



AGRI-SAHAYAK

Innovating for crop advisory system

CRTL+CROP TEAM(SC2) 9

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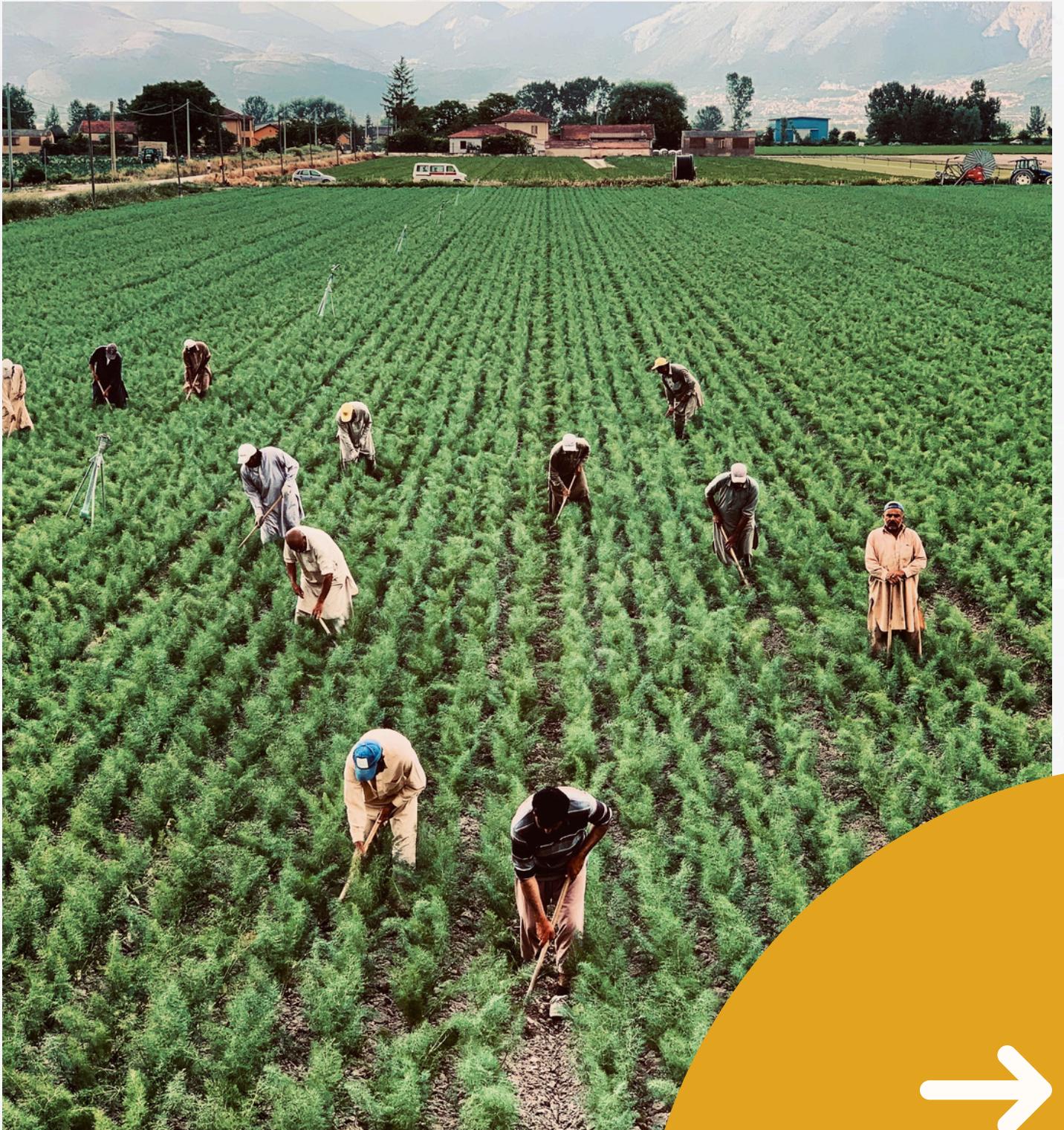
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INTRODUCTION

Agri-Sahayak is a proposed digital system designed to empower smallholder farmers in India.

It acts as an “intelligent farm companion”, offering data-driven crop advisory.

Uniquely, it focuses on non-IoT data collection methods—no reliance on in-field sensors.



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Agri Sahayak Web Features



Crop Advisory Dashboard:
Displays personalized crop, irrigation, and fertilization recommendations.



SOIL HEALTH MONITORING:
UPLOAD OR ENTER SOIL TEST RESULTS TO RECEIVE NUTRIENT ANALYSIS AND FERTILIZER SUGGESTIONS.



Weather Integration:
Localized weather forecasts with actionable insights (e.g., irrigation timing).



YIELD PREDICTION TOOL:
PREDICTS POTENTIAL YIELDS USING AI MODELS BASED ON CURRENT SOIL AND CLIMATIC INPUTS.



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Key Objectives



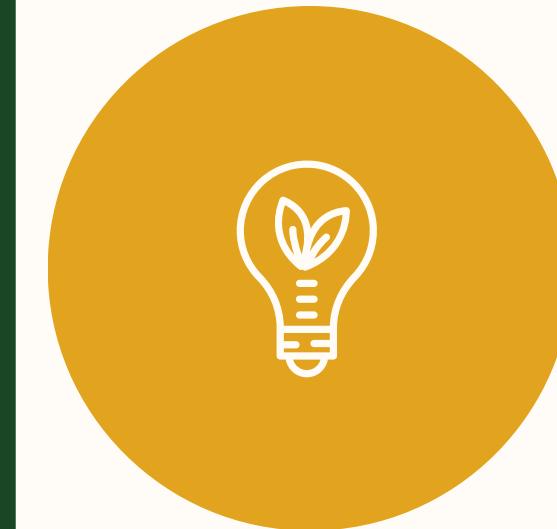
Help farmers make field specific, real-time decisions using: Soil health data, Climate information ,Crop requirements

Enable optimized input use (water, fertilizers, pesticides) and cost savings.

Mitigate climate and pest risks, leading to improved resilience and economic viability for small farms



Web-based Working



- **User Input (HTML Form):**
- User enters soil and environmental data (N, P, K, pH, temp, etc.) on the index.html page.
- **Form Submission**
- Data is sent to the Flask backend via a POST request to the /predict route.
- **Backend Processing:**
- Flask (app.py) receives the data.
- Uses scaler.joblib to normalize input.
- Feeds data into model.joblib (trained ML model) to predict the best crop.
- **Result Display:**
- Predicted crop is shown on result.html along with any additional info.



WHY IT MATTERS

Small farmers in India face serious challenges:



- Low soil fertility**
- Unpredictable monsoons**
- Lack of institutional credit**
- High debt cycles**

Conventional farming advice is too generic and often ineffective for local conditions.



Favorable ecosystem supports the rollout of Agri-Sahayak:

Government support through digital agri-missions and policies

Emergence of Agri-FinTech for better credit and insurance access

Successful pilot projects show measurable impact (e.g., Saagu Baagu)



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MAJOR IMPLEMENTATION CHALLENGES

Technical Barriers:
Costly soil tests and mobile labs
Weak rural internet infrastructure
Inconsistent data quality and integration



Human Challenges:
Low digital literacy among farmers
Cultural resistance to technology
Lack of trust and support personnel



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SYSTEM STRUCTURE LAYERS

Data Acquisition Layer

Collects data manually and via mobile soil tests, remote sensing, historical records.

Intelligence Layer

Uses machine learning and Explainable AI for predictions and recommendations.

Advisory Layer

Delivers advice through mobile apps, SMS alerts, and integration with extension workers.



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HOLISTIC STRATEGY

01

**System must be
farmer-centric
and scalable**



02

**Collaboration
between public
and private
sectors**

03

**Blend of technology,
financial aid,
training, and
partnerships**

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CONCLUSION

Agri-Sahayak has the potential to revolutionize smallholder farming in India by delivering personalized, data-driven crop advisory without relying on expensive IoT infrastructure. To achieve real impact, the system must combine advanced technology with local customization, financial access, and farmer-friendly design—ensuring sustainable, inclusive growth for India's rural agricultural communities.



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THANK YOU

