CONCEPT NOTE

4th Sep 2020

Cropin

Digital Platform for VBA Programme- AGRA Malawi

Concept Note on Digitization Strategy for Village Based Advisors

By Cropin Technology Solutions Pvt. Ltd.

AGRA
Growing Africa's Agriculture

BACKGROUND **3**
The Farming Community Amidst The Covid-19 Pandemic 4
Key Issues Faced by Smallholders and Proposed Interventions for the Project 5
INTRODUCTION **8**
OVERVIEW OF PROPOSED PLATFORM **10**
SmartFarm® Platform and its Functionalities 10
Screenshots of CropIns Platform 10
FARMER COMMERCIAL SLABS **14**
IMPLEMENTATION PLAN **15**
Implementation Process 16
Implementation Timeline 17
Key Outcomes 17
WHY CROPIN? **18**
What Makes CropIn a Great Choice for the Proposed Project? 19
Our Presence Around The World 19
Trusted Partners 20
Industry Recognition 21

BACKGROUND

Agriculture is one of Africa's most important economic activity not only for livelihood but also for the sustenance of 250 Million people. Of the 650 million people across Africa 60 percent of them are dependent on agriculture. While nature and locusts infestation has damaged a major production window, eroded capital and increased uncertainty for the farmer to move to the next crop is the larger challenge faced by the sector. The challenge needs to be addressed at a comprehensive level from production planning to sales of produce , to reduce the ripple effects across the economy and consumers around the world.

Agriculture is the engine of economic growth in **Malawi**. Despite continuous population growth, agricultural productivity has stagnated in recent years. The country's population has increased significantly (growing from 11 million in 1970 to 39.5 million in 2011) and at the current rate of growth, it will double in the next 27 years, reaching 81 million in 2039. As a result of this rapid increase, land parcels in the areas of high agricultural potential are decreasing in size, affecting food production. Only 20% of Malawi's land is suitable for farming and that land is not utilized efficiently. Recurrent crises such as drought add to agricultural challenges.

Until recently, the agricultural landscape was characterised by **sluggish growth, low factor productivity, declining terms of trade**, and often also by practices that aggravated environmental problems. Parts of Malwai have **faced locust infestations since mid 2019 and the low rainfall in 2019** as a result of the ongoing climatic changes.

Flooding & Locusts spread in 2020 has further pushed these countries to the brink of a sustainability and food-security crisis. Adding to this, the region faces declining agricultural yields, extreme weather events, ecosystem degradation and conflicts. This is exacerbated by the fact that over 95 percent of agriculture in the region is rain-fed.

The Farming Community Amidst The Covid-19 Pandemic

As a smallholder farmer , The Risk of doing agriculture has grown multiple folds during these current times with Weather , Locusts and Covid creating unforeseen variables beyond their potential to understand , plan and handle. They are facing a severe challenge on what to grow , how to grow and where to sell to generate income to sustain their livelihoods.

The good part is pandemic is reshaping societies around the world, in part by accelerating the digital revolution. But there is a risk that it will spread unevenly, entrenching existing inequalities and leaving the world's poorest people further behind. Digital technologies can help end global poverty and hunger faster. It is essential to address its existing and potential impacts on the agri-food sector, from the perspective of both **food supply (volumes) and food demand (value)**. Nationwide lockdowns have resulted in **agronomic gaps, unavailability of seeds or capital to plan the next season, confusion on crop selection, and hectares of farmers' produce left to rot or sold at dirt cheap prices**. Transport constraints, labour shortage, and limited market access, with almost no buyers, is deeply hurting the farmers.

Locusts in Eastern Africa

Malawi is highly exposed to spill over effects of demand shocks in export destinations as most Malawi exports go to China, Europe, and America. Hence the lowered demand can damage the export market and impact the local economy adversely.

Export Destination	Malawi
Africa	18%
Rest of the world	82%

Key Issues Faced by Smallholders and Proposed Interventions for the Project

Key Issues	Action Required
Climate Change: Floods & Locusts Smallholders do not have the resources or ability to mitigate or protect themselves from the effects of climate change, which has decreased cereal production by 20% approximately and is anticipated to decrease further.	Real-time weather forecasts and predictive pest and disease advisory . Also, advisory on optimised use of inputs and natural resources would be driving agriculture towards sustainability.
Lack of timely information: There is a direct relationship between access to relevant and effective information and agricultural development. This is causing African agricultural productivity to be considerably below global standards.	Digital intervention guided by research & extension to give a standard package of practices followed by the farmers on when and how to perform a farming activity. Also audio and video learning & development modules and training on new farming practices to enable them to build their capacity at a much faster pace.
Supply of Agri Inputs: Around 80 percent of small scale farmers in Africa do not use agro chemicals due to limited access to knowledge. The lengthy supply chain and the cost of purchasing individual packets obstructs the use of inputs leading to crop losses and low productivity.	A digital ecosystem of farmers and bulk purchases will reduce the middlemen and permit input players direct access to small scale farmers, which can reduce costs. Also timely access of inputs and knowledge on their usage and remedy on pests/disease/weeds will be easier and they can be encouraged to properly utilise natural resources.
Limited Market access: Marketing challenges that span the value chain of commodities	Digital market linkage at pre harvest stage to help institutions engage well in advance

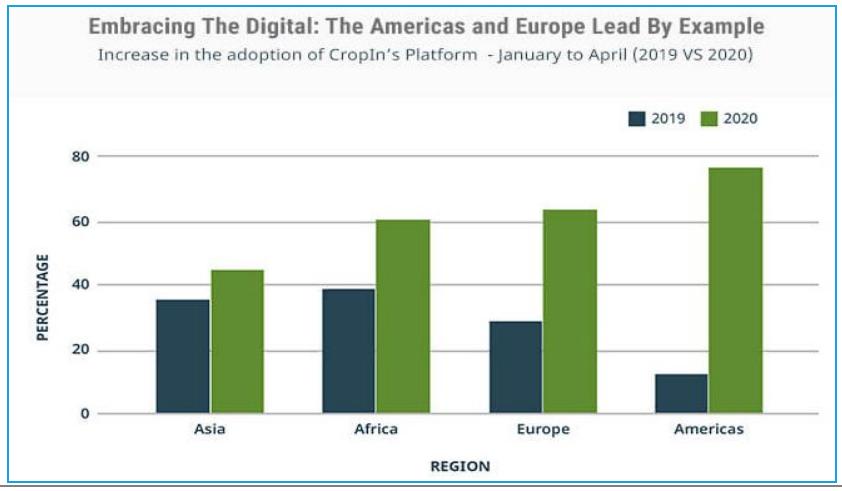
constrain farmers from accessing the best price for their produce at the optimum time. The farm-gate prices in remote areas versus market prices in most instances are very skewed.	with farmer clusters for direct farmgate sourcing.

Why Is This the Best Time to Talk About Digitisation?

1) Digitisation can help many of the world's poorest people weather the COVID-19 crisis by giving them remote access to advice, inputs and markets.	2) It can increase the overall efficiency of the food supply and boost food security through higher yields.
3) It can accelerate the adoption of a proven, cost-effective, scalable strategy for increasing long-term farm production and improving the livelihoods of poor, rural people.	4) It can give farmers a voice, enabling governments to direct and measure the impact of agricultural investments.

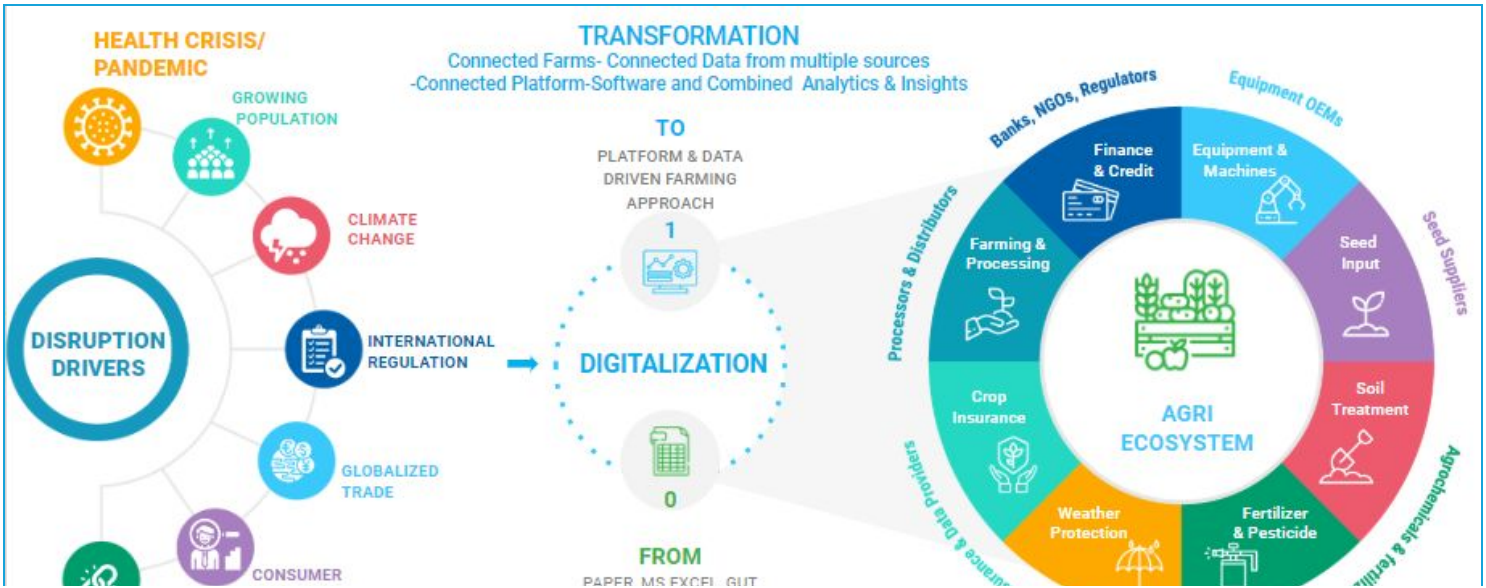
Embracing The Digital (CropIn learnings)

With restrictions forcing the workforce to embrace seemingly unconventional means to monitor and manage farm operations, there has been a remarkable increase in the usage of CropIn's mobile and web-based applications in the last few months.



Work force	Farmers	Crops
Monitor: Create Survey in Smart phone to ensure the health and safety of employees and track daily work progress	**Care**: Configure Farmer survey to track health status	**Manage**: Remotely monitor plots, Identifying plots at risk
Support: Identify the location and provide assistance to users using the GPS based system	**Connect**: Send advisories and engage through bulk SMS, Provide climate-smart advisories	**Plan**: Schedule farm activities based on weather advisories
Track: Access real-time insights on people and farm activates on mobile	**Educate**: Share Videos and training content, access to agronomic information, crop selection	**Streamline**: Leverage Plot-level intelligence to arrive at intelligent supply chain and procurement decisions
Data: Remotely procure information on the farms and crops to blueprint the tasks	**Serve**: Provide inputs and financial assistance through account and inventory management	**Market**: Create a market linkage by taking physical markets to web and leverage aggregator model

Role of Technology: Data-Driven and Connected Farming During the Current Crisis



INTRODUCTION

The challenge faced by the farmers is immediate and so the solution should reach them as early as possible. In this context it was essential to have implementation partners who would have the groundwork done on farmer clusters , extension services and training and mobilisation teams who could be leveraged to serve the needs of the farmers in minimum possible time. Please find below the partners proposed for this project :

CropIn Technology is a leading agri-tech company based in India. We provide digital platforms to agribusinesses globally enabling clients to analyse and interpret data and derive real-time actionable insights on standing crops with projects spanning geographies. CropIn company brings in cutting-edge technologies – Big Data analytics, Artificial Intelligence and Satellite Monitoring to interconnect all the stakeholders at different levels of the agriculture ecosystem. The intuitive, intelligent, ever-evolving and self-learning system takes in information from various sources like weather, satellite and ground data and delivers targeted solutions to the agribusinesses. Cropin is also recognised as the AgriTech company which received investments from the Bill & Melinda Gates Strategic Investment Fund in 2018.

Our platform has transformed the lives of over 3+ Million farmers across 50+ countries since the last 10 years. Global leaders like syngenta , Bayer , Heineken , McCain , Philip Morris International are driving their Digital initiative through our platform while it is also being used by over 200+ businesses, governments , development agencies like World Bank, IFC , UK AID, USAID, Govt of India, Govt of Mozambique etc and many more.

We have enabled digitization, traceability, compliance ,sustainability, climate smart, field task monitoring & scheduling, market linkages, GAP ALP audits, analytics & BI through our platform. The system has improved the top line of farmers (by over 20%) through better produce quantity and quality, marketability, compliance & sustainability of the produce in the national & international market, and the bottom line (by over 30%) through connected field force operations, improved adherence to best practices and a zero crop-loss approach.

We have identified a program that would entail capacity building of the farmers for adoption to digital services and a continuous monitoring and evaluation mechanism to

analyse the improvement in overall performance over the years. CropIn as a digital solution provider, proposes to deploy an integrated digital platform **SmartFarm** with the proposed partners, with the aim to provide complete management of their farm operations. This will be made possible through a digitally-enabled extension team, and real-time monitoring over the web application enabling the managers with better reports, BI and analytics.

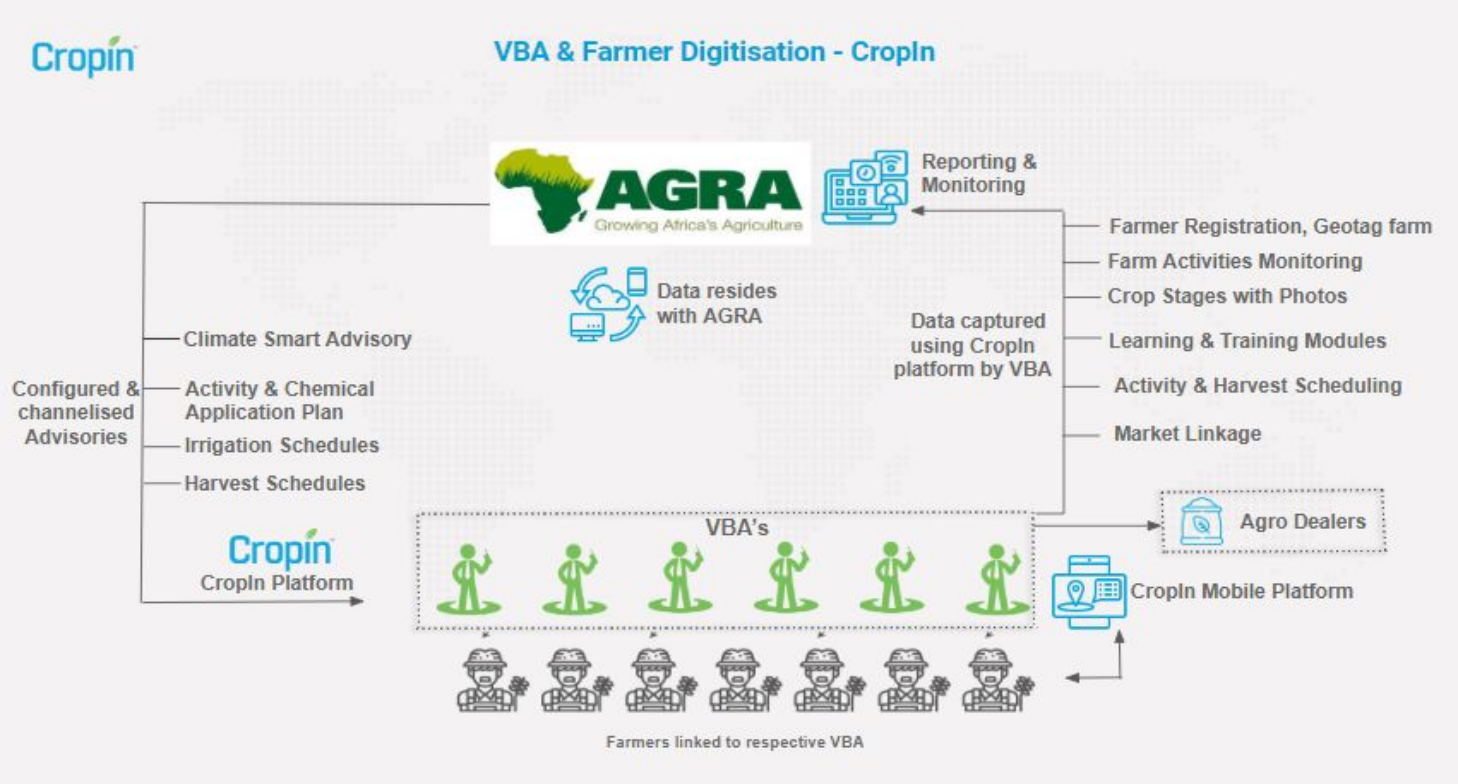
Project Scope

Digital Solution for data collection, repository management.

To digitize 100,000 + farmers across Malawi.

Project Objective:

- Baseline digitization & onboarding farmers/plots
- Geo-tag and Area Audit of registered farmer plot
- Digital Enablement of farmers on Sustainable Farming Practice
- Content and learning and development modules
- Activity and package of practice management
- Track & monitor the flow of agri input & seeds to the farmers
- Reporting module & map view of all the registered farmers
- Data Analytics & Report building using CropIns Data science team.



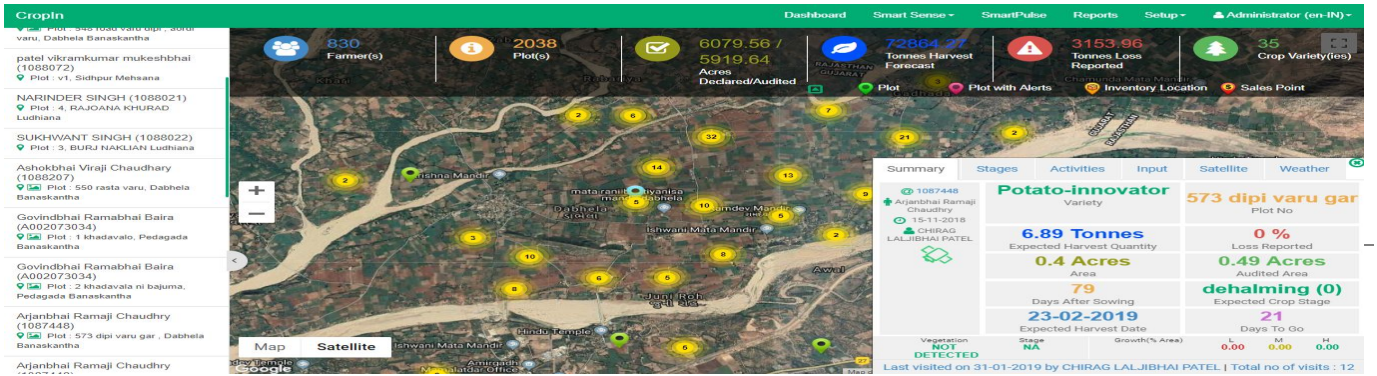
OVERVIEW OF PROPOSED PLATFORM

SmartFarm® Platform and its Functionalities

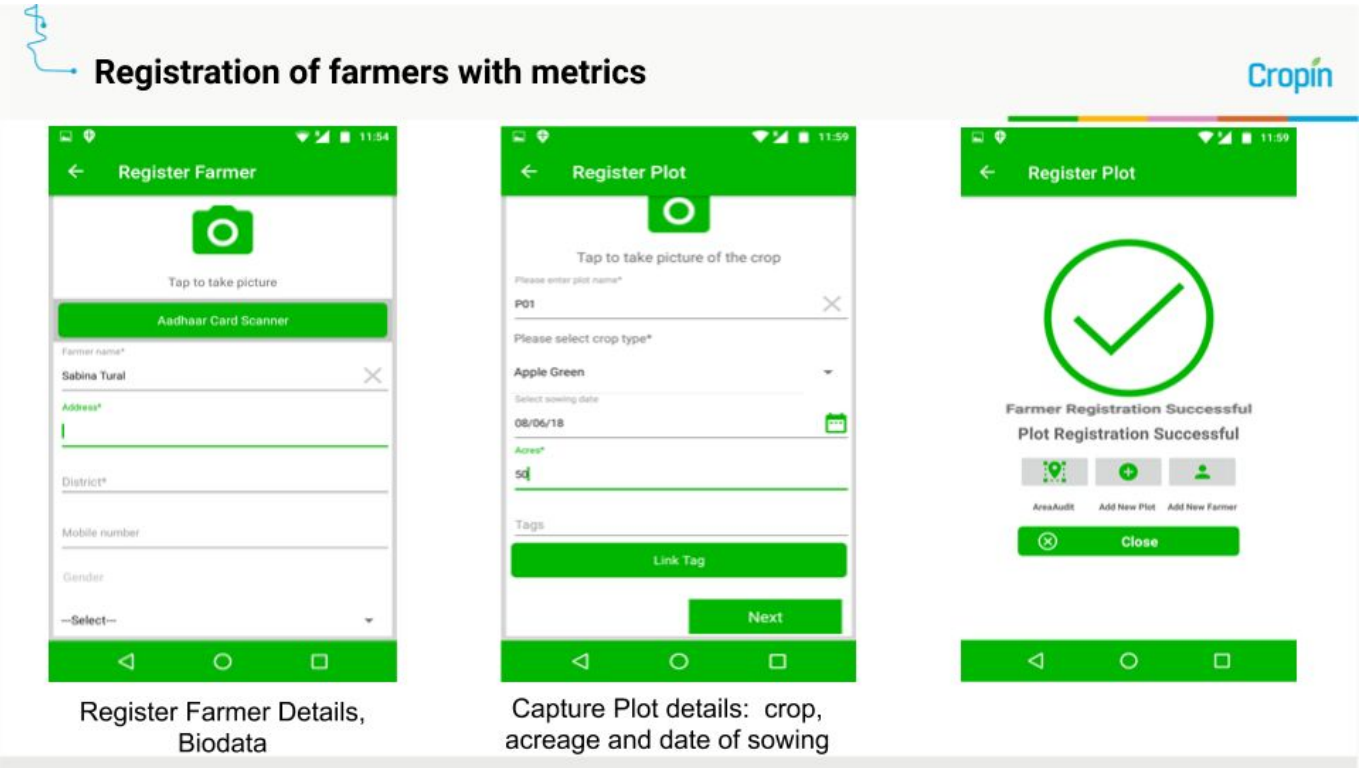
SmartFarm® is a unified digital farmer database and farm management solution that enables complete digitisation of farms and farmers. It empowers data-driven decision-making and provides complete visibility of people, processes, and performance on a near real-time basis. It connects farmers seamlessly with the organisation and ensures the management of the standard package of practices and adherence to compliance and certification. It also helps farmers from pest and crop-health related issues and meticulously manages over-spending and maximising returns.

Screenshots of CropIns Platform

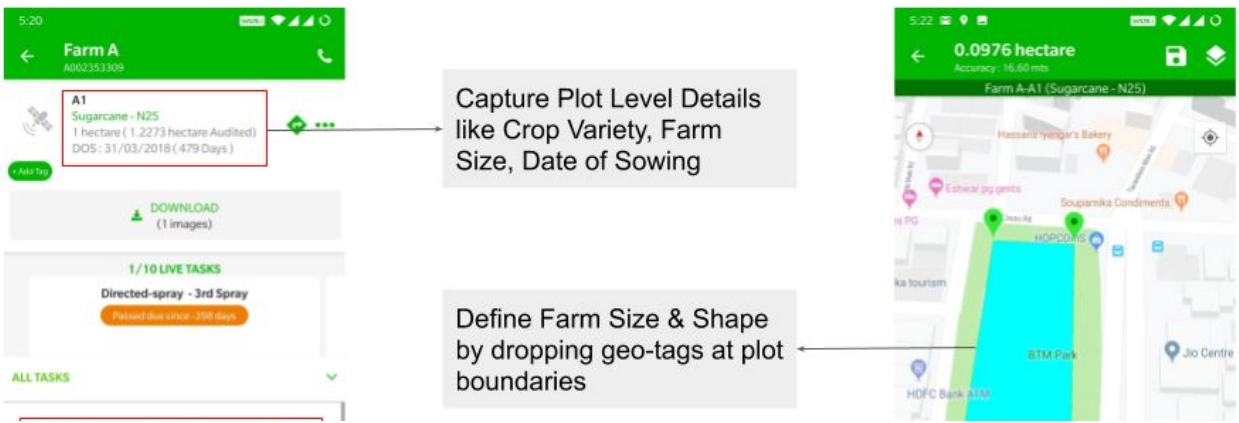
Interactive Dashboard



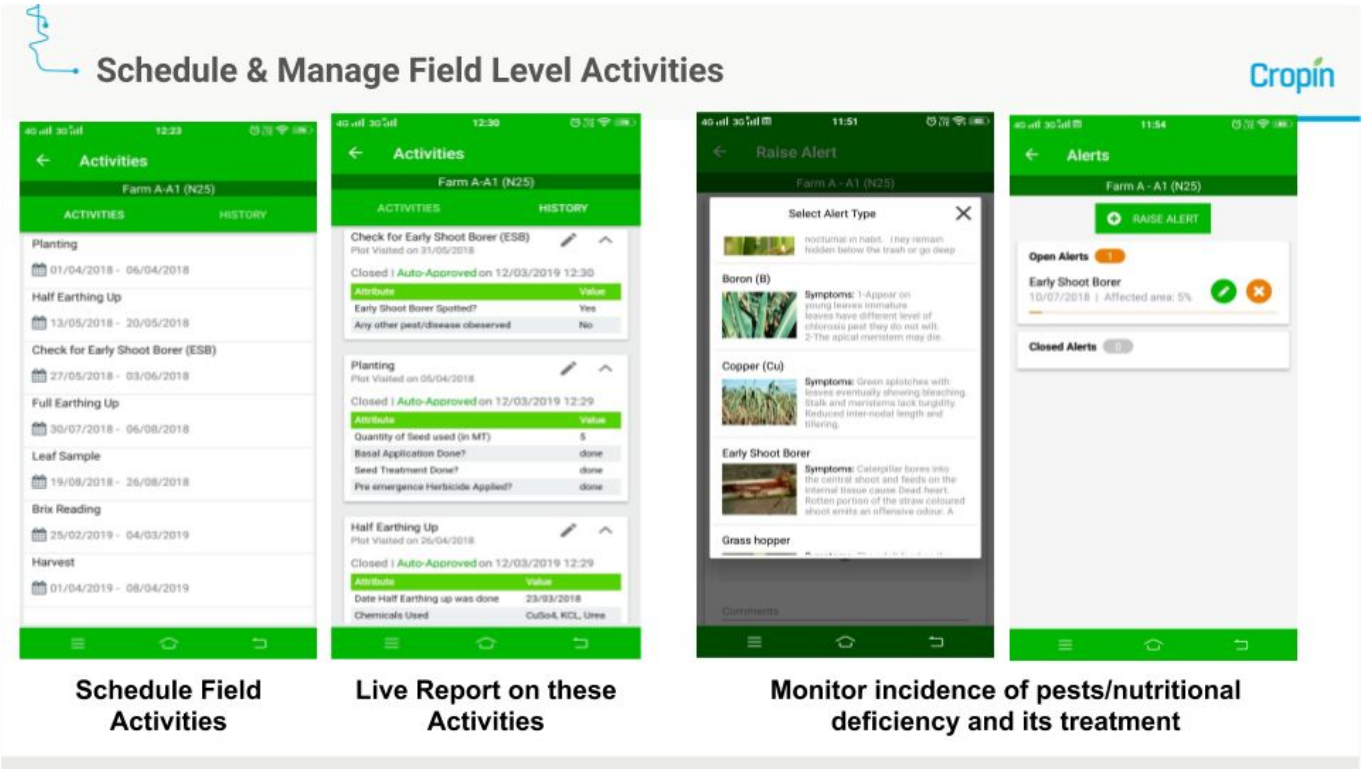
Crop Management: Our platform provides the capability of managing crop, crop variety and sub-varieties. It also helps to manage all associated activities and application plans, and a scheduled package of practices customised according to the crop variety and plot location. It allows sending notifications to the farmers based on the date of sowing that would help farmers in adhering to the global protocols and improve productivity. It also would allow them to accurately measure their plots and make decisions on the use of the right amount of farm inputs to ensure they grow quality produce. When farmers accurately measure their farm acreage, it increases the transparency on farm operation costs per unit area and eliminates the need to rely on estimates.



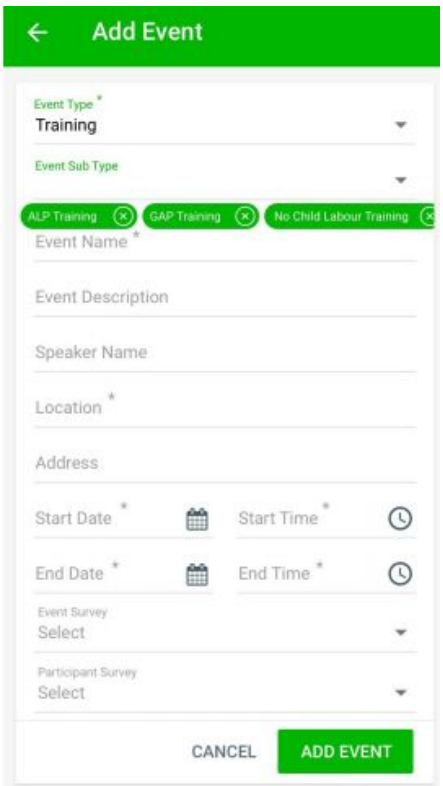
Geo Tagging & area audit of plots:

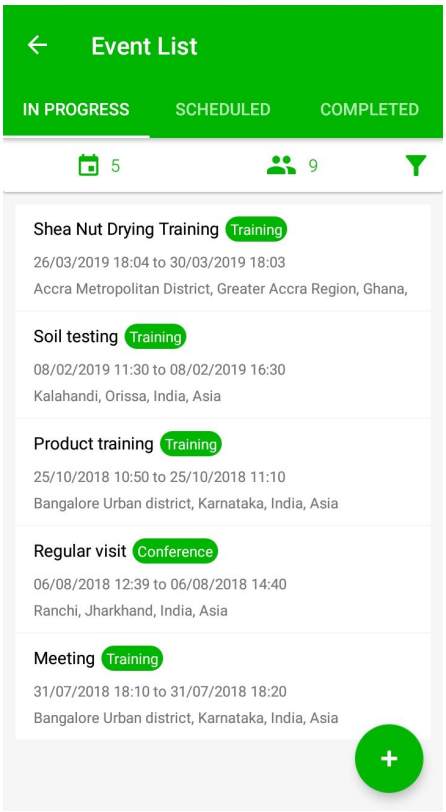


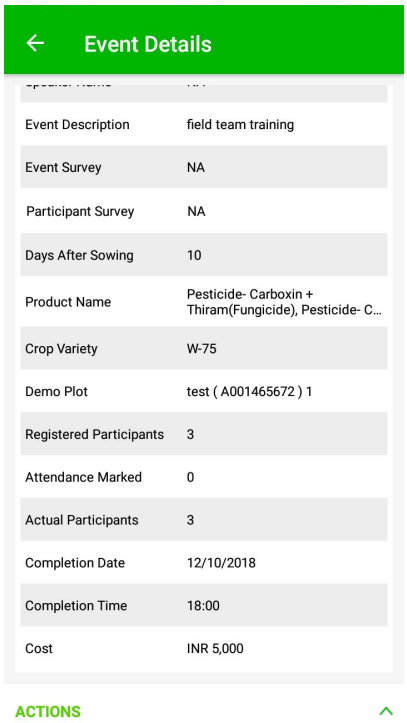
Digital Enablement of farmers on Sustainable Farming Practices:



Train farmers by creating events & capturing every detail



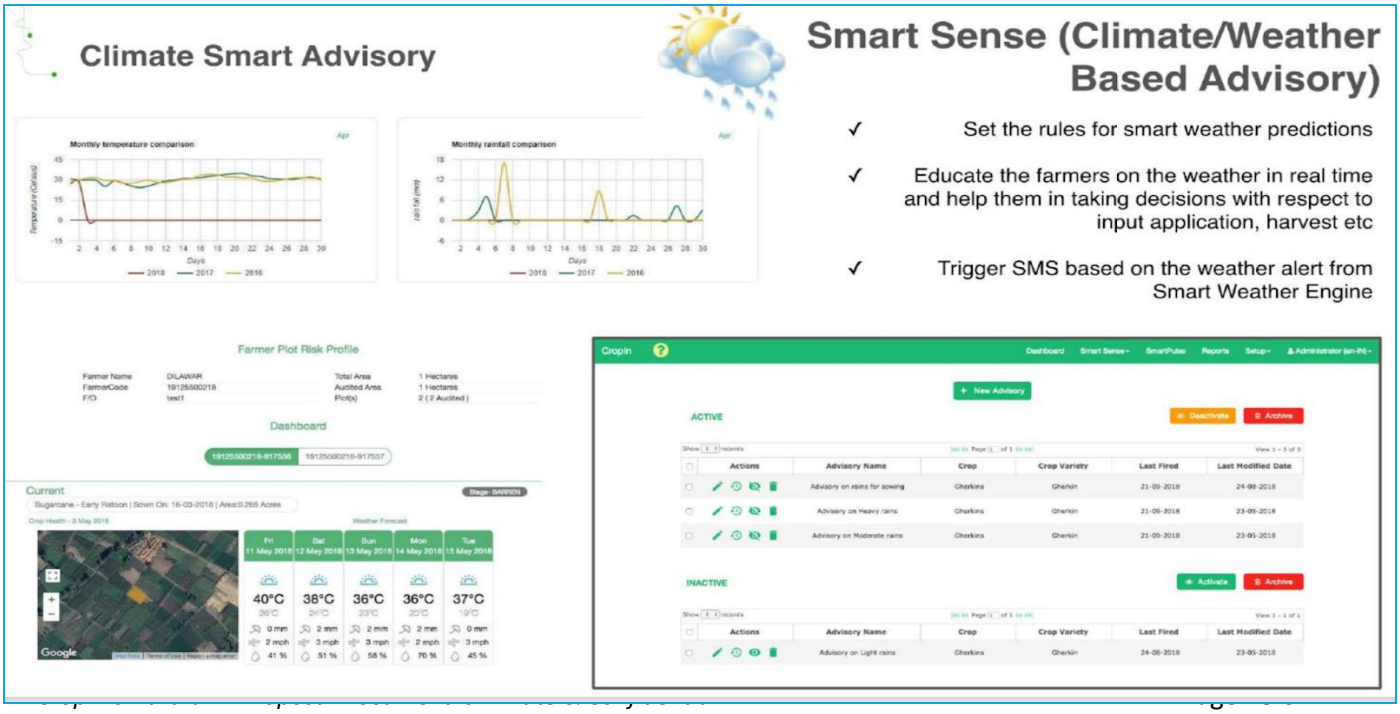




Farmer Communication: Our platform will enable and manage digitisation of the farmers and their landholdings, providing them with advisory in case of pests and diseases through a mobile-based application, capturing images and voice notes from the farm, providing weather forecasts and advisories, and reducing crop loss due to unexpected weather conditions. The farmers will be encouraged to adapt to responsible usage of water and also reduce crop loss due to unexpected weather conditions. The farmers can also obtain GAP, ALP, and GLP adherence certifications and improve their efforts on water conservation, preventing land refills, ensuring proper sanitation facilities, and implementing child labor checks.

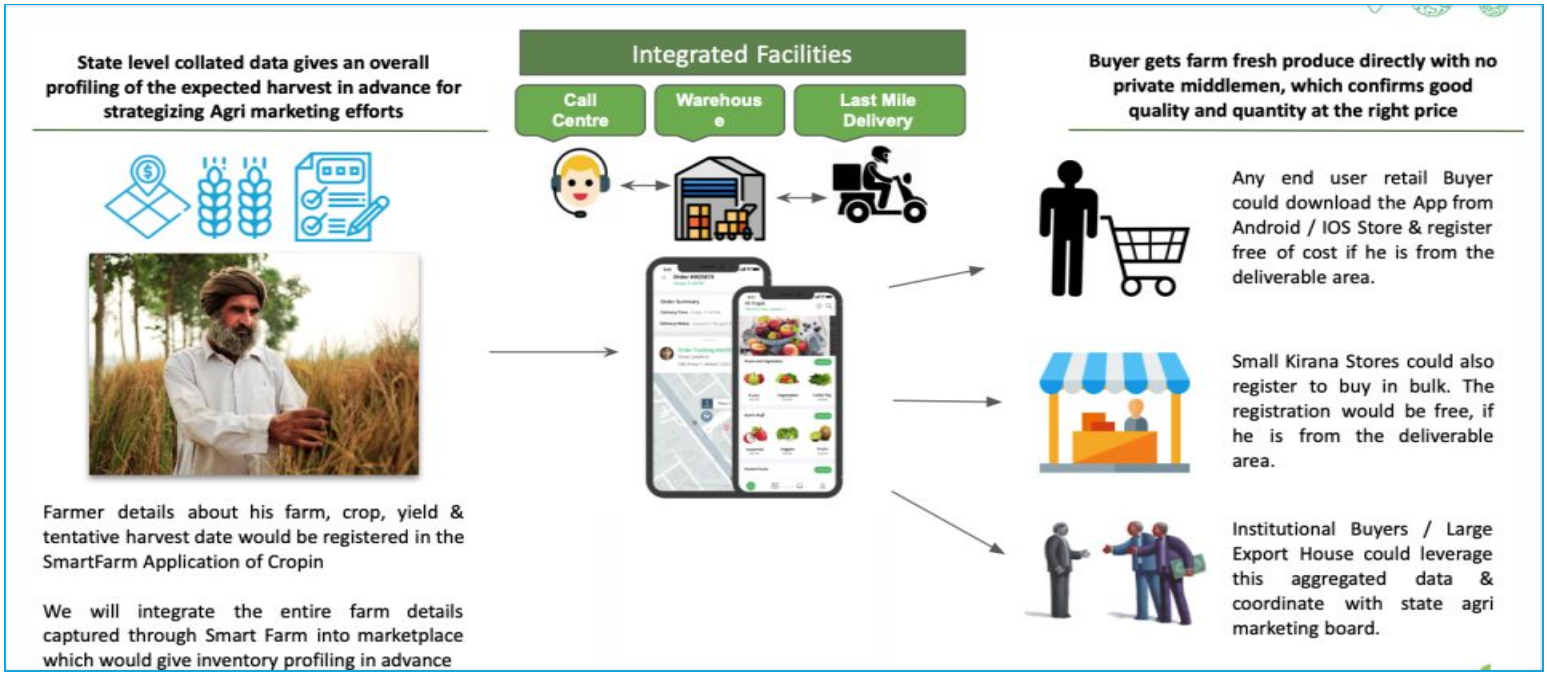
Traceability: The entire supply chain from harvest, processing to a packaged product can be managed and monitored through the digital platform. It helps to provide farm-to-fork traceability. Such traceability improves the credibility of the agribusinesses in the market and paves way for increased revenue. The end consumer can also have visibility on the product by using a QR code based tracking system. The platform helps to effortlessly manage inventory accuracy, tracking, product diversification, and order management. Our platform also includes the option to create and maintain a supplier management module where all information including their respective inputs can be captured and reported likewise.

Climate Smart Advisory: Our platform can capture and disseminate predictive and prescriptive advisories along with 50+ early warming disease predictions to the farmers. It can provide precise local weather conditions (9*9 KM Grid), which would be translated into



advisories for every single farmer based on their location, crop, days after sowing and the forthcoming weather conditions through a Machine-learned and trained advisory model.

Market Linkage Platform : The CropIn smartFarm is seamlessly integrated to a market linkage platform for institutional buyers to check the quantity and quality of produce available in the farming clusters and directly engage in digital trade through the platform.



FARMER COMMERCIAL SLABS

Particulars	Farmers	Cost per Farmer / Year
Number of Farmers	5000 - 10,000	$7.00
Number of Farmers	10,000 -15,000	$6.00
Number of Farmers	15,000 -30,000	$5.00
Number of Farmers	30,000- 50,000	$3.00
Number of Farmers	50,000-100,000	$2.00

***All inclusive of unlimited number of users & complete project management.**

IMPLEMENTATION PLAN

CropIn platform is robust , flexible and configurable to cater the program design and thus offers a short GO live duration of a Months time to get started.

1. **Platform hosting and configuration**

The Complete platform would be hosted and configured with the required details as expected by the partners. This would include frameworks for farmer digitisation, land record digitisation /Integration, crop configuration along with relevant POP advisories and GAP, Climate smart advisory triggers, chemical application schedules, etc. It would also include frameworks for multi stakeholder on-boarding and access to reports and dashboards with a complete hierarchy setup across the program.

2. Training and Capacity Building of the FPO's/SHG's /AE's and Field team

A comprehensive training and farmer onboarding plan would be made ensuring there is complete commitment to the program and active participation through continuous training and handholding from the PMU team. The complete extension network and management of the partners would be onboarded and trained on usage of Mobile and web based applications.

3. Project Team

CropIn would set up a dedicated Project Management Unit (PMU) for the entire program. Below is the proposed PMU structure with teams to achieve program objectives with timelines. This will also help in improving efficiencies of Extension team at ground level, timely gathering the data, reporting, farmer advisories so that the right amount and quality data is available for stakeholders to genuinely participate on the platform. A very strong quality assurance process would be maintained by the PMU and data would be qualified at regular intervals.

Team description & roles

ROLE NAME	ROLE DESCRIPTION

CropIn PM	The designated CropIn project implementation partner
DTS	The designated Digital Transformation Manager from the client
MGMT	The designated management representative / project steering committee representative from the client
Users	The end users of the application from the client

Implementation Process

TASK ID	TASK NAME	Primary Responsibility (Driver)	Secondary Responsibility (Attendees)	Dependency
1.	Hosting	CropIn PM		Finalization of the contract
2.	Nomination of a dedicated Digital Transformation Manager	MGMT		
3.	Process mapping of the business operations	DTS	CropIn PM	TASK ID 2
4.	System configuration	DTS	CropIn PM	TASK ID 3
5.	Primary training to the Designated Digital Transformation Manager from the client	CropIn PM	DTS	TASK ID 4
6.	Mock-run of the workflow to mirror on-the-ground operations with test data	DTS	CropIn PM	TASK ID 3, 4
7.	Making necessary changes to the configuration & retraining the Digital Transformation Manager from the client	CropIn PM	DTS	TASK ID 6
8.	Training to the end users provided by the client Digital Transformation Manager and supervised by the CropIn PM	DTS	CropIn PM + Users	TASK ID 7
9.	Mock Run of the workflow to mirror on-the-ground operations with test data by the entire team	DTS + Users		TASK ID 8

10.	Get sign off from the management	CropIn PM + DTS + MGMT		TASK ID 9
11.	Finalize list of required reports (operational as well as management)	DTS		TASK ID 10
12.	Archiving test data upon confirmation from the Digital Transformation Manager from the client	CropIn PM		TASK ID 10
13.	GO LIVE	CropIn PM + DTS		TASK ID 10
14.	Deployment of the desired reports	CropIn PM		TASK ID 11
15.	Progress tracking & ensuring adoption by the users	DTS	Users	
16.	Project progress tracking with DTS	DTS	CropIn PM	
17.	Project progress tracking	CropIn PM	MGMT	

Implementation Timeline

Project Plan	Month			
Phase	**1**	**2**	**3**	**4**
Setup the PMU Unit & gathering requirement				
Setting up of the platform structure & organization hierarchy				
Hosting & Configuration of the platform (Agronomic Content)				
Training & Development of Team (Admin, Managers, Field team, Trainers)				
Testing before product handover & taking client feedback				
Prepare reporting structure based on project requirements				
Archiving the test & rejuvenating the solution				

GO LIVE				

Key Outcomes

No of Farmers : 100,000+

Average Area : 1 HA

Overall Proposed ROI of digital intervention : > 50X , Expected in Year 1 : 10X

Project Plan	Potential Benefits	
Phase	**Target Value**	**Potential Business Value ($)**
Increase in production Productivity under selected crops	10 %	50
Reduction of Losses from Pest and Disease and weather	5 %	25
Better Input and Market access related benefits	10%	50
TOTAL POTENTIAL REALISABLE VALUE		125

Potential Income Enhancement : USD 125 per farmer per season.

Other Benefits

1. Better institution capacity building with data driven value chain engagement
2. Promotion of Agropreneurs creating local job opportunities
3. Better institutional engagement and pathway for future expansion of the program
4. Learning from Training and advisory to become a lifelong asset for farmers .

WHY CROPIN?

CropIn is a leading AI- and Data-led agri-tech organisation that provides **integrated digital platforms** to governments, agribusinesses, lending institutions and NGOs globally. Our unique suite of technology products enables various stakeholders in the agroecosystem to adopt and drive a digital strategy across their operations.

Using cutting-edge technology like **artificial intelligence, satellite monitoring, and GIS**, we help create an interconnected network of all stakeholders at different levels of the

agriculture ecosystem, enabling clients to analyse and interpret data and help them derive real-time actionable insights on standing crops. These organisations leverage our future-proof solutions to effectively drive their initiatives around Digitisation, Predictability, Compliance, Sustainability and Traceability.

With the vision to 'maximise per-acre value' and the mission to 'make every farm traceable', CropIn adds value to agri-enterprises by increasing efficiency, scaling productivity, and strengthening sustainability across the board. Over the last decade, we have digitised over **3 million farmers managing 6.1 million acres of farmland across 52+ countries**. Our platform also manages **388 crops and 9,400+ crop varieties.**

CropIn has received investments from Indian, American, and Japanese investors amounting to a total of $12 million till date. The current investment partners are Bill and Melinda Gates Foundation SIF, Chiratae Ventures, Ankur Capital, BEENEXT, Invested Development and Seeders.

What Makes CropIn a Great Choice for the Proposed Project?

Pioneering Technology Solutions

- A decade-long expertise in agri-tech
- Disruptive innovations for a holistic digital ecosystem
- Sustainable and predictive solutions

One-Stop Integrable Digital Agriculture Platform

- Ready IT stack enabled for agribusinesses
- Highly configurable platform with API integration
- Crop- and location-agnostic solutions

Best-in-class Customer Service

- On-field/virtual training and capacity building
- Expert and personalised account management
- 24/7 support and assistance

Knowledge Acquisition from Around the World

- Multi-continent operations in 52 countries
- Managing 380+ crops and 9400+ crop varieties
- Multilingual support in 29 languages

Multi-Value Chain Focus

- Serving an array of use-cases and objectives
- Rich data-lake of 0.2 trillion data sets
- Data management solutions for field crops,

Global Network of Channel Partnerships:

- Robust partner enablement strategy
- Collaborative approach to provide

plantations, greenhouses, and aquaculture

optimum solutions

- Exciting opportunities that facilitate business growth and profitability

Technology Robustness

- Servers hosted on the #1 cloud platform AWS for 100% data security
- ISO 27001:2013 standard for protection against threats to information security
- Dynamic cloud-native tech solutions designed for scale and enterprise-grade security

Our Presence Around The World

4 Offices

195 Employees

GLOBAL IMPACT			
	6.1 M Farmers Digitised	**2.1 M** Farmers Benefitted	**52** Countries
25 Global Partners	**388** Crops	**9400+** Crop Varieties	**207** Clients
98% Client Retention	**92%** Adaptability Score	**Re-imagining** Agriculture With Data	

Trusted Partners

Client Name	Country	Use Case	Crops
MERCY CORPS	Kenya, Ethiopia	Digitizing farmers including primary data collection of farmers, creation of a digital profile. Capture socio-economic details, details of farms & crops grown. Provide farmers with climate-smart advisories	Maize & other cereals
SUCAFINA	Uganda, Rwanda & Burundi	Ensure transparency and traceability of the entire coffee value chain Uganda, Rwanda & Burundi. Ensure farmers are following global GAP standards. Keep track of the training events. Monitor post-harvest processes & ensure that the quality standards are met. Keep track of the loan disbursal to farmers and payments made during harvest.	Coffee
Solidaridad	South Africa, Malawi, Mozambique & Zambia	Digitizing 10,000 farmers including primary data collection of farmers, creation of digital profile. Capture socio-economic details, details of farms & crops grown	Soy
Finlays Since 1750	Kenya	Finlays is the largest exporter of Fresh Fruits and Vegetables from Kenya to retail giants like tesco and Barfoots. The worked with over 800+ Farmers growing 6+ crops like Beans , Sugar peas , Sugar Snaps and supplying it directly fresh to retail stores.	Fruits & Vegetables
INCAJU INSTITUTO DE FOMENTO DO CAJU	Mozambique	Digitization of 50,000 cashew farmers in Mozambique, enabling them with advisory to improve productivity and reduce pest & weather related losses. Enabling them to adopt sustainable best agricultural practices.	Cashew
PLEXUS GROUP	Mozambique	40,000+ farmers digitized from seed to sale with over 180 field agents trained and active on SmartFarm. Digital Record keeping brought transparency, accountability and ease of doing business.	Cotton

Industry Recognition

2020

- Winner of **Millennium Alliance COVID19 Innovation Challenge Award 2020**
- **Deloitte Technology** Fast 500 Asia Pacific 2019 (Segment: Clean Technology)
- 2020 **SVG Ventures & Thrive Top 50** Scaling and Visionary Agtech Companies
- Winner of 'Bring Your Own Agriculture Data Challenge' (a **World Bank 2020 Innovation Challenge for Agriculture** and Food Security Risk Financing in Southern Africa)
- Finalist in **UNDP 'Cultiv@te' Innovation Challenge** Programme
- Winner of **COVID 19 Millennium Alliance Challenge**
- Recognised as the "Best Mobile Innovator" at the 10th mBillionth Awards

2019

- Featured in "SVG Ventures" " Thrive Top 50 Report " of leading Global Agtech Companies.
- Winner of "**Ag-Tech Developer Challenge**" conducted by **RainForest Alliance**
- Winner of Deloitte Technology Fast 50 Awards
- Winner of ICFA Agribusiness Award
- Winner of **Accenture Ventures Applied Intelligence Challenge**
- Finalist at Foodbytes! By Rabobank
- Winner of **AI Innovation Challenge 2019 by Government of Maharashtra — SmartRisk®**
- Winner of **AWS Innovation Challenge — SmartRisk®**

2018

- Winner of **HDFC Bank Digital Innovation Summit — SmartRisk®**
- Agrow Awards for 'Best Innovation in Digital Farming Technology' for SmartFarm® at London
- Rabobank Food Loss Asia Challenge 2018 Finalist at Singapore
- **Dell SME Channels Conclave and Awards** for 'Application Specialist' for SmartFarm®
- 'Artificial Intelligence Champions in Agriculture' by AI Connect
- **India-UK Tech Rocketship Award** for 'Judge's Award for Creativity'
- Paul Writer Hot 50 Award for 'Innovative Use of Technology'

500
Technology Fast 500
2018 APAC WINNER
Deloitte.

FoodBytes!
by Rabobank

Agrow
Agribusiness intelligence | informa

Food Loss
Challenge Asia
By Rabobank
Rabobank

HDFC BANK
Digital
Innovation
Summit

aws

THE WORLD BANK

Paul Writer
BANGALORE
HOT 50
Namma
Bengaluru's
Best Brands

Saluting Mobile Innovations for Development
mBillionth
awards south asia

SME CHANNELS
SUMMIT & AWARDS
2018
100
SUPER
PARTNERS
RECOGNITION

AIC
ARTIFICIAL INTELLIGENCE CONNECT

MILLENNIUM
ALLIANCE
Inspiring Innovation. Sharing Solutions.

Cropin

PROPOSAL DOCUMENT

Thank You

Submitted by Chandrakanth PS

smartfarm smartrisk mwarehouse

smartsales acresquare

HARNESSING TECHNOLOGY
REVOLUTIONISING AGRICULTURE