



When Darkness Becomes Data

Ai-powered analysis of
hidden data patterns



PhenoRoot

Soil-Grown Root Phenotyping Platform

80% Of all Plant Problems
Start with Roots & Soil

yet....

THIS CRITICAL HALF OF OUR CROPS IS REMAINED UNDEREXPLORED



Drought



Salinity



Soil-Borne Diseases



Nutrient Deficiencies



Extreme Temperatures

Our Solution

The most advanced imaging and analysis of root systems in soil-grown, real-life conditions

Advantages



Practical Insights from **real-life soil-grown** roots with high relevancy to field conditions.



Cost effective, adaptable and scalable platform.



High throughput, high resolution, 3D imaging of the entire root system, including its depth, spatial spread, and structural architecture.



Enables **data-driven decision** - making faster product development for breeding, crop protection, nutrition and validation.

About Us

5

TEAM
MEMBERS

2019

FOUNDED

FOUNDER-
OWNED
(bootstrapped)

50+

PROJECTS

15+

CUSTOMERS

\$1M

TOTAL
CONTRACT VALUE

80,000+

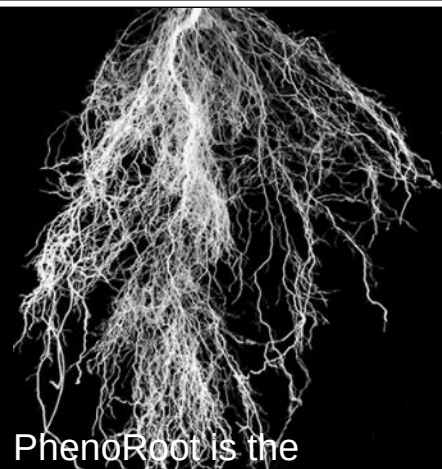
SCREENED ROOT
SYSTEMS

30+

DIFFERENT
CROPS

3

PENDING
PATENTS



PhenoRoot is the missing link in product discovery: it makes root impact visible, measurable and actionable – in real conditions: under real stress with real data

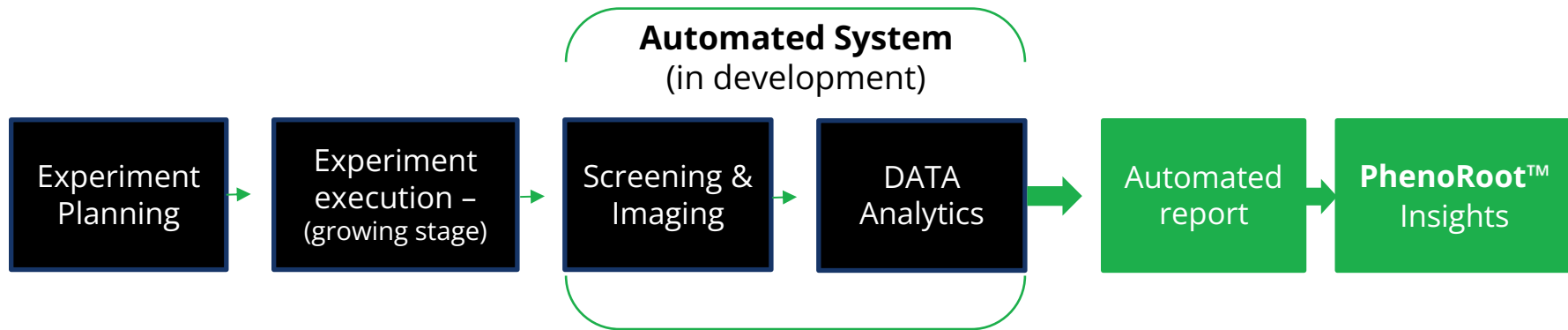
Our Vision

Generating the world's **most comprehensive digital database** of root systems, accelerating the development of **climate - resilient crops** while enhancing soil health and agricultural sustainability.



End-to-End Solution for Root-Soil Diagnostics

Transforming vast datasets from soil-grown root systems
into precision insights with practical relevance



Option 1: Experiment conducted by **PhenoRoot™**

Option 2: Experiment conducted by a Customer on its premises

Market Segments



Crop Breeding

- Abiotic Stress
- Soil-borne Diseases
- Nutrient Use Efficiency



Crop Protection / Nutrition

- Discovery of Novel Molecules
- Biostimulant Efficiency
- Pesticides Mode-of-action



Academic Research

- Basic & Applied Science
- Genetics and Trait Discovery
- Environmental Science

Our Partners



Crop Breeding



Crop Protection / Nutrition



Academic Research



"We have seen first-hand how PhenoRoot's cutting-edge technology enhances and promotes our academic excellence and scientific research, revealing novel insights in plant physiology".

Nir Sade, PhD, Tel Aviv University



From Roots to Results

PROVEN PLANT PERFORMANCE ACROSS ALL CROPS

Field Crops ■ Vegetables ■ Trees ■ Weeds



Peanuts



Rice



Chickpea



Tomato



Pepper



Mustard



Oak



Soy



Sunflower



Wheat



Melon



Lettuce



Amaranth



Avocado



Corn



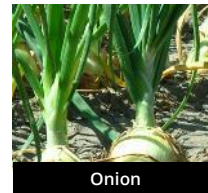
Millet



Canola



Cucumber



Onion



Grapevine



Banana

Scale to Fit: Adaptive System Solutions

TYPES of SYSTEMS

Large-Scale
Automated System*



Small-Scale
Lab Size System



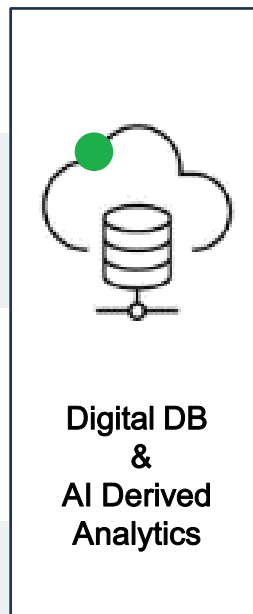
Field Digital
Large-Scale system



Field digital LIGHT
phenotyping kit



IMAGING DATA



PRACTICAL INSIGHTS

CUSTOMERS

 **Digital Phenotyping Centers**

Academies, service providers and large seed and crop protection companies

 **Small R&D centers & Labs**

Researchers and S&M breeding and crop protection companies

 **Large seed and crop protection companies**

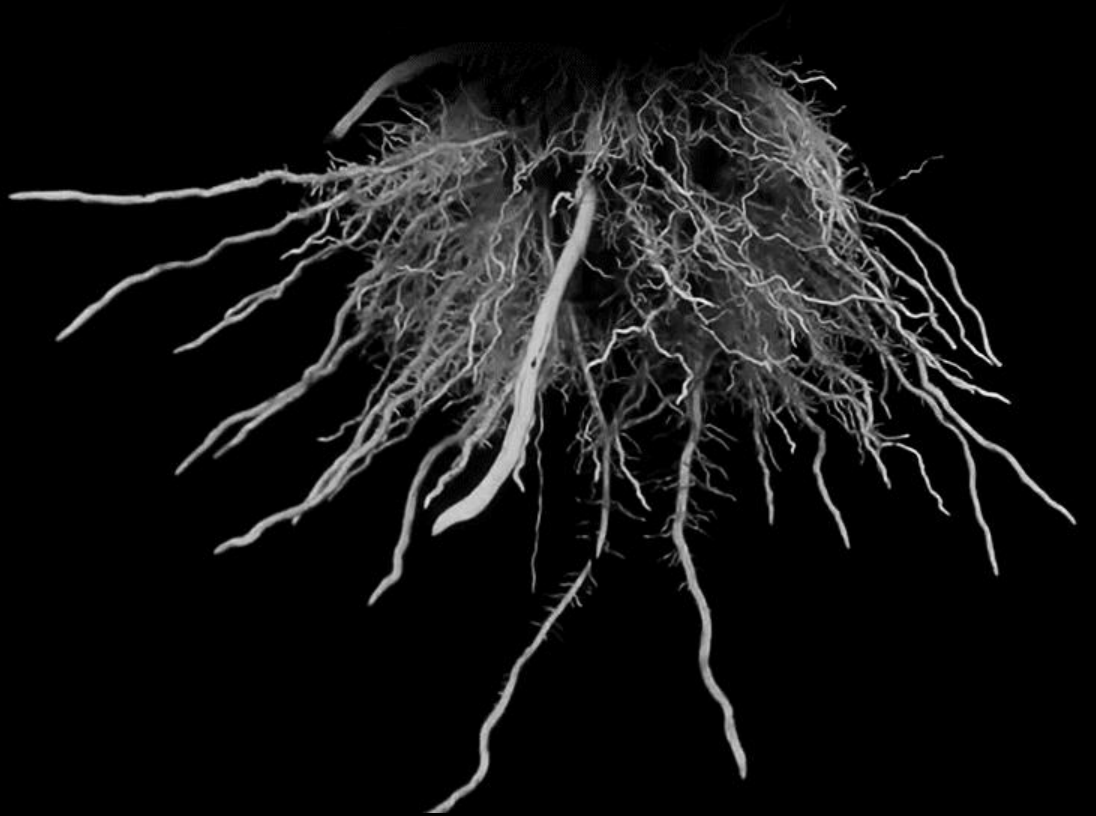
 **Farmers**

* Sales started in 2025

No Existing Technology Offers Efficient Root Imaging and Analytics

	PhenoRoot™	MRI	CT/Xray	Rhizotron
Throughput / Scalability	High	Low	Low	High
Image resolution	High	Medium	Medium	High
Multi dimensional imaging	3D	3D	3D	2D
Field applications (in development)	Yes	No	No	No
Cost - efficiency	High	Low	Low	Low
Agronomic relevance	High	Medium	Medium	Low

Project Examples



Breeding cereals with superior root traits

Customer Challenge

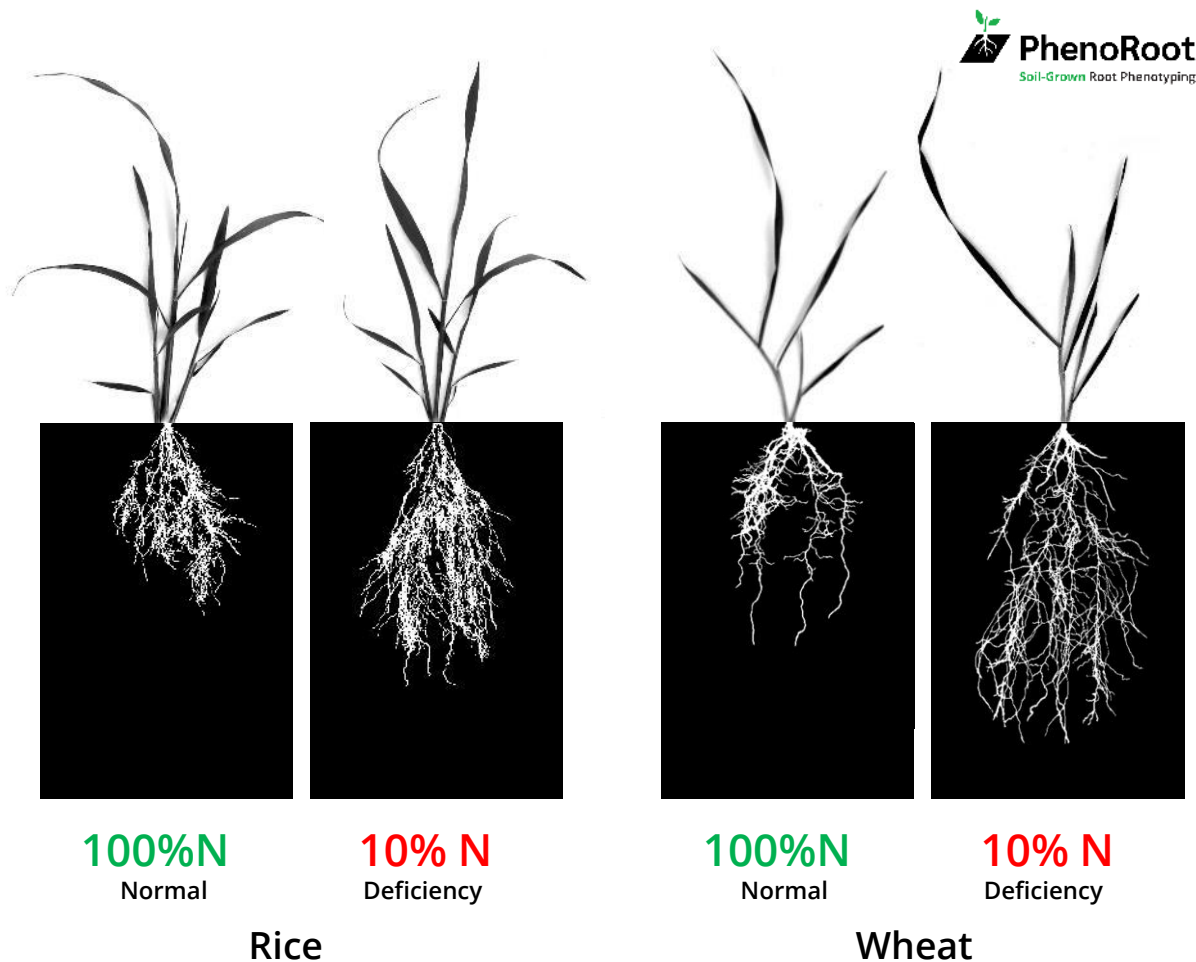
Screening wild relatives of wheat and rice to identify lines with deeper rooting—a key trait linked to enhanced nitrogen uptake, drought resilience, and improved carbon storage.

PhenoRoot™'s platform was used for high-throughput screening to identify and select lines with the desired root traits.

Results Achieved

Identified wheat and rice lines capable of developing deeper, larger root systems under nitrogen deficiency, leading to improved nitrogen uptake.

Read the full paper [here](#)



Breeding Tomato Rootstocks for Stress Tolerance

Plant roots are frontline responders to major environmental stress.

Improving the root system function plays a critical role in enhancing plant resilience in challenging environments.

In this study, we investigated root traits to provide quantitative data serving as a vital tool for breeding programs to improve tomato rootstock varieties.

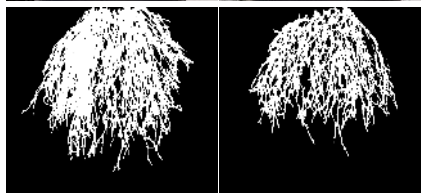
Rootstock 1



control

salinity

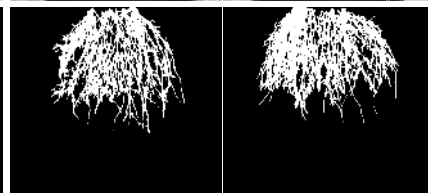
Rootstock 2



control

salinity

Rootstock 3



control

salinity

Exploring Root Resilience in Avocado Rootstocks

Avocado roots are shallow, poorly branched, and highly vulnerable to stresses such as drought, salinity, poor aeration, and *Phytophthora cinnamomi* root rot.

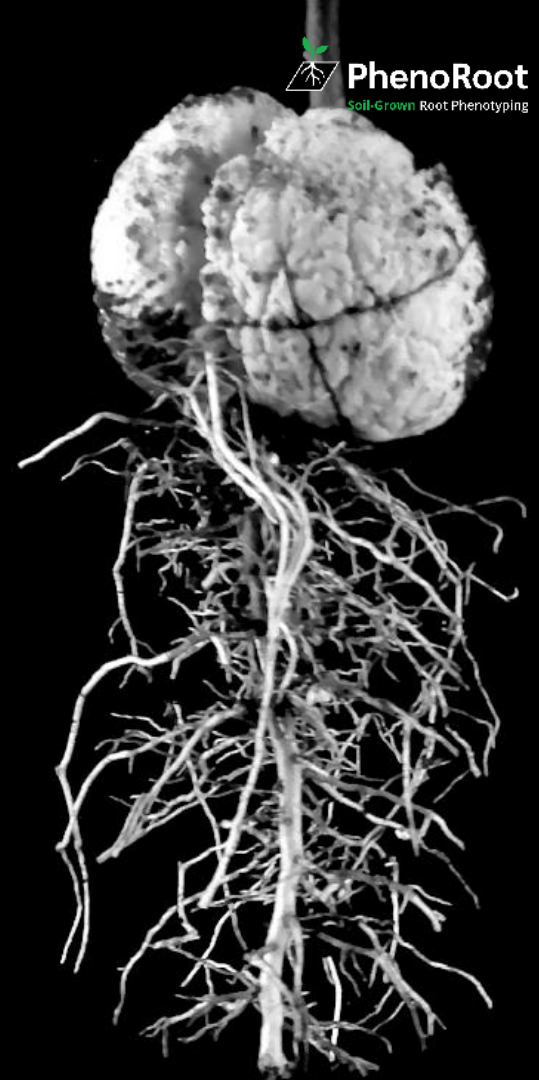
As climate changes and soil degradation intensifies, developing robust rootstocks is becoming increasingly urgent.

Objective

Evaluation of a diverse set of avocado rootstock genotypes under water and oxygen stress to identify those with superior root system architecture (RSA) — including deeper roots, higher branching, and greater density.

Expected Outcomes

The results will highlight genotypes with stronger and more resilient root systems, providing a foundation for breeding avocado trees that can better withstand environmental challenges and ensure productive, long-lived orchards.

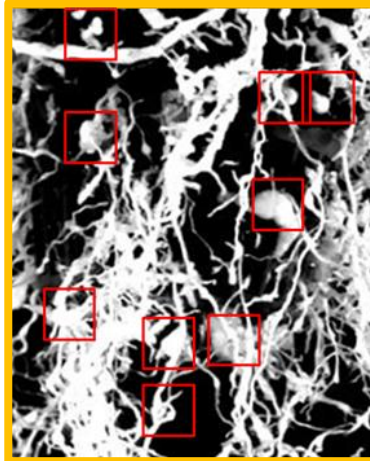
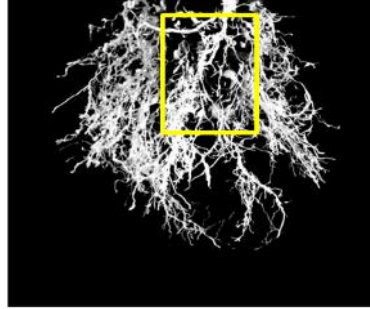


Crop Protection

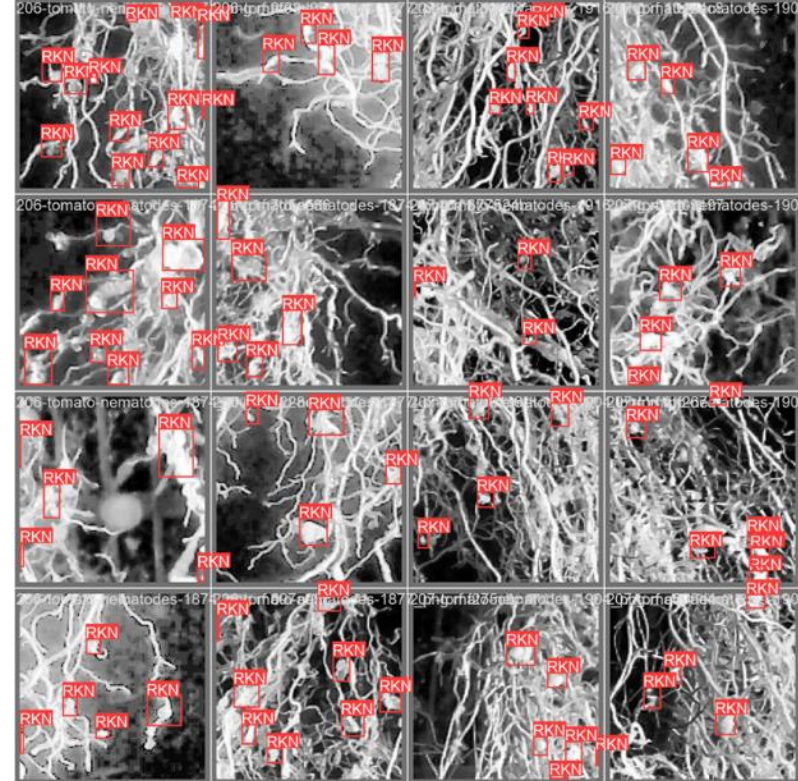
AI-powered diagnostics of soil-borne diseases

We developed an AI-powered tool for rapid, accurate detection of root-knot nematodes (RKN), enabling early diagnosis, breeding of resistant crops, and development of effective nematicides—driving resilient, sustainable agriculture.

Tagging



Prediction



Leading Team



Gadi Peleg, PhD



CTO & Founder

PhD in plant sciences,
specializing in root
biology and imaging



Yana Voldman



CEO

MBA, MDES, Business
Executive experienced in
AgTech & FoodTech



Gal Galon



Chief Engineer

Mechanical
Engineer with 20+
years in R&D



Tal Babaioff



AI / Data Strategy

Former Mobileye Vice
President, Mapping &
Production



Moti Levy



Electronic & Communication

MSc in Electrical Engineering
with 30+ years in Systems
Engineering



INVEST IN THE ROOT OF AGRICULTURAL INNOVATION

Your opportunity to drive climate resilience and sustainable food systems starts here!



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