

NABARD Hackathon

Presentation by  
TEAM GENTLEMEN

# SowSure

Precision in Every Planting



# MOTIVATION

## Project Background

Agriculture is the backbone of India's rural economy, but smallholder farmers still struggle with uncertainty in crop choices, input use, and resource planning. With changing climate patterns and limited access to reliable data, many rely on traditional methods that no longer meet today's challenges.

To move towards climate-smart farming, India needs robust Monitoring, Reporting, and Verification (MRV) systems that can track impact, build transparency, and open doors to climate-linked finance. Yet most existing MRV solutions are too costly, too complex, or not designed for smallholder realities.

What is needed is a simple, affordable, and scalable MRV platform that combines satellite imagery, sensor data, and farmer inputs into clear, actionable insights. Such a solution can guide everyday farm decisions while also providing verifiable climate benefits, helping farmers reduce risk and aligning with NABARD's mission of inclusive, tech-enabled rural growth.



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# PROBLEM STATEMENTS



## SowSure

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01

### Lack of unified solutions

Smallholder farmers lack a single, reliable platform that integrates soil, climate, water, labor, and market factors to guide data-driven crop planning and resource management.

02

### Limited Scope of Existing Tools

Current solutions rarely support multi-cropping, organic practices, or dynamic resource use, all of which are critical for sustainable and climate-resilient agriculture.

03

### Fragmented and Inaccessible Data

Agricultural data from satellites, IoT devices, and local records is often scattered, difficult to access, and not tailored to smallholder contexts—leading to missed opportunities for improving yield and profitability.

04

### Gap in MRV for Smallholders

Most Monitoring, Reporting, and Verification (MRV) systems are either too complex or too costly, leaving smallholders without tools to prove climate benefits, access carbon finance, or align with sustainability frameworks.

# Proposal

# SowSure

A unified platform for smarter farming and verifiable climate action.



## Data-Driven Crop Recommendations

Recommend the most suitable crops by analyzing soil health, local climate, water availability, labor, and time duration—helping farmers make informed, optimized planting decisions.

## Sustainable & Organic Farming Support

Promote crop rotation, intercropping, and personalized organic manure guidance to improve soil health, reduce chemical dependency, and support long-term sustainability.

## Accessible Farm Planning Tool

Provide a simple, farmer-friendly platform with localized advice, crop calendars, support for regional languages, and potential offline access for low-connectivity areas.

## Integrated MRV for Climate Benefits

Track inputs, yields, and resource use alongside satellite and sensor data to generate transparent, verifiable records of climate impact, enabling farmers to participate in carbon finance and sustainability programs.

## Contribution to SDGs

Enhance productivity and profitability while aligning with SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption & Production), and SDG 13 (Climate Action).

# OUR FEATURES



## Core Features:

- **Crop Recommendations:** Based on soil data, land size & duration, previous crop, water & labor availability, and location.
- **Crop Rotation & Intercropping Plans:** Year-long sustainable plans to improve soil health.
- **Organic Manure & Fertilizer Guidance:** Soil- and crop-specific advice to boost yield and reduce chemical use.
- **Profitability Forecast:** Market-linked predictions to help farmers make profitable crop choices.

## Optional / Future Features:

- Farming Calendar & Scheduler (visual activity planning)
- Localized Language & Voice Support
- Mobile-friendly Access
- Live Weather & Pest Alerts (via APIs)
- Market Linkages & Labor Marketplace



# NOVELTY



- **Goes beyond generic crop advice by integrating crop rotation, intercropping, and sustainability measures.**
- **Provides organic manure & fertilizer guidance aligned with soil and crop cycle.**
- **Offers profitability prediction by using live/archived market data.**
- **Built with accessibility in mind: multi-language, voice assistant, SMS/WhatsApp delivery options.**

01

### SDG 2: Zero Hunger

→ Better, more profitable crops through smart planning & resource optimization.

02

### SDG 12: Responsible Consumption & Production

→ Promotes sustainable practices (rotation, intercropping, organic inputs).

03

### SDG 13: Climate Action

→ Encourages water-efficient, soil-friendly, climate-adaptive methods.

# Our target SDG alignment



#### Additional SDGs covered:

→ **SDG 1: No Poverty**

increase farmer income

→ **SDG 15: Life on Land**

preserve soil health & biodiversity

# Implementation and Feasibility

## 🔧 What We'll Build:

- Web platform where farmers input land, soil, water, labor, and time data.
- Backend logic to generate crop, intercropping, and organic input suggestions.
- Dashboard to show recommendations, profitability, and optional scheduling.

## 💻 Tech Stack:

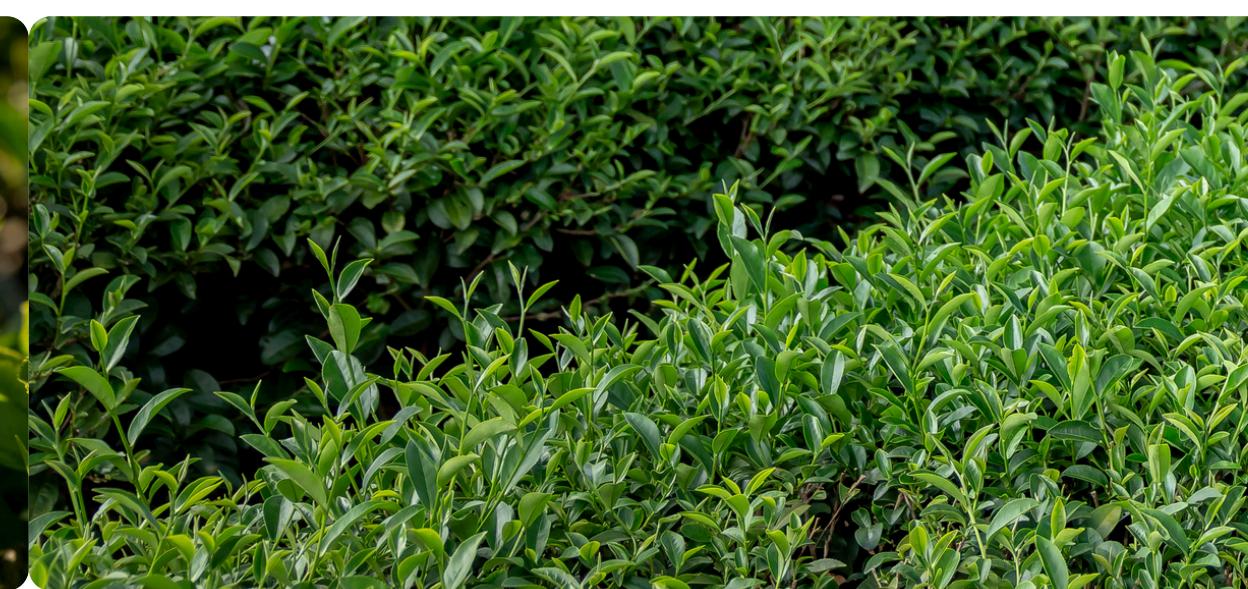
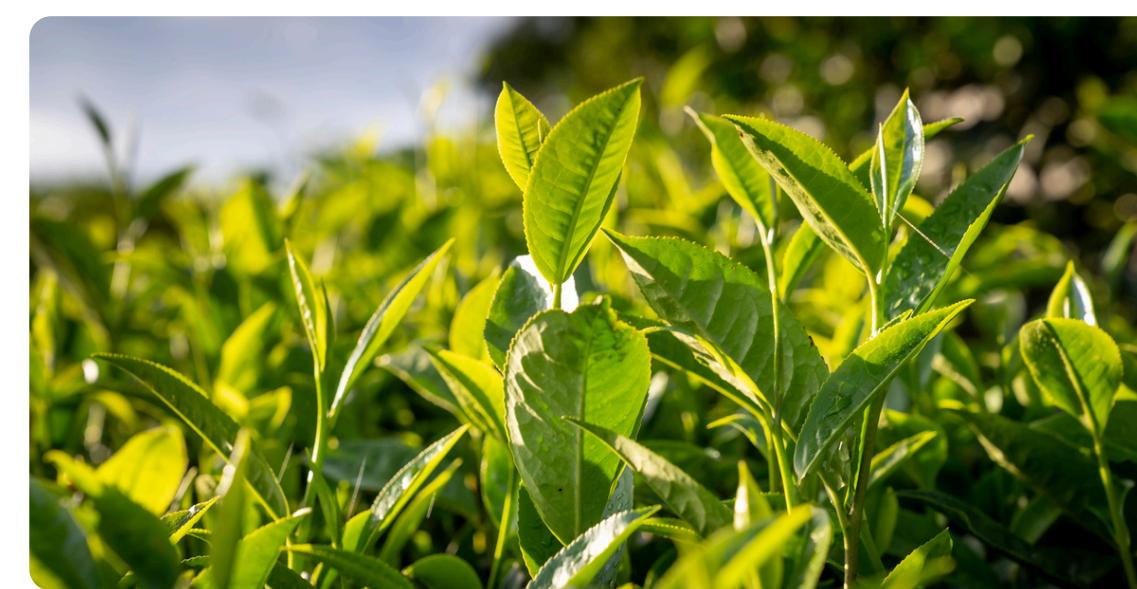
- Frontend: HTML, CSS, JS (Bootstrap / React)
- Backend: Flask (Python) or Node.js (Express)
- APIs: Bhuvan LULC, Soil Health Cards, AgMarkNet/eNAM (market), IMD (weather – if available)

## 📦 Data Sources:

- Soil & land use: Bhuvan APIs
- Market prices: AgMarkNet or eNAM
- Weather: IMD / public datasets
- Crop logic: ICAR guidelines & open agri datasets



# Scalability & Impact



## 🌱 Long-term Vision:

- SMS/WhatsApp farmer alerts
- Voice-enabled mobile app for inclusivity
- ML-based adaptive crop & price prediction
- Image-based crop damage detection (pest/disease recognition with organic remedies)
- Farmer-labor & farmer-market digital connect

## 📈 Scalability:

- Modular design → easy expansion to all Indian states with local datasets.
- Flexible architecture → adaptable for Africa/Southeast Asia with localized inputs.
- Multilingual, farmer-first, and climate-resilient — built to grow with changing needs.

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**NABARD HACKATHON**

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**THANK  
YOU**