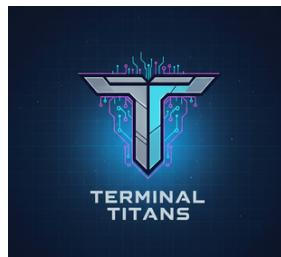


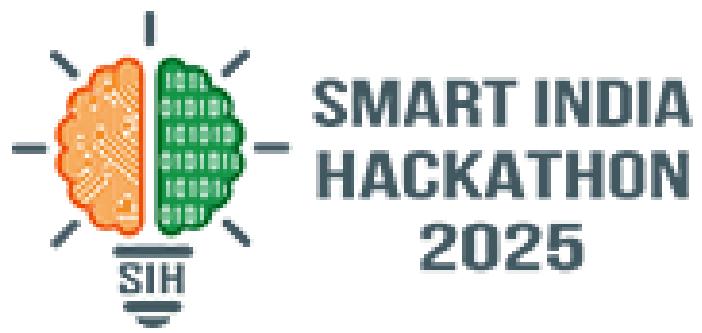
## KrishiMitra

- Problem Statement ID – SIH25044
- Problem Statement Title- AI-Powered Crop Yield Prediction and Optimization
- Theme- Agriculture and Rural Development
- PS Category- Software
- Team ID-
- Team Name - Terminal Titans



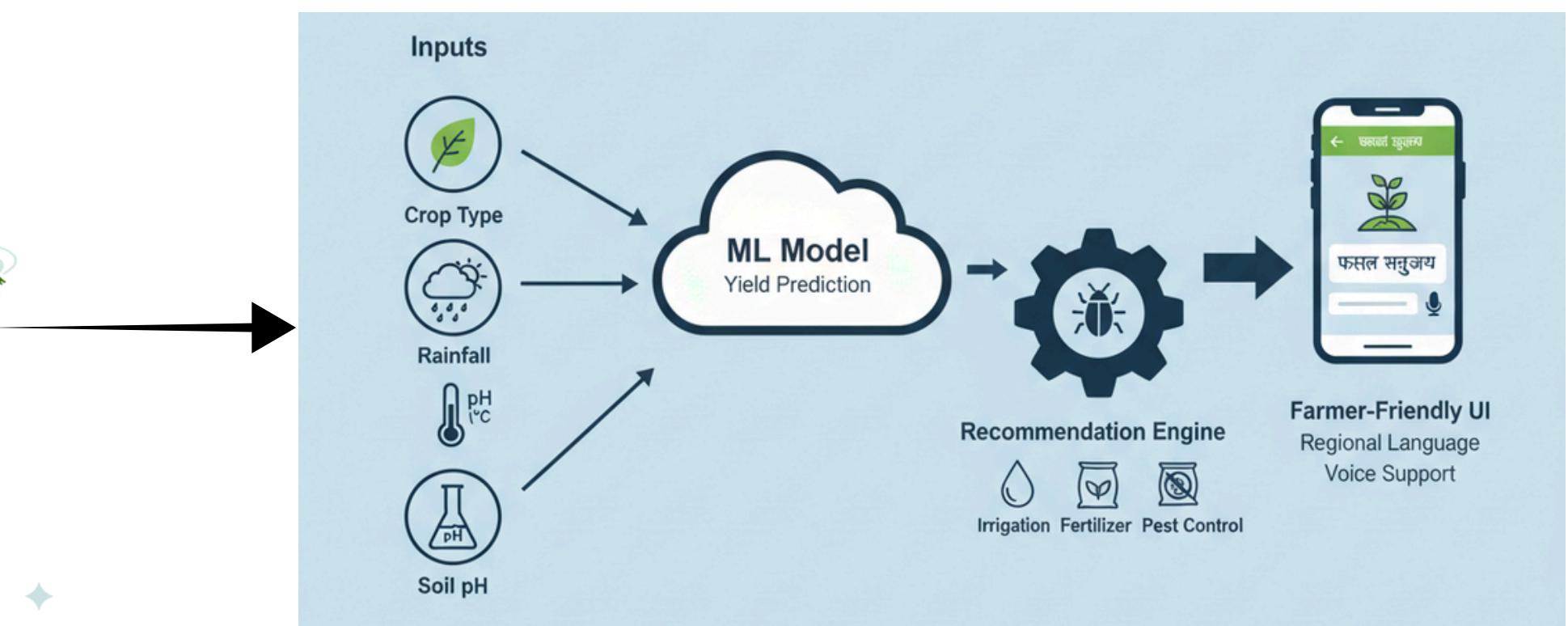
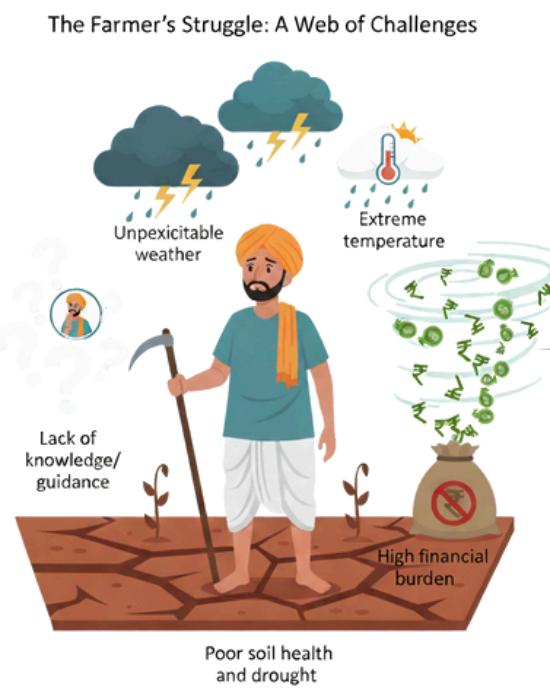


# KrishiMitra



## Proposed Solution:

- We present an AI-powered platform that predicts crop yields and provides personalized recommendations for irrigation, fertilization, and pest control.
- Designed for small-scale farmers, the system uses minimal inputs—like weather and soil data—to deliver actionable insights through a simple, regional-language web interface.



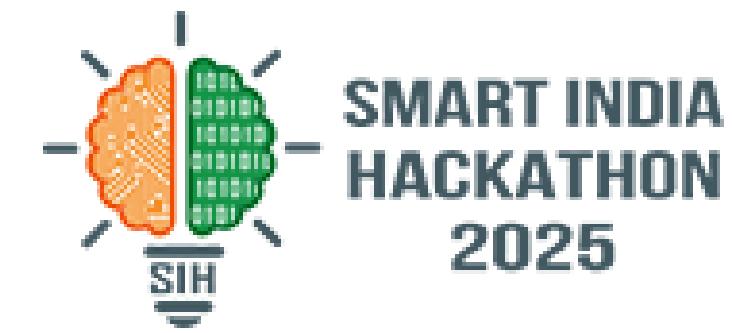
## Uniqueness Of The Solution



Major Crops	Yield loss due to various factors (%)				
	Weed	Disease	Insect pest	Post-Harvest	Over All
Rice	13.7	7.6	6.4	4.9	32.6
Wheat	8.15	5.5	4.7	4.3	22.65
Maize	6.85	3.5	5.3	3.0	18.65



# TECHNICAL APPROACH

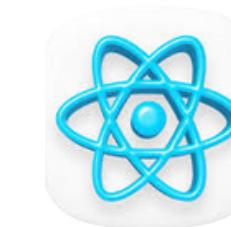


- **Technical Stack**

Development & Machine Learning



User Interface & Design



Data Storage & Collaboration



APIs & External Data Sources



- **Methodology and process for implementation**

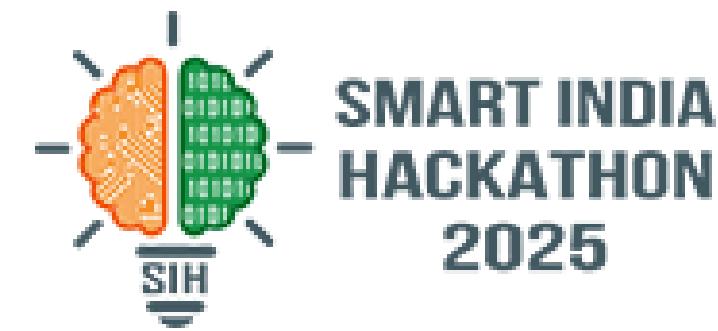
**Data Collection**  
( Crops, Weather, Soil )

**Data Processing & Feature Engineering**

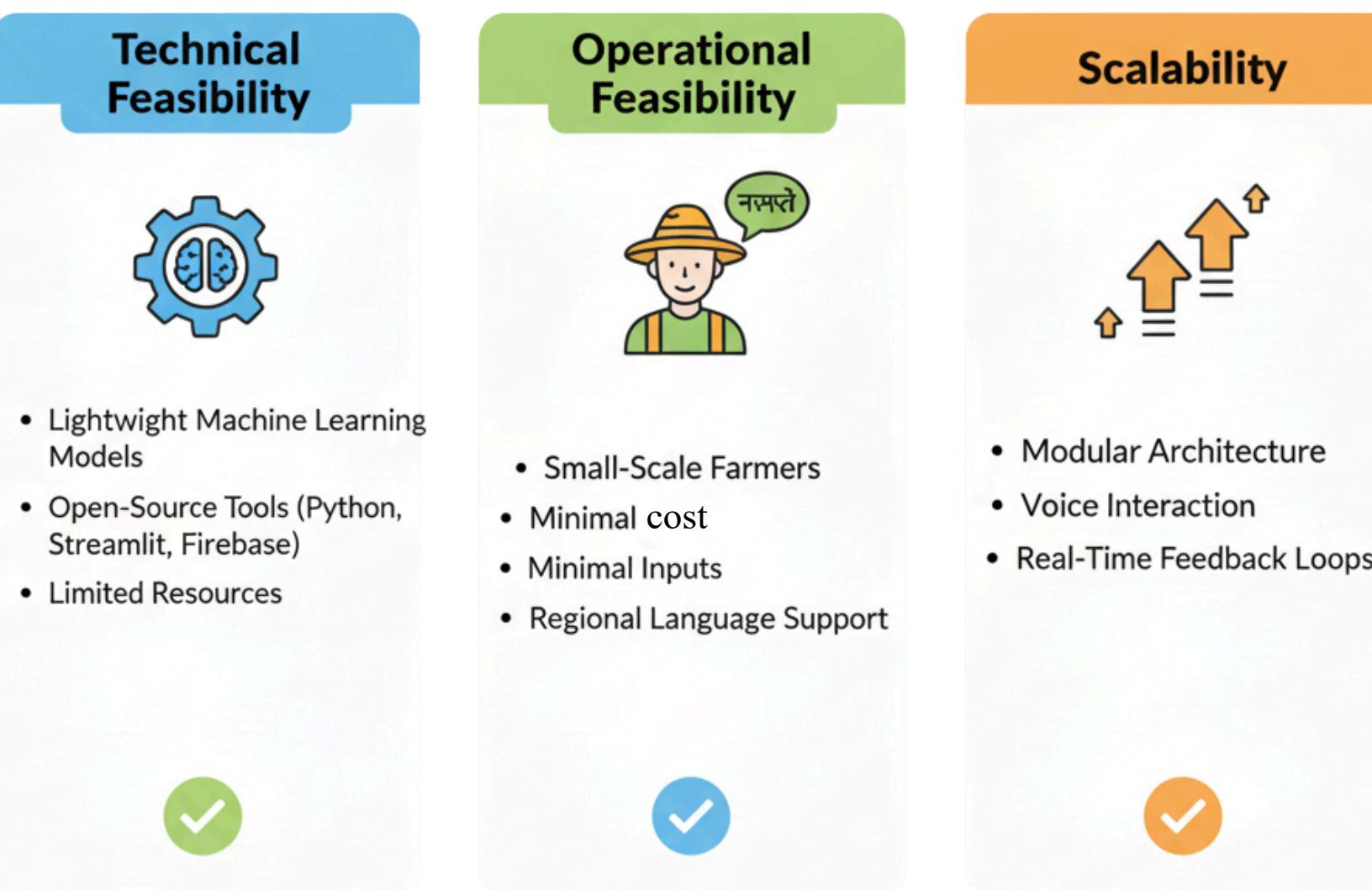
**ML Model Training**  
(Yield Prediction)

**Web Dashboard**  
( Farmer Interface with  
Regional Language Support )

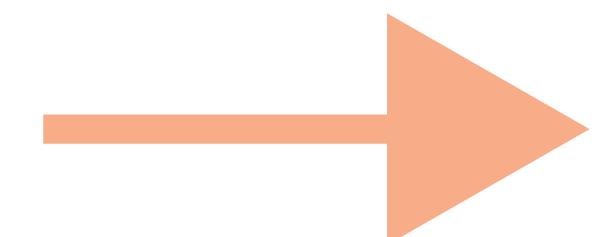
# FEASIBILITY AND VIABILITY



## Feasibility Analysis:

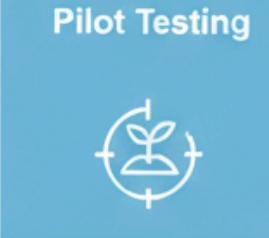


Potential Challenges And Risk



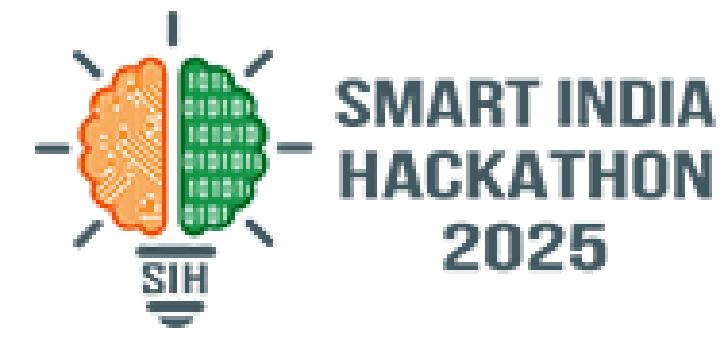
Challenges	Description
Data Quality & Availability	Incomplete or inconsistent agricultural datasets may affect model accuracy.
Farmer Adoption	Low digital literacy and trust in AI tools could hinder usage.
Language & Cultural Barriers	Misalignment with local dialects or farming practices may reduce impact.

## Strategies to Overcome Challenges

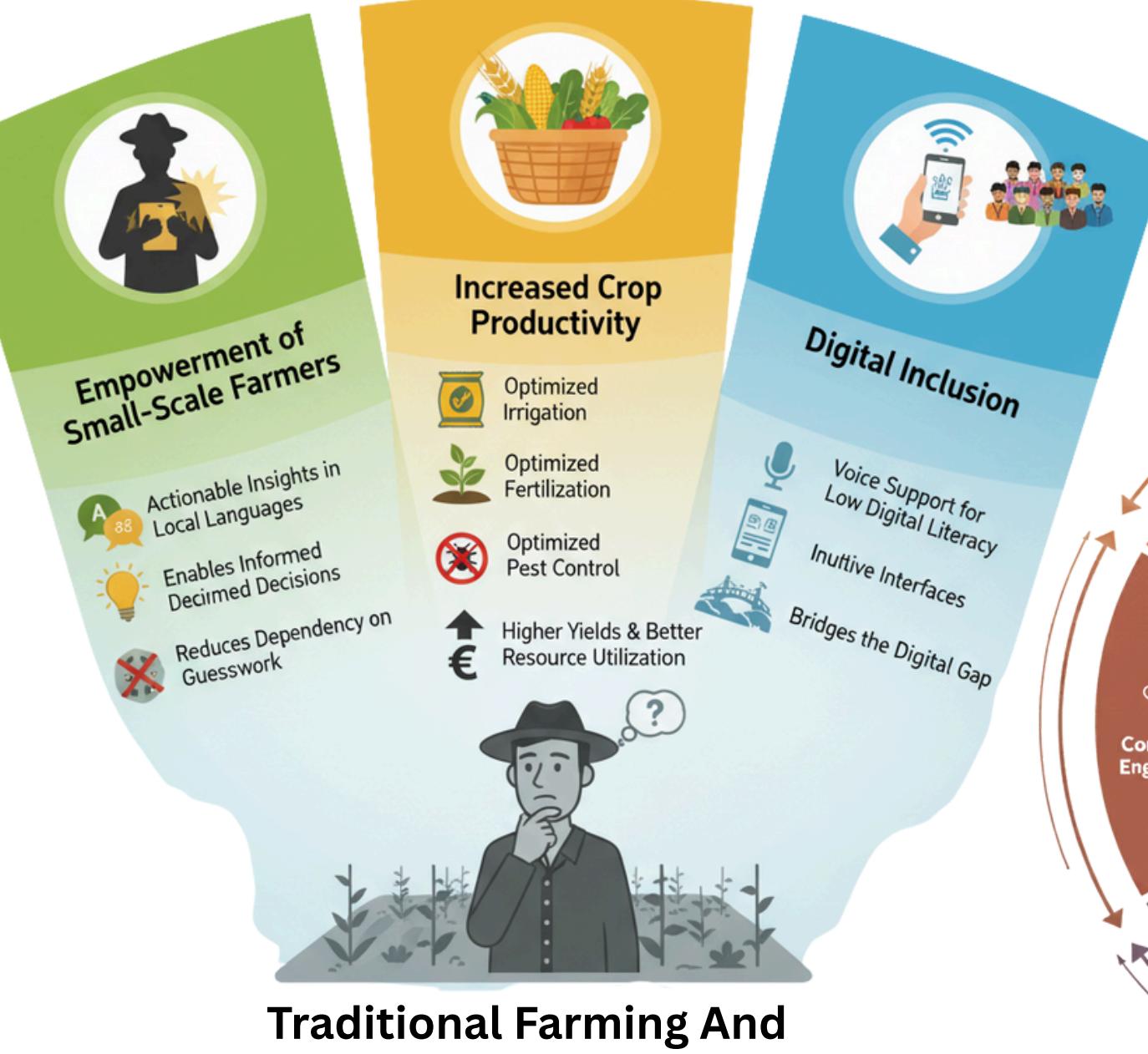
- | Human-Centered Design   | Data Strategy   | Visual cues & voice support   |
|---|---|---|
|    |    | <ul style="list-style-type: none"> <li>Curated public datasets</li> <li>Manual farmer input</li> <li>Improve model accuracy</li> </ul>                      |
|  |  | <ul style="list-style-type: none"> <li>Regional language interfaces</li> <li>Build trust &amp; usability</li> </ul>   |
| Community Engagement  | Pilot Testing   | <ul style="list-style-type: none"> <li>1-2 crops, specific region</li> <li>Example: rice in Chhattisgarh</li> <li>Refine &amp; build credibility</li> </ul> |
|   |   | <ul style="list-style-type: none"> <li>Local NGOs &amp; universities</li> <li>Farmer cooperatives</li> <li>Drive adoption &amp; feedback</li> </ul>         |



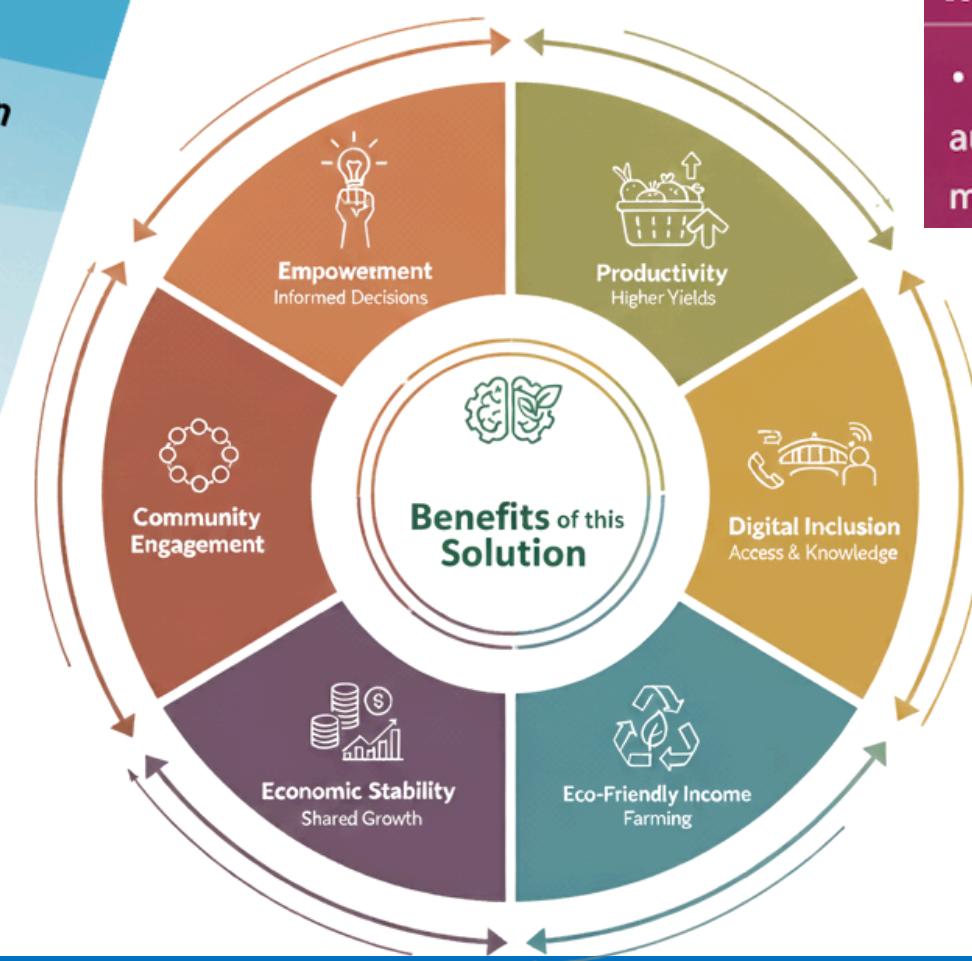
# IMPACT AND BENEFITS



## Potential impact:



## Benefits of the Solution



Social	Economic	Environmental
<ul style="list-style-type: none"><li>Builds trust in tech through culturally sensitive design</li><li>Strengthens community networks via feedback loops</li><li>Enhances dignity and autonomy in decision-making</li></ul>	<ul style="list-style-type: none"><li>Reduces input costs via precision recommendations</li><li>Improves income stability through better yield prediction</li><li>Enables better planning market timing</li></ul>	<ul style="list-style-type: none"><li>Minimizes overuse of water, fertilizers, and pesticides</li><li>Promotes sustainable farming practices</li><li>Reduces carbon footprint from inefficient farming</li></ul>

*"Rooted in empathy and powered by data, our solution transforms agriculture into a space of dignity, resilience, and growth—where every farmer becomes a decision-maker, and every harvest a step toward a sustainable future."*

# RESEARCH AND REFERENCES

1. Journal of AgriSearch – Yield loss data for rice, wheat, and maize in Eastern India( [Download PDF](#))
2. OpenWeatherMap API – Real-time weather data for agricultural planning([API Documentation](#))
3. SoilGrids & ICAR datasets – Soil health metrics and regional data([SoilGrids](#), [ICAR](#))
4. Kaggle & FAO datasets – Historical crop yield and global agricultural statistics([Kaggle Datasets](#), [FAO Statistics](#))
5. Gemini Nano Banana – Used for internal image generation and visual prototyping([Tool Reference – Gemini Nano](#))