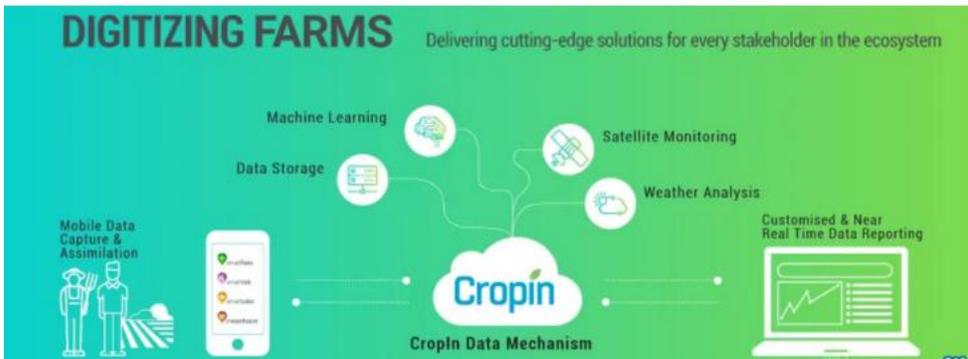**INCEPTION REPORT**

SUBMITTED BY: CROPIN TECHNOLOGY SOLUTIONS

1. Introduction

CropIn Technology is a leading agri-tech company providing integrated digital platforms to agribusinesses globally enabling them to analyze & interpret data and derive real-time actionable insights. CropIn brings in cutting-edge technologies –

Big Data analytics, AI & Satellite monitoring to predict crop performance at scale. 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 and insights to governments, agribusinesses, and farmers. The company has become the platform of choice with 200+ clients in 56+ Countries covering Commodity, Banking & Insurance, Farming, and government and development sectors. CropIn has extensive experience in the field of providing early warning systems and also for over 200+ projects across the globe for various use cases within the Agri ecosystem over the past decade

2. Objectives and the proposed Pilot solution:

1. Deliver tailored advisory services to individual farmers in terms of susceptibility to climate changes:

One of the major challenges for farmers in terms of susceptibility to climate change and extreme weather conditions is the lack of access to timely information. CropIn proposes to tackle this challenge by equipping them with information on weather forecasts and providing actionable insights on them - for e.g. increase irrigation if precipitation forecasted for the next 4 days is less than critical levels. The pilot will identify lead farmers (men and women) within the farming community and equip them with a smartphone mobile application to capture on-ground data related to each farmer,like mobile number, a crop grown, acreage, date of sowing/pruning, geocoordinates, etc. Based on the information c aptured, curated advisories are sent out to the registered mobile number of the farmers as well as the mobile app used by lead farmers.

2.Send out precautionary advisories tailored to individual farmers to warn them in advance in case of a possibility   of an occurance of a disease

The solution has a unique model in using various data inputs to provide curated, timely, and automated weather advisories to farmers and farming communities. The platform has a proprietary Disease Early Warning System which finds a correlation between climatic conditions and certain diseases in crops like tea and rice, this capability would help create precautionary advisories for farmers to avoid crop loss due to pests and diseases. Mobile phones have become common even among the smallholder farmers and we use SMS as our advisory dissemination channel for wider reach but ensuring advisories are tailored for individual farmers. This advisory dissemination channel can also be used to create awareness of climate change and the need for resilience.

Project Plan- for Data Science model implementation

Month of February and March:

On boarding Farmers:

We will closely work with the Partners' field staff- We will train them to use our mobile application-where in we will be capturing the farmer name and get their plots area audited, get the farmer's consent and ID card, phone number and sowing date of their respective crop + crop variety

Advisory messages to the farmers: We shall decide on the crop, crop variety for which we shall be working in each of the 2 geographies- Bangladesh and Sri Lanka and will be closely working with our internal Agronomist to begin to provide Climate sense related and Agronomy related advisories to the on boarded farmers through SMS. These would be based on parameters- humidity, temperature, precipitation , etc and also the basic crop variety specific package of practices advisory- in terms of what should be the content of fertilizer and pesticide when the crop is infested by a particular pest/ disease.

PLOT RISK PROJECT PLAN:

The dat a science team parallely starts working on the 3 indices : dews, health (+Water) , yield estimation advises but for this, they need to first need quality input data to work on the models- this requires correctly area auditted plots.

The cropin implementation team will first work with the partners to recruit the field staff and then train the field staff to use the application to capture the farmer data and on how to area audit the plot.

Post this, the farmers will be onboarded with all the required details. The data science team have their requirements for data collection:

1. All varieties of interest should be collected around all regions of interest and the number of points per crop depends on the area of study.

2. No. of plots for each variety/crop (Each District)

3. Minimum no. of plots (each variety) = 20 -30 plots

4. Total Points required =no. of variety*30 = 240 plots

5. Plot data in required geospatial format (KML/ SHP/ GeoJSON) or SmartFarm

6. Plot data tagged with Crop name and crop related attributes includes crop variety, sowing dates, Duration of crop, Maximum Attainable yield* (Variety wise), Type of irrigation and Mixing crop information

7. For better precision, collect historical data for the same plot such as crop grown, sowing and Harvest date, type of irrigation and historical yield data

8. Minimum plot size should be 0.5 Ha

The proposed data collection methodology is:

1. Planning of collecting the points through District wise.
2. Choose the particular District in a state
3. Check the crop-wise number of points already collected in the state
4. Calculate the number of points remaining to be collected
5. Move in all directions from the center and collect the points as mentioned in the diagram.

Data Collection Precautions
Sample wrong plots which are not useful for model building

Sample right geotagged plots

Inception Plan		
Week	**Date**	**Description**
Week 1-3	Dec 21, 2021- Jan 4, 2022	Requirement gathering and finalizing scope of the project
		Discussion of scope of work - Sales, implementation team
		Setting up the platform
Week 4-8	Jan 11, 2022- Feb 1, 2022	Kick off call with partners on the project
		Creating project plan for partners- defining their deliverables
		Setting up the hosting platform with org heirarchy, user roles, crops
Week 9-13	Feb 8- Mar 1, 2022	Building the partner field team to collect ground data of farmers
		Smartfarm mobile application Training session for partner's POCs
		Work with partners to onboard 500 farmers each in SL, Bangladesh with respective farmer id, correct date of sowing, crop variety details and farmers' plots audited
		Deploy the basic model for climate sense advisories- with PoP based advices, GAP+ Sowing date based advices
Week 14-19	March 7- April 4 2022	Continue onboarding farmers in each location- onboard upto 1200 farmers by end of the month
Week 20-25	April 11- May 2, 2022	Field officers to collect the data on challenges faced by farmers in the previous season- ground data about irrigation methods, family, houshold income, pest and diseases, etc. Deploy the first output of the Data Science outputs-plot risk features- : dews (Disease early warning system), health (+Water) , yield estimation
Week 26-30	May 9- May 30, 2022	
Week 31-34	Jun 6- Jun 27, 2022	
Week 35-38	Jul 4- Jul 31, 2022	Collect impact feedback through partners on the advisories
		Collect and collate feedback and make a project report on success and scalability of the project