



THEME: OPEN INNOVATION

- **Problem Statement Title - Open Innovation - Soil-Health Monitoring Kit with AI Recommendations**
- **Theme - Agriculture & Rural Development**
- **Team Name - AI (Aloo Intelligence)**
- **Team Member -** Nitish Sheoran (Team Leader)  
Narayan Prasad  
Shyla Sharma  
Nikhil Raghav

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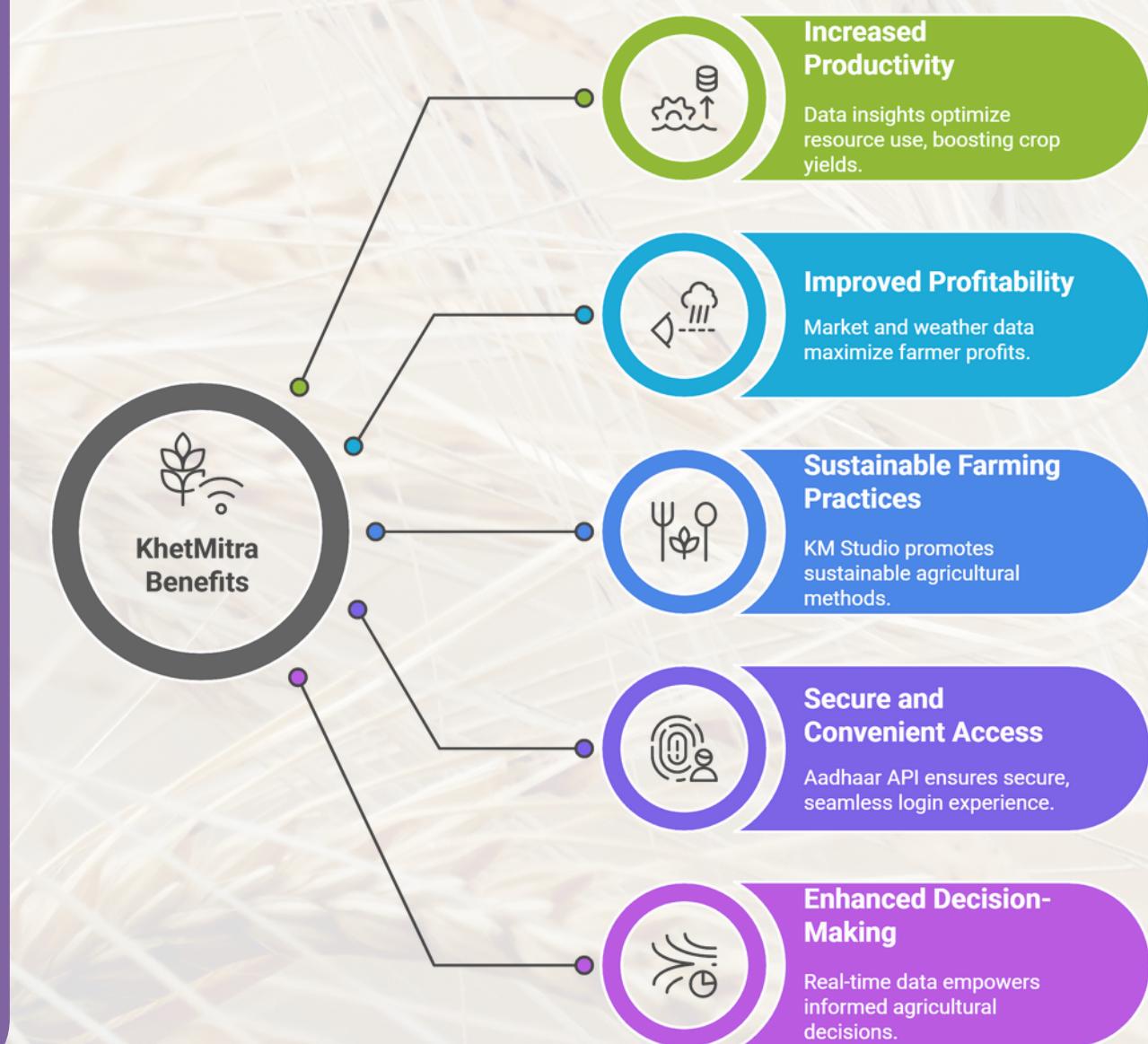
# KHETMITRA : AI-Powered Personal Farming Assistant for Farmers

*Your AI-powered farming companion for smarter, sustainable harvests*

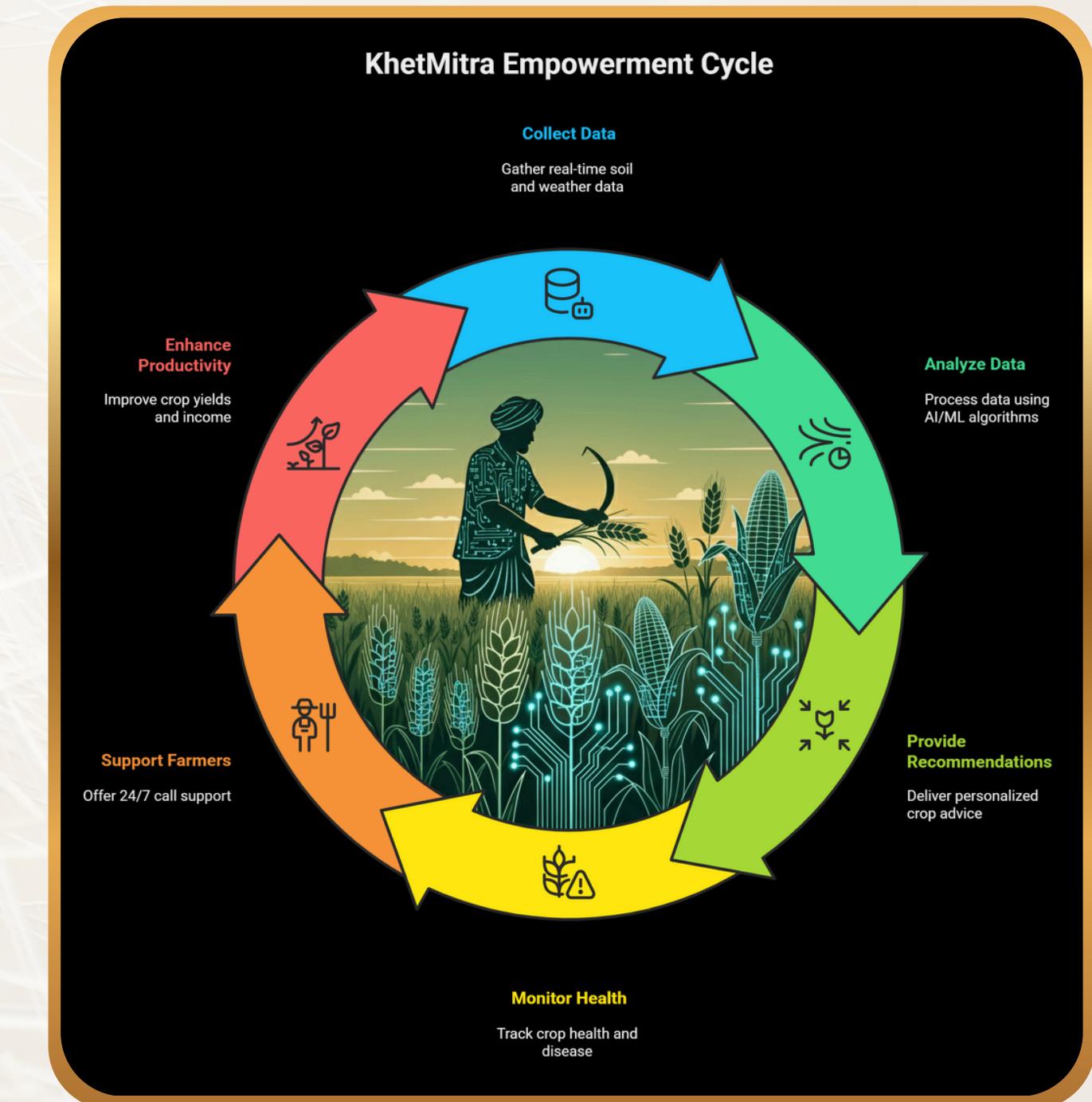
## DETAILED EXPLANATION OF THE PROPOSED SOLUTION

KhetMitra uses soil sensors with an **ESP32 and SIM module** to collect real-time soil data, combined with weather, satellite data, soil maps, crop history, and current mandi bhav. AI/ML analyzes this data to recommend crops, predict yield and profit, monitor crop health, detect diseases, and support sustainable farming. The platform offers an **“end-to-end solution—from crop selection to selling”**—helping farmers make smarter decisions and boost productivity. It supports multiple languages, works offline for areas with poor connectivity, and provides 24/7 call support to assist farmers anytime.

## INNOVATION & UNIQUENESS OF THE SOLUTION



## HOW IT ADDRESSES THE PROBLEM



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# TECHNICAL APPROACH

## TECHNOLOGIES TO BE USED

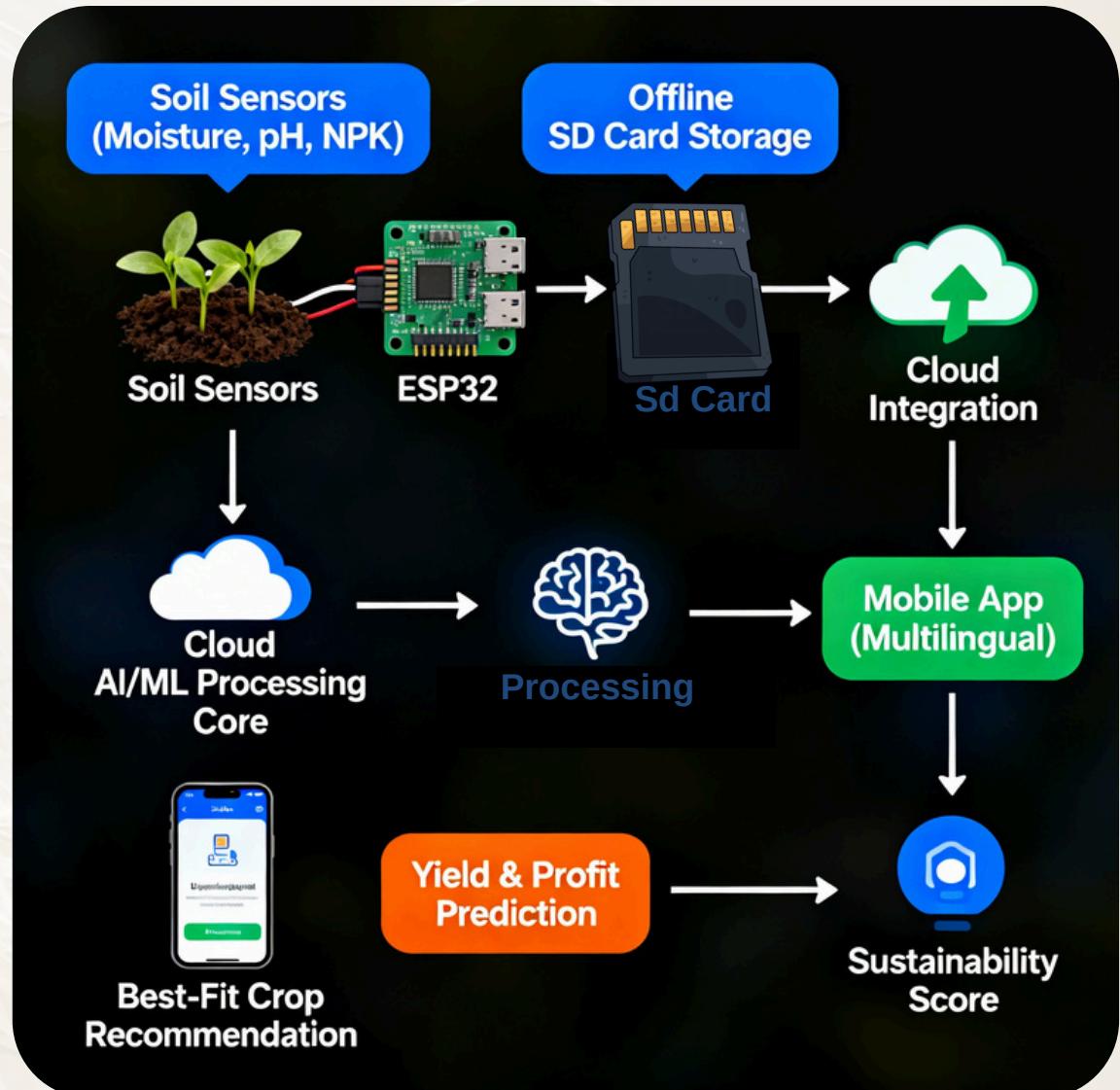
### SOFTWARE:



### HARDWARE:

- Soil Sensors (pH, Moisture, Nutrients)
- ESP32 Microcontroller
- SD Card Module
- IoT connectivity (Wi-Fi&4G).

## METHODOLOGY & PROCESS OF IMPLEMENTATION



Website:-<https://www.khetmitra.live/>

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# FEASIBILITY AND VIABILITY

## FEASIBILITY ANALYSIS

- ✓ Cost-effective at ₹4,500
- ✓ Government policy alignment (PM-KISAN)
- ✓ Multiple revenue streams & scalable model



## CHALLENGES & RISKS

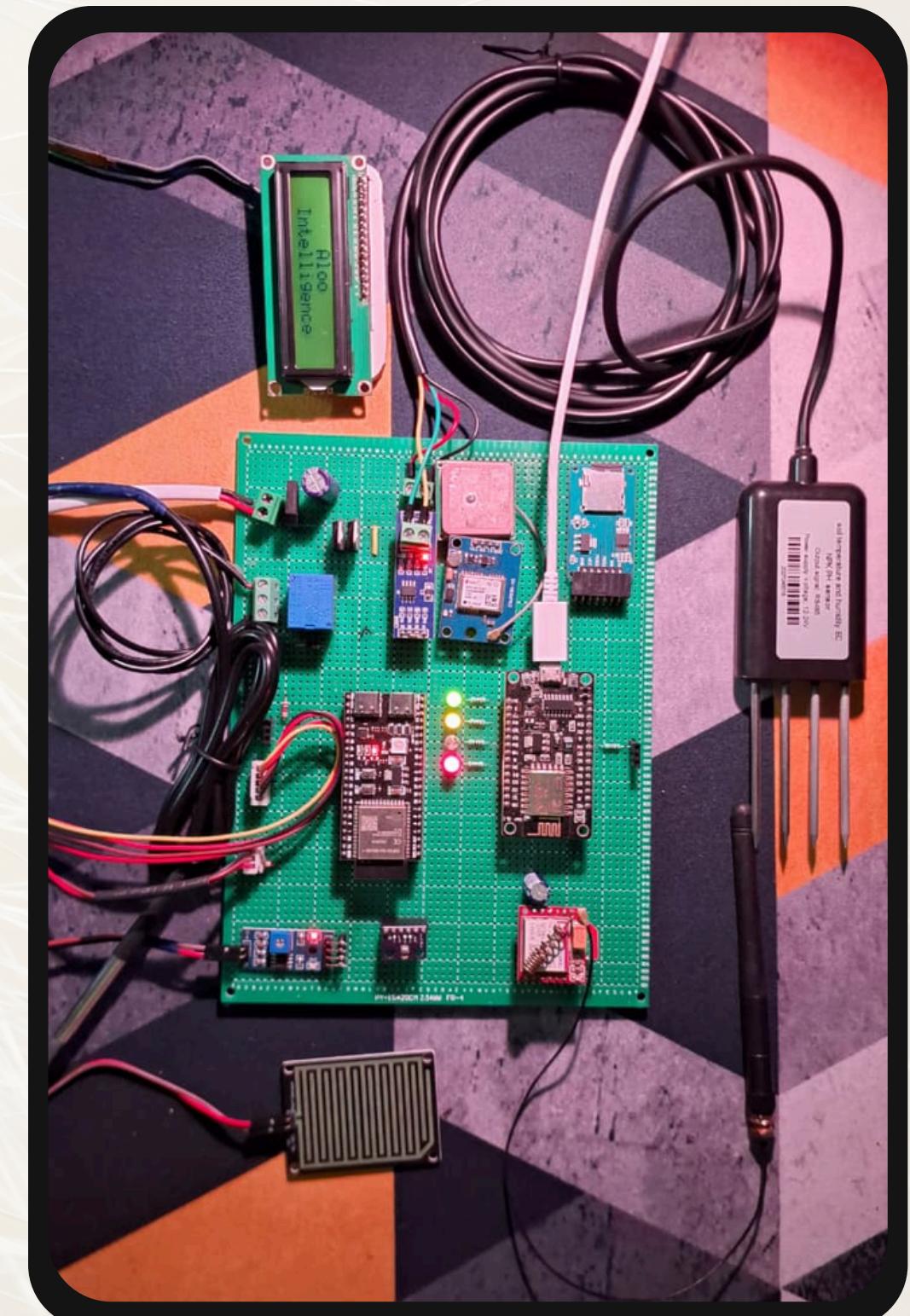
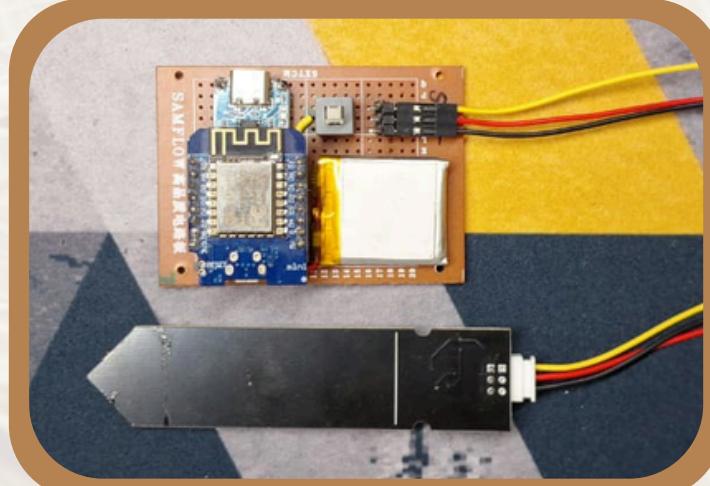
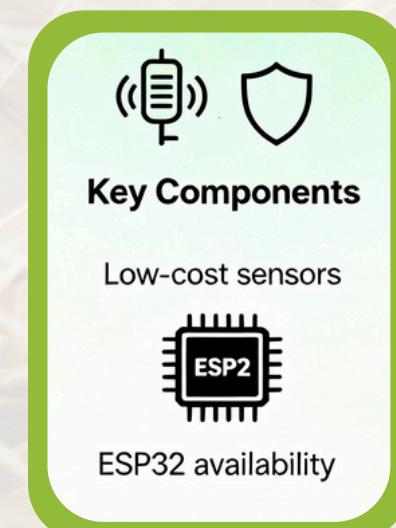
- Calibration accuracy
- Rural connectivity gaps
- Data privacy issues



## STRATEGIES

- Field validation + calibration
- Offline data logging (ESP32 + SD card)
- Secure APIs + cloud encryption

## PROTOTYPE IMAGES



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# IMPACT AND BENEFITS

## BENIFIT OF THE SOLUTION

**KhetMitra Chatbot**

Malayalam Hindi English

വിള ഇൻഷുറൻസ് പദ്ധതിയുടെ  
ആനുകൂല്യങ്ങൾ എന്നെന്നെ  
പ്രധാജനപ്പെടുത്താം

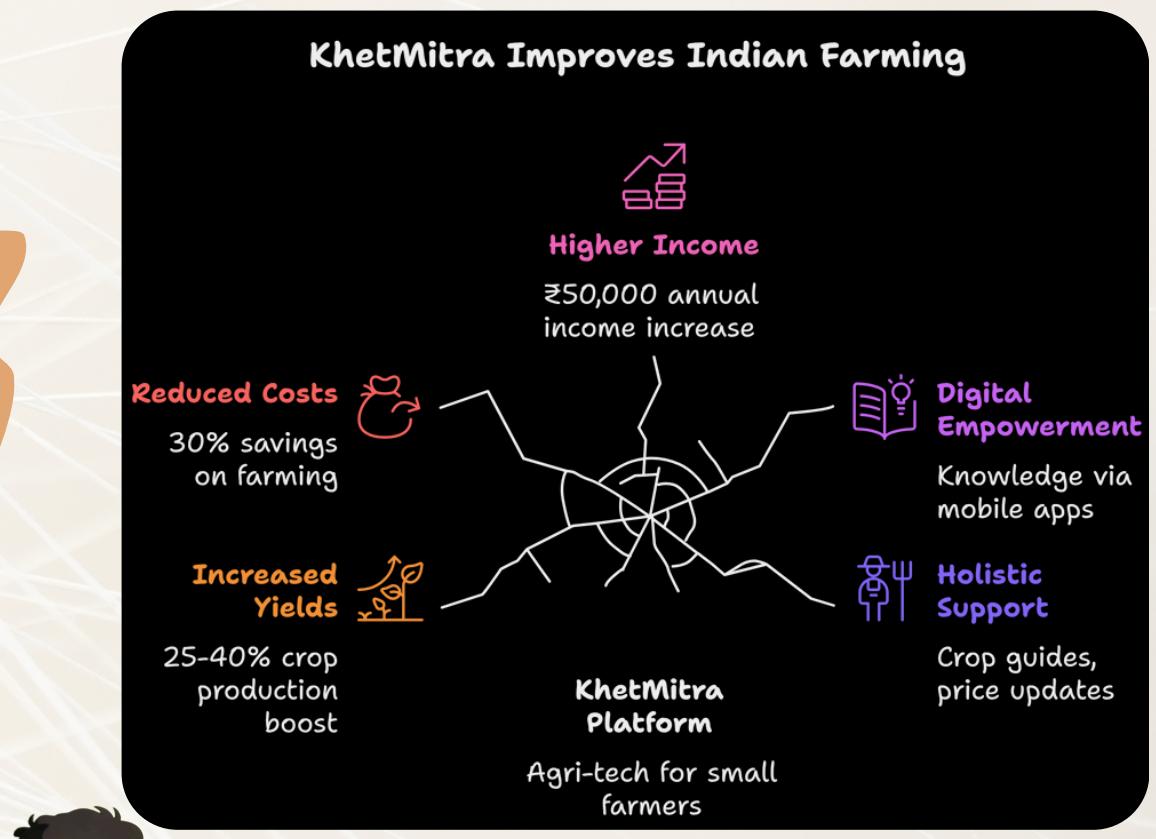
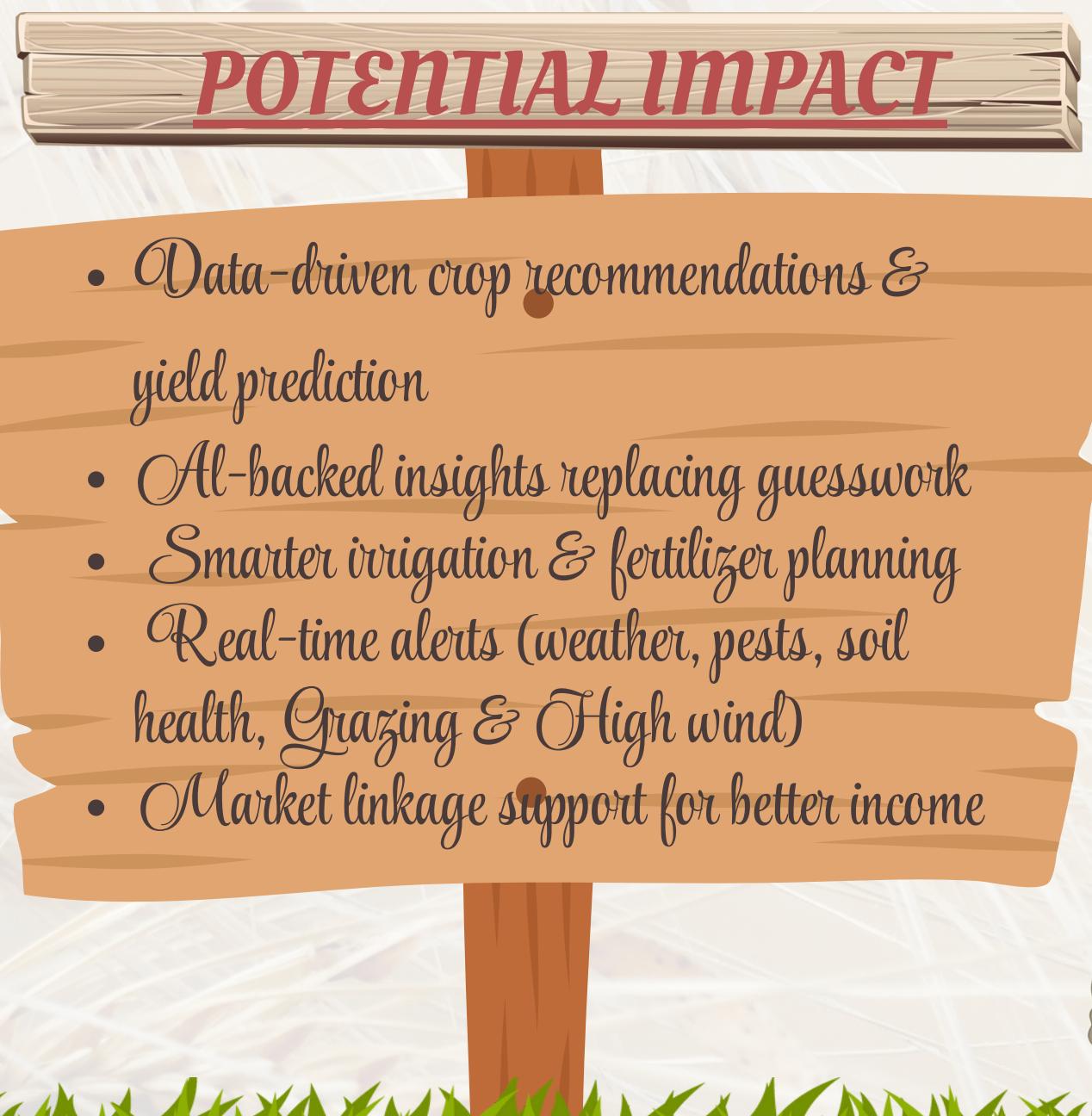
വിള ഇൻഷുറൻസ് പദ്ധതിയുടെ  
ആനുകൂല്യങ്ങൾ ഇന്നോന്നെന്നെ  
പ്രധാജനപ്പെടുത്താം:

1. \*\*വിള നഷ്ടം കുറയുന്നു\*\*: വിള  
ഇൻഷുറൻസ് പത്രവും പാലിക്കുകയും  
കൂഷി മാർഗ്ഗദർശികളുടെ  
നിർദ്ദേശങ്ങൾക്കൊള്ളിക്കുകയും ചെയ്യാൽ,  
വിളയുടെ നഷ്ടം കുറയാം.

\*\*നിബന്ധനാ രഹസ്യം സ്വീകരിക്കാം\*\*

നിങ്ങളുടെ ചോദ്യം എഴുതുക...

Close Chat



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# RESEARCH AND REFERENCES

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2. Crop Recommendation System using Machine Learning algorithm Department of Computer Science and Engineering, which is part of the School of Computing at the Sathyabama Institute of Science and Technology, Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai – 600119, Tamil Nadu
3. Crop recommendation system for growing best suitable crop International Journal of Science and Research Archive, 2024, 12(01), 2928–2936 Publication history: Received on 08 May 2024; revised on 15 June 2024; accepted on 18 June 2024 Article DOI: <https://doi.org/10.30574/ijjsra.2024.12.1.1111>
4. Machine learning based recommendation of agricultural and horticultural crop farming in India under the regime of NPK
5. <https://pmkisan.gov.in/>
6. <https://www.digitalindia.gov.in/initiative/pm-kisan/>
7. <https://pmfby.gov.in>
8. Crop variety management for climate adaptation supported by citizen science

