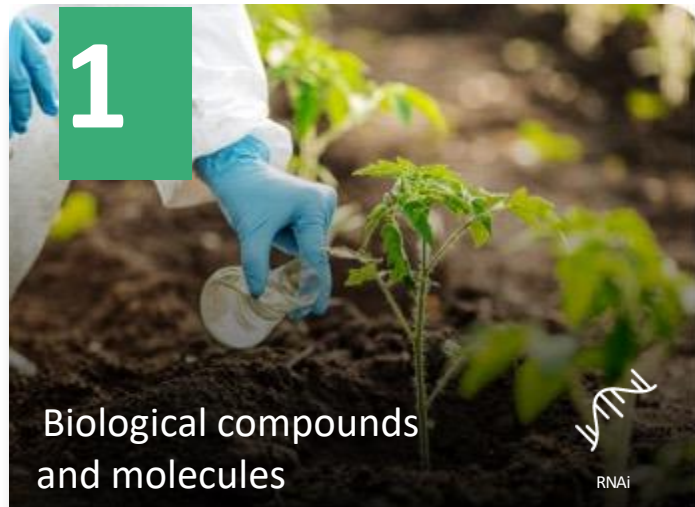
External effect based on RNAi

Affect endogenous genes in specific time period



Activities and Markets

3 Product families in development



Biological compounds and molecules

In Development

- Eliminating the Red Palm Weevil
- Yield enhancer in Canola
- Soilborne Diseases & Nematodes protection

Next stage

- Yield increase in more strains
- Elimination of more insects



Gene Discovery for seeds improvement

- Drought resistance genes
- Herbicides resistance genes

- Additional herbicides resistance genes



Identifying genes for producing active ingredients of Cannabis*

- Commercial production in bio-reactors:
 - Single molecules (CBD/THC etc')
 - cannabis cells with full spectrum

- Gene editing in Cannabis

* Activities in Targene

Strategic collaborations

1

Biological compounds and molecules

RNAi

Products are being developed with:



Classified One of largest crop protection companies



2

Gene Discovery for seeds improvement

DNA Engineering

Gene editing

Ours genes are being assessed by:



/ Leading seed company / USA

Classified

/ Leading seed company / India

Classified

/ Leading seed company / for specific crops / USA

3

Identifying genes for producing active ingredients of Cannabis*

Gene editing

Development with:



/ Israel

* Activities in Targene

Target markets of ~\$73B (2019)



Biological Yield enhancers and Crop protection

Market Size* (CAGR)

\$8B (12.9%)

Specific demand

- RPW a global insect attacking palms of all kinds
- Canola, a very large market of ~\$35B



Global seeds market

\$55B (7.6%)

- 77% of arable land not irrigated; \$10B annual drought damages in US
- Herbicides resistance traits exists in most GMO seeds



Cannabinoids market

\$10B (20%)

- Today, all cannabinoids production relies on the plant itself, and suffer from lack of uniformity, depreciation and infections

*Forward looking estimations. More details in slide 2; Source: Link 1, Link 2, Link3, Link4, Link5, Link6



**Details on
products**

1 Biological compounds and molecules

1A Compound for Eliminating the Red Palm Weevil

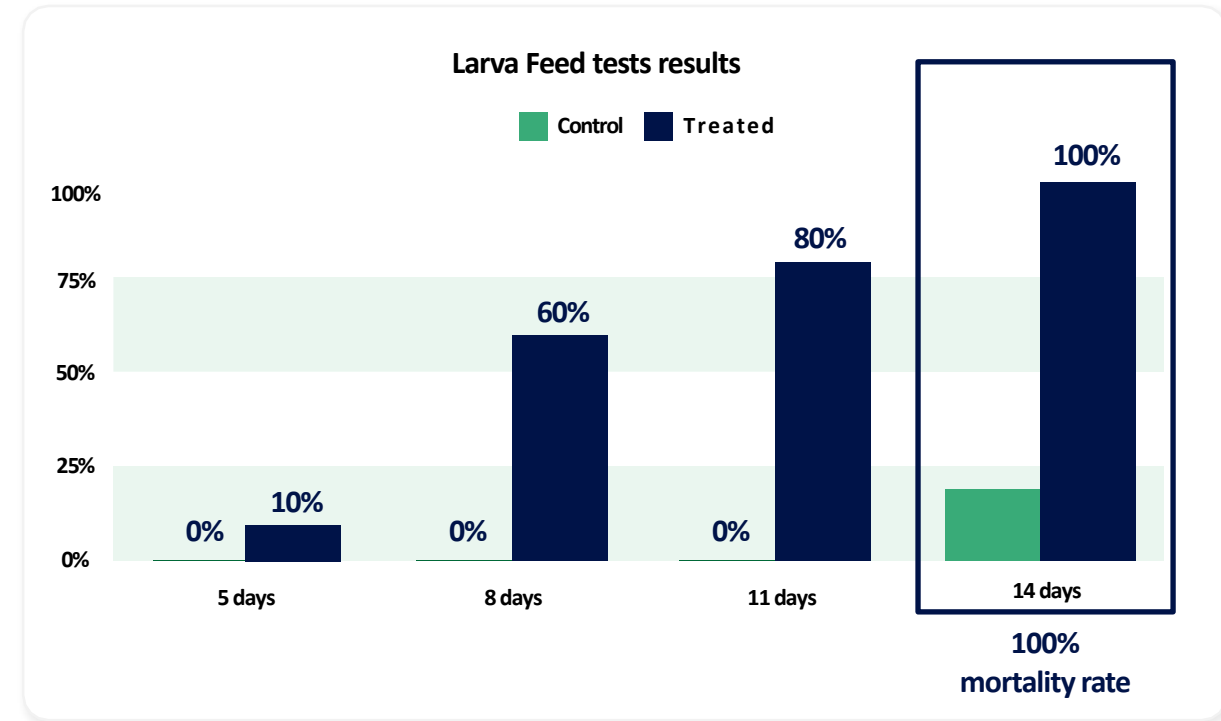
- Identified insect's genes for targeting for fatal affect of larva
- Patent submitted
- Successfully proved by feeding tests on larva; Experiments in trees still running
- Collaboration with the strategic partner Gadot-Agro, representing global CP companies
- Subjected to completing of R&D and licensing/regulation, we prospect market entrance in 2022*
- Estimated potential royalties of hundreds \$Ks in Israel and \$Ms globally



Affected palm tree



The RPW



* Forward looking company estimations. Depends on completion of R&D processes and gaining of substantial market share. More details in slide 2

1 Biological compounds and molecules

1B Yield enhancers in Canola

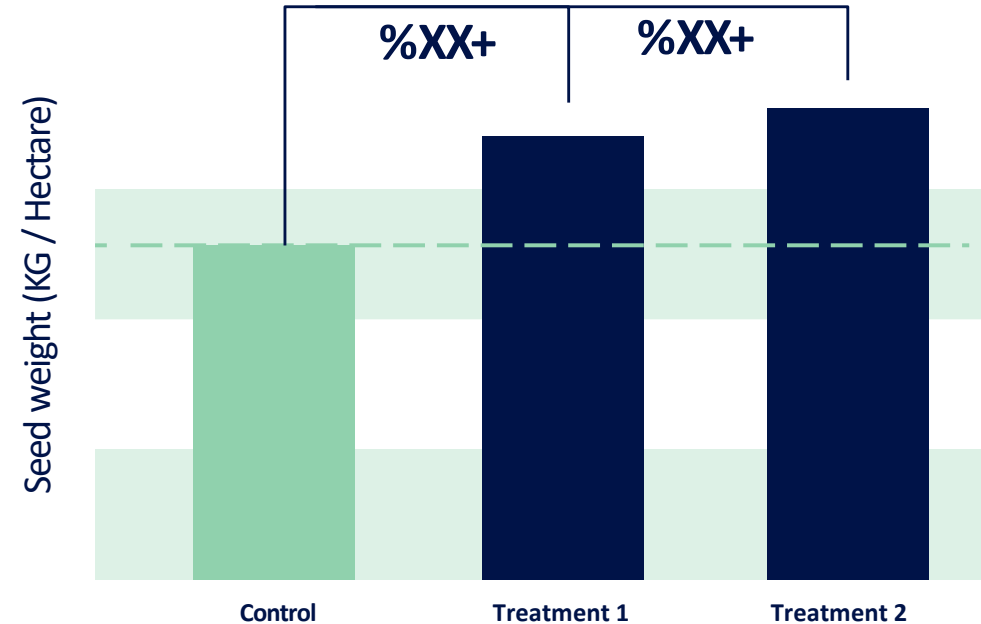
- RNAi based applications affecting crops genes, resulting in Yield increase
- Patent submitted
- Initial positive results during both greenhouse and field trials
- Subjected to completing of R&D and licensing/regulation, we prospect market entrance in 2023*
- Estimated potential royalties of \$Ms - \$10sM yearly



Field trials in Canola

Yield increase (seed weight) in 2 treatments

(Results are still not public)

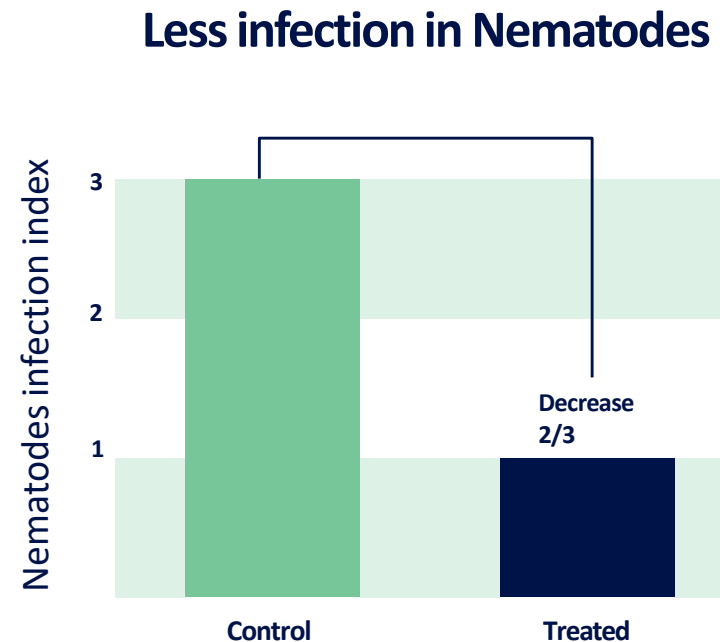
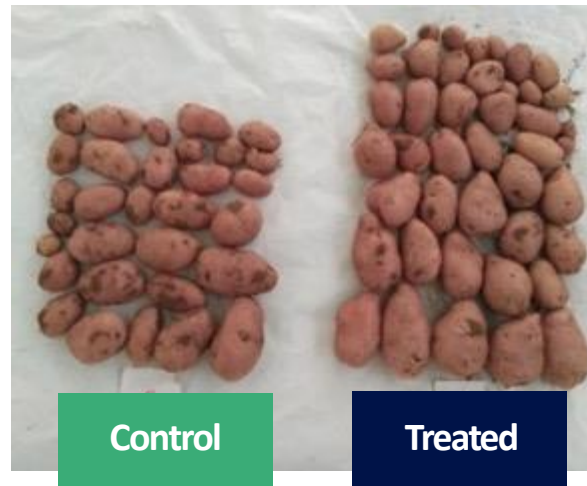


* Forward looking company estimations. Depends on completion of R&D processes and gaining of substantial market share. More details in slide 2

1 Biological compounds and molecules

1C Soilborne Diseases & Nematodes protection

- Microbes enabling plant tolerance/resistance to diseases
- Proved by greenhouse experiments for various soilborne diseases
- Patent submitted
- being tested by one of the leading global CP companies
- Following successful tests, potential sales by 2023*



* Forward looking company estimations. Depends on completion of R&D processes and gaining of substantial market share. More details in slide 2

2

Gene discovery for seeds improvement

2A Drought resistance genes

- Discovered drought resistant genes in the Dead Sea and desert areas
- **Tests & Experiments:**
 - ✓ Genes were tested in Tobacco with excellent results of increasing total weight by 30-70%
 - ✓ Agreement with global Indian Seed company for increasing drought resistance in Corn
 - ✓ In examination by a leading American company for Potato
 - ✓ In trial in Soybean in Wisconsin by the company, with initial very good results
- Estimated potential royalties of \$10sM yearly for every crop that a gene will be developed*



Increase crops size, Tabaco tests, Israel, April-July 2019

* Forward looking company estimations. Depends on completion of R&D processes and gaining of substantial market share. More details in slide 2

Trials results

2A Drought resistance genes



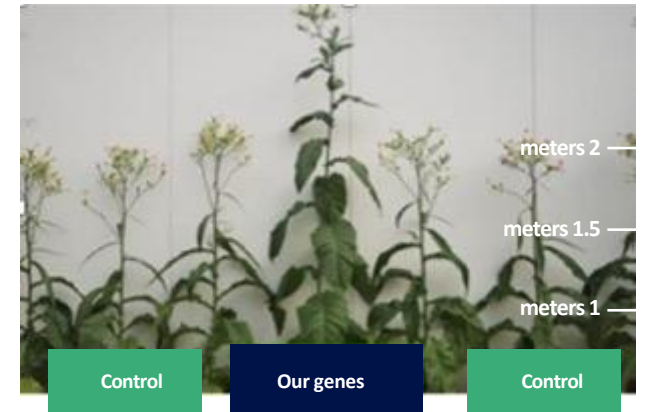
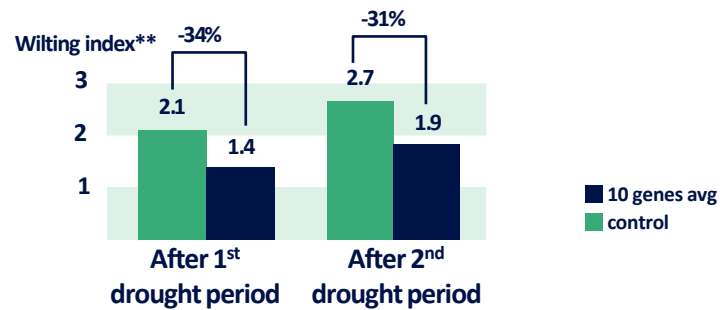
Genes assessment in Corn by an Indian corp.

Still in progress



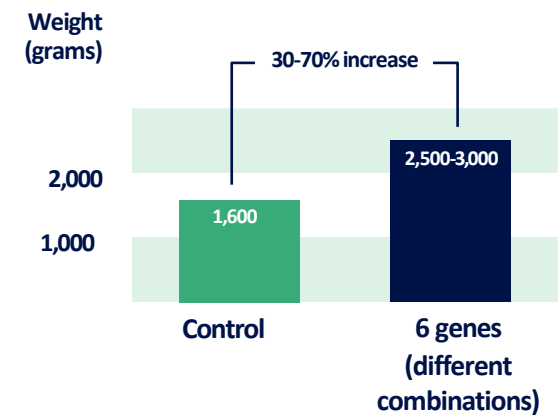
Our genes Control Our genes

Initial successful results in Soy, Wisconsin, Oct/Nov 2020
 Engineered plants shows strong Stay Green* effects, an important trait for agriculture



Control Our genes Control

Results in Tobacco



*STAYGREEN

** Index for measuring crops wilting levels in the range of 0-4 (4- high wilting)

2

Gene discovery for seeds improvement

2B Herbicides resistance genes

- Discovered novel genes (patent protected) enabling plants resistance to a wide range of herbicides
- **Tests & Experiments:**
 - ✓ Genes were tested successfully in various model plants
 - ✓ One of the leading genes is being tested by KWS, one of the biggest Seed Companies globally
- Estimated potential royalties of \$10sM yearly for every crop that a gene will be developed*



* Forward looking company estimations. Depends on completion of R&D processes and gaining of substantial market share. More details in slide 2

3

Identifying genes for producing active ingredients of Cannabis

(through Targene)*

Targene was established during 2018 and since is working to produce the Cannabis Active Ingredients through a constant process

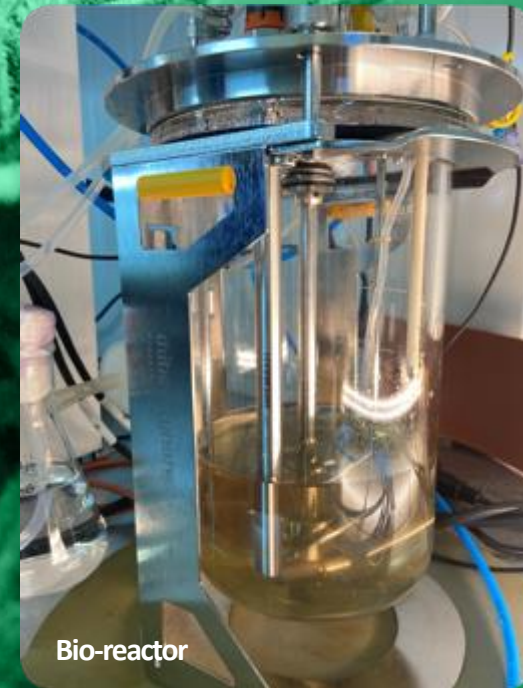
- Entering the cannabinoids genes pathways into a new organism, enabling the production of APIs such as CBD, THC etc.
- Use of Bioreactors for the production and controlling of the amount and timing of the APIs expression
- To date we have achieved:
 - ✓ Growing several liters from different lines of cannabis cells in bioreactors
 - ✓ Preparation of the new organism for expressing cannabinoids
 - ✓ First cannabis plants that shall enable gene editing production

Success of producing the APIs in a sterile, fast and constant way shall revolutionize the Medical and Pharma industries

*To this date Targene is held by PlantArcBio (42%), Seach Medical Group (53%) and other (5%)
Forward looking company estimations. Depends on completion of R&D processes and gaining of substantial market share. More details in slide 2



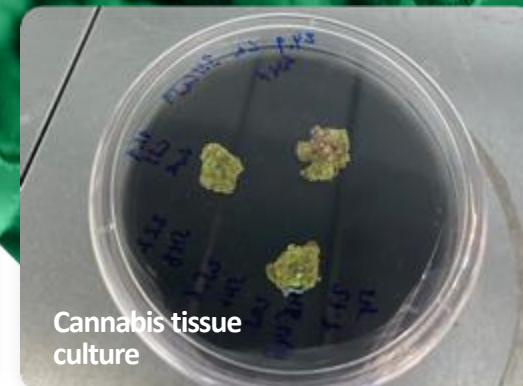
Cannabis plants for gene editing



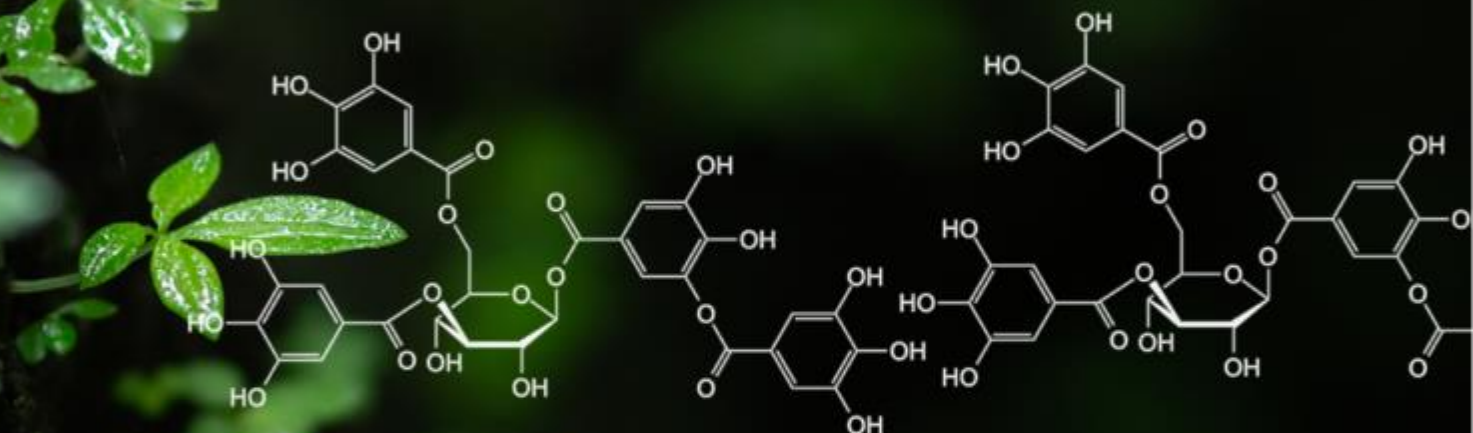
Bio-reactor



Cannabis plant in tissue culture



Cannabis tissue culture



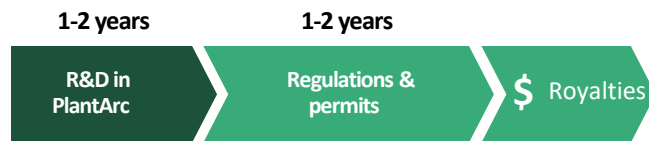
Business model and Roadmap

Business model*

1

Biological compounds and molecules

RNAi



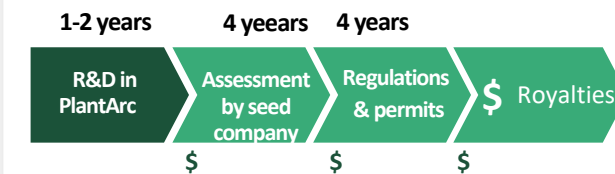
Commercialization agreement

2

Gene Discovery for seeds improvement

DNA Engineering

Gene editing



Commercialization agreement

Milestones payments

3

Commercial production of Cannabinoids

Gene editing



* Forward looking company estimations. Depends on completion of R&D processes and gaining of substantial market share. More details in slide 2

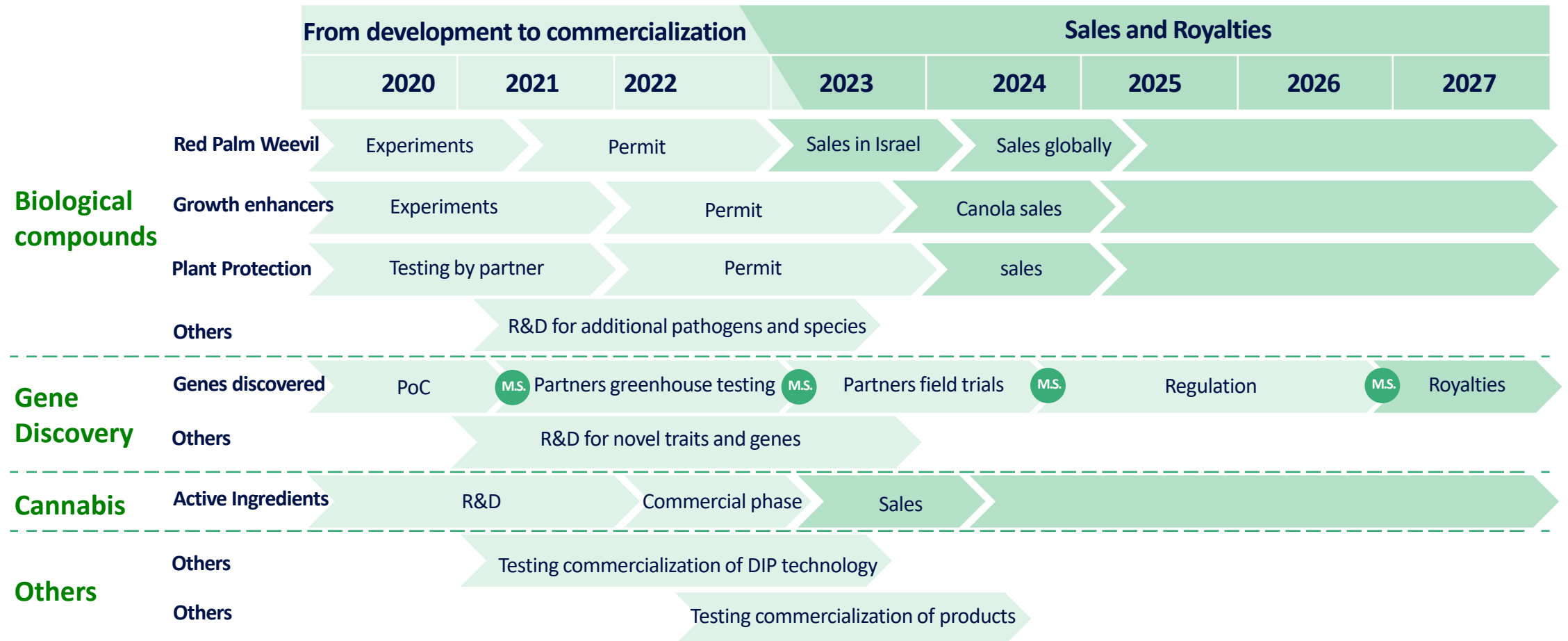
Summary of products in development

	Product	Collaboration	Achievements	Estimation of potential royalties*
1	Compounds for controlling the RPW		100% larva death, promising results in trees	Few \$M
	Yield increase in Canola		Initial good results for Canola field trials	Few – Dozens of \$M
	Disease & nematodes protection	One of the world leading plant protection companies	Initial good results by external testing by the partner	Will be assessed later with our partner
2	Drought resistant genes	Leading Indian Seed Comp in Corn and internally in Soy	Good results in Tobacco, Initial good results in Soy in USA	Dozens for each strain
	Herbicide resistant genes		Resistance for several herbicides in various plants	Dozens for each strain
3	Active Ingredient production (Targene)		Growth of several liters of cannabis cells. Developing expression in new organism	Hard to assess currently

* Forward looking company estimations. Depends on completion of R&D processes and gaining of substantial market share. More details in slide 2

Roadmap*


Unlocking commercial potential with long-term growth



* Forward looking company estimations. Depends on completion of R&D processes and gaining of substantial market share. More details in slide 2

Use of capital raised

Implementing strategy to commercialize activities



Expanding scientific team



Assessing genes in target strains to accelerate commercialization



Accelerating global partnerships



Financing companies activities

In addition, it will allow investment in new capabilities and technologies



Thank You

Attractive investment

Attractive timing

Unique technology

Strategic partners

Attractive markets

Wide product portfolio

Strong leadership

Professional background of management and advisory teams



Dr. Dror Shalitin

- Holds a PhD in Plant Molecular Biology and Physiology from the Hebrew University of Jerusalem
- Post doctorate at UCLA on plant photoreceptors
- Senior Investigator at the Institute for Myeloma and Bone Cancer Disease, USA
- Leading Researcher at Evogene, lead R&D projects with global Seed Companies such as Syngenta, Corteva



Eldad Meshuolam

- BA in Data Management, MBa in Business Administration from the IDC Herzliya
- Served 12 years as an Officer in the IDF Air Force
- Project Manager in the global Advisory Firm BCG, where he advised leading managements and firms in the Israeli market, amongst big and global agricultural companies



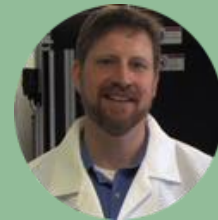
Prof. Oded Shoseyov

- Prof. of the Hebrew University of Jerusalem, in the field of Plant Mol. Biol., Protein Engineering and Nano Biotechnology
- Published more than 300 Scientific papers and Inventor of 92 patents
- Won distinguished awards, such as Pollak (2002) and Key (1999, 2010) for innovation and applicable science
- Founder of 15 companies such as ColPlant and Futuragene



Prof. Maurice Moloney

- Plant molecular biology scientist.
- Advisor to the Bill & Melinda Gates Foundation
- One of the first responsible for the transgenic Canola, as a group leader in Calgene Inc.
- Senior executive leader as CEO / Exec. in 3 strategic research organizations, inc. CSIRO and GIFS
- Over 300 patents



Dr. Todd Mockler

Scientific Member & Principal Investigator, Donald Danforth Plant Science Centre.

Founder and ex CTO of Benson Hill.

Geraldine J. and Robert L. Virgil Distinguished Investigator Award