

ROOTS

FOOD & BIOAG TECH ACCELERATOR PROGRAM

ROOTS ACCELERATOR PROGRAM
FOR INDIA

First Cohort
2022-2023



CONTENT



- **Introduction**
- **Macro trends and market opportunities**
- **Verticals and sub-verticals of the program**
- **Program brief**
- **Why partner with **Roots****

INTRODUCTION

ANTENNAE is launching a new program in Food and BioAG called **Roots**.

This program will support Indian startups developing innovative solutions in Food and Bio Agriculture.

We look for partners, investors, and corporates who share **same vision, ambition and willingness** to participate.

In this presentation, we briefly outline macro trends, program concept and the key benefits in doing it together.

If you'd like to further discuss it, please contact us for a zoom call.





ROOTS

Accelerator Program Introduction

- Roots will launch a Stage Agnostic Food and BIOAG Accelerator Program in India designed to support and vest in leading Food and BioAg Technology Startups Incorporated in India as well as (possibly) overseas startups looking to access India's market as a launchpad.
- The program will target startups that have developed and ready to market commercial solutions, and are improving formulation/R&D in preparation for mass production, and are navigating early stages of scaling operations.
- The accelerator program will be backed by Syndicated Funding which will deploy an average check size of USD \$50K to \$1M in each participating startup.

THE CLOCK IS TICKING

An HBR study indicates that the global food demand is expected to increase anywhere between **59% to 98%** by **2050**. This will shape agricultural markets and food industries in ways we have never seen before.

Biotechnology is expected to play a key role in meeting the growing demand and provide sustainable solutions.

Macrotrends in Food & BioAG Tech

Farms and retailers that remain competitive in the future will reinvent their business models, embrace digital technologies and collaborate closely with startups disrupting the industry.

Feeding the world and sustaining earthly resources will be the greatest challenge of the **21st century**. It will be impossible without scientific advancement in biotechnology

We will need to produce 70% more food by 2050 but agriculture's share of global GDP has shrunk 3% this year, one third its contribution just decades ago.
Source: Oliver Wyman

In EMDEs, significant levels of food loss occur throughout food value chains, owing to managerial and technical limitations in harvesting, storage, transportation, processing, packaging and marketing.

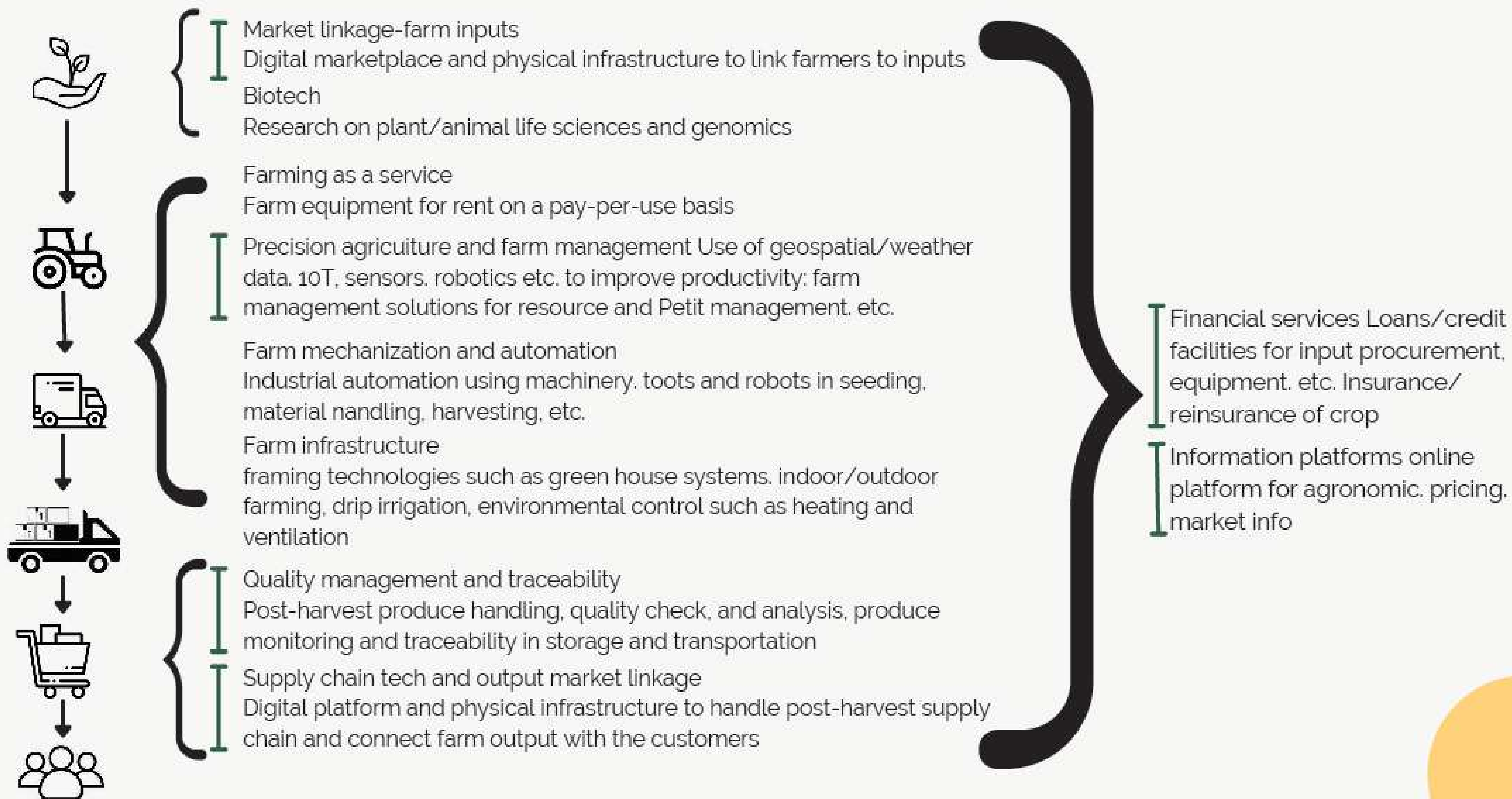
Source: ATO

The market for plant-based proteins alone could expand from \$5 billion at present to \$85 billion over the next decade, at a roughly 28% growth rate year-over-year.
Source: UBS

Value Chain

Segments

Segments that support broader Agritech ecosystem



India's food and agriculture pain points

Agriculture is one of the main sectors within the Indian Economy and the primary income generator for a majority of Indian households. Yet, due to a combination of poor infrastructure, supply chain practices, and a reliance on manual farming methods, India is unable to meet both local and international demands for agricultural output.

Supply chain

Post harvest loss in India amounts to US\$13 billion

Market linkage

farmers are unable to get fair price due to limited sales channels

Land degradation

Farmers are not educated enough to use fertilizers efficiently, leading to worsening soil quality

Digital infrastructure

Data and digital records of transactions limited across the agriculture value chain

Financial services

Lack of adequate data prevents the adoption of financial services, such as credit and insurance

Increasing urban population and a move towards healthier food patterns is driving a change in consumer dynamics

1

- Urban population is projected to reach 36% of India's population by 2022¹
- Demand for nutritious food like fruits and vegetables is on a rise (share has increased from 24% in 2012 to 30% in 2018)^{1,2}

Supply chain improvements and efficiencies can help lower food wastage and improve productivity for farmers

2

- More than 40% food gets wasted before reaching the consumer due to supply chain intermediaries^{1,3}
- Establishing market linkages can lead to an increase of 8%-10% in farmers' income

Climate-resilient technology and data-driven weather forecasts can help combat climate change and drive efficiencies

3

- Every 1 degree centigrade rise in temperature could result in a loss of 4-5 MMT in wheat production^{1,4}
- This can further result in a drop of 15%-48% in annual agriculture income and can be up to 20%-25% for unirrigated areas

Data-driven precision techniques in agriculture can drive efficiencies in resource utilization

4

- Declining groundwater and erratic rainfall patterns necessitate use of data-driven technologies
- Groundwater in India has declined 61% between 2007-2017^{1,5}

Pain-Point vs Market Potential

The accelerator program will be designed to provide startups with the right support, at the right time, from the right people to increase the likelihood of success across all stages of the startup lifecycle.



PAIN-POINT	AGRITECH SEGMENT	MARKET POTENTIAL
Volatility in input prices; sub-optimal input selection	Market linkages-farm inputs	US\$1.7b
Limited access to technology for efficient cropping	Precision agriculture and farm management	US\$3.4b
Uneven quality and lack of large scale testing	Quality management and traceability	US\$3.0b
Inefficient post-harvest supply chain	Supply chain tech and output market linkages	US\$12.0b
Lack of access to financial solutions	Financial services	US\$4.1b

Agritech Categories

UPSTREAM



Ag Biotechnology

On-Farm inputs for crop & animal ag including genetics, microbiome, breeding, animal health.



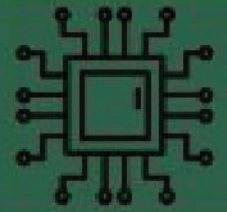
Agribusiness Marketplaces

Commodities trading platforms, online input procurement, equipment leasing



Bioenergy & Biomaterial

Non-food extraction & processing, feedstock technology, cannabis pharmaceuticals



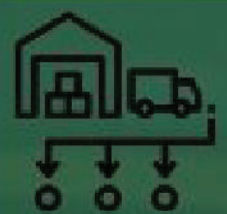
Farm Management Software, Sensing & IoT

Ag data capturing devices, decisions support software



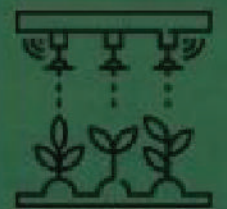
Farm Robotics, Mechanization & Equipment

On-farm machinery, automation, drone manufacturers, grow equipment.



Midstream Technologies

Food safety & traceability tech, logistics & transport, processing tech.



Novel Farming Systems

Indoor farms, aquaculture, insect, & algae production.

DOWNUPSTREAM



Ag Biotechnology

Cultured meat, novel ingredients, plant-based proteins.



In-Store Retail & Restaurant Tech

Shelf-stacking robots, 3D food printers, POS systems, food waste monitoring IoT.



Restaurant Marketplaces

Online tech platforms delivering food from a wide range of vendors.



eGrocery

Online stores and marketplaces for sale & delivery of processed & un-processed ag products to consumer.



Home & Cooking Tech

Smart kitchen appliances, nutrition technologies, food testing devices.



Online Restaurants & Meal Kits

Startups offering culinary meals and sending pre-portioned ingredients to cook at home.



Cloud Retail Infrastructure

On-demand enabling tech, ghost kitchens, last mile delivery robots & services

Biosensors

Biosensors can be used to compute the levels of pesticides, herbicide, and heavy metals in the soil and groundwater. Biosensors can be used to forecast the possible occurrence of soil disease, which has not been feasible with the existing technology.

Big Data

Big data provides farmers granular data on rainfall patterns, water cycles, fertilizer requirements, and more. This enables them to make smart decisions, such as what crops to plant for better profitability and when to harvest. The right decisions ultimately improve farm yields.

Nanomedicine

Nanotechnology has the potential to protect plants, monitor plant growth, detect plant and animal diseases, increase global food production, enhance food quality, and reduce waste for "sustainable intensification".

Mixed Reality (AR/VR)

Survey can be conducted of the field using virtual reality. It is easier for farmers to determine the quality of the soil to pick up the appropriate crops, and effectively use the soil potential for crop production.

Leveraging AR in agriculture can help farmers to reduce crop wastage, increase production, and train other farmers. The next are key applications of AR in agricultural production:
Monitoring farms visually



Synthetic Biology & metabolic Engineering

Plant metabolic engineering aids in the modulation of those specific biosynthetic pathways so as to introduce the new metabolic abilities by either downgrading or upgrading any particular enzyme according to the requirement for amplifying the nutritional quality.

Biomedical Engineering

Biological and agricultural engineering (BAE) is the application of engineering principles to any process associated with producing agriculturally based goods and management of our natural resources

3D Bioprinting

3D printing enables the replication of many objects for agriculture, including chains, gears, shock absorbers, seeder parts and harvester attachments. With new printing materials available, parts and components can be printed from durable plastics through to metal and alloy combinations

Gene Editing

Gene editing is a method of selective breeding, a practice as old as our need to grow our own food. Farmers have always bred crops and animals to draw out traits that make them more wholesome and sustainable.

Artificial Intelligence (AI)

AI systems are helping to improve the overall harvest quality and accuracy – known as precision agriculture. AI technology helps in detecting disease in plants, pests and poor nutrition of farms. AI sensors can detect and target weeds and then decide which herbicide to apply within the region.



WHY INDIA for BIOTECH?

Biotechnology sector is recognized as one of the key drivers for contributing to India's USD 5 Trillion economy target by 2024.

Indian Biotechnology sector is poised to grow exponentially over the next decade. Policy initiatives of Government of India (GoI) such as the Make in India program are aimed to develop India as a world-class Biotechnology and Bio-manufacturing hub.



BioAG TECH

QUANTUM BIOLOGY
BIO MANUFACTURING
PRECISION AGRICULTURE /
SENSOR TECHNOLOGIES
DRONES & ROBOTICS
LOGISTICS & SUPPLY CHAIN



FOODTECH

FOOD WASTE
FOOD SECURITY ALTERNATIVE
PROTEINS NOVEL
INGREDIENTS CELLULAR
AGRICULTURE PACKAGING
INNOVATION



Program Overview



Program Focus Area: Agritech

Minimum acceptance criteria: Near POC stage and above

The focus of the program support:

Prototyping Technology Connect/ Mentor Connect/ Industry Connect/ Investor Connect/ Regulatory Support Market Connect/ Investment Raise of Startup (Average ticket size: **50K-1M USD**)

Cohort size: 20 Startups per year or on a rolling basis

PROGRAM VALUE ADD

The program will be designed for food and BioAgriTech startups that have established product market fit and are looking for opportunities for commercialization and scaling.

Ecosystem and Mentorship

Access to Antennae Advisory Board

- Connecting with the Agro Economist, Industry Veterans
- Introducing to Agri Ecosystem, vendors for development support

Go To Market

Facilitating market access and distribution

Opportunities in India.

- Commercial matchmaking & meeting facilitation with relevant parties (FPO/ Industry)
- Support with commercial negotiations and BD
- Help startups define market entry/expansion strategy
- Advising on investment opportunities

FUNDRAISING

Access to Antennae's investor network.

- Investor matchmaking to drive follow on opportunities
- Investor pitch sessions
- Cash flow / financial modeling
Data room and reporting



Startups can also engage with Antennae's Services Division for any supply chain and sourcing needs.

Potential Program Structure

The accelerator program will be designed to provide startups with the right support, at the right time, from the right people to increase the likelihood of success across all stages of the startup lifecycle.



PRELIMINARY DUE DILIGENCE	EXTENDED DUE DILIGENCE	FULL ACCELERATION	POC MANAGEMENT	STEADY STATE
APPLICATION REVIEW AND DD CALLS	1 MONTH PRE-ACCELERATION	3+3 MONTH FULL ACCELERATION	POC EXECUTIONAL SUPPORT	SUSTAINED SUPPORT
<ul style="list-style-type: none"> • Rigorous review of applications by all members of the investment committee • Follow up calls with top 30% of applicants 	<ul style="list-style-type: none"> • Hands-on, education-based sprint • Focus on technical feasibility, business viability and market desirability • Extended due diligence on teams <p>50-65% of teams pass this extended due diligence</p>	<ul style="list-style-type: none"> • Fully tailored, hands-on curriculum for each team along with office hours • Community of founders and mentors • Investor network access • Corporate network • Advisory provided by corporate experts • Perks package 	<ul style="list-style-type: none"> • Identify and scope POC opportunities • Startup executes on the POC according to engagement terms • Optional support provided by Antennae to help manage and de risk POC delivery 	<ul style="list-style-type: none"> • Lifecycle approach for long term support and value creation

500 + STARTUPS IN CURATION

Fund Partners



Omnivore



Nabventures



Upaya Social Ventures



Bio Angels



Astir Ventures



Sprout Venture Partners



Dexter Angels



Axilor Ventures



OMIDYAR NETWORK INDIA

Omidyar Network

And many more....

Incubators Onboarded



GKVK UAS : Unvisersity of Agricultural Sciences , Bangalore



University of Horticultural Sciences, Bagalkot



University of Agricultural Sciences, Dharwad (Govt. of Karnataka)



Deshpande Foundation (US & India)



Christ University Bangalore



National Academy of Agricultural Research Management (NAARM) Hyderabad



ROOTS

THANK YOU

We look forward to collaborations and partnerships.