

FINAL PROJECT PRESENTATION

By: Somya Vats

Github link for project: [github](#)

Demo Video: [video](#)

START NOW



PROBLEM STATEMENT

AI Powered crop disease predictor

We use drone or camera imagery and deep learning-based image classification to detect early signs of crop diseases. By identifying infected leaves through computer vision models, we enable farmers to take timely action. Our system also provides treatment suggestions to minimize yield loss and maintain healthy crop cycles. It is accessible, scalable, and optimized for real-world rural environments.

Aimed SDG's

SDG 2: Zero Hunger

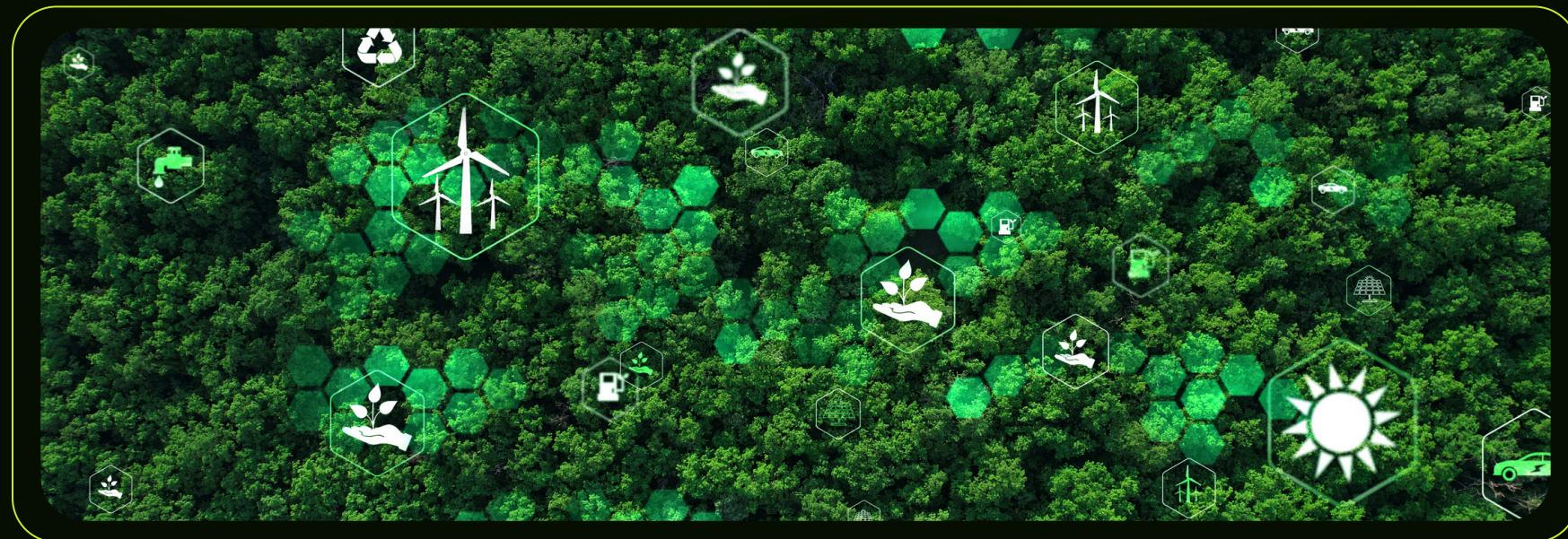
By reducing crop losses due to preventable diseases, our system helps secure more consistent yields and supports food availability across vulnerable regions. It empowers farmers to produce more with fewer resources.

SDG 15: Life on Land

Our disease detection reduces excessive pesticide use by promoting targeted treatment. This protects biodiversity, preserves soil health, and encourages more sustainable agricultural practices.



SOLUTION



Farmer-Facing Assistant (Hindi + English):

A Gemini-powered conversational AI that answers farming queries in native languages.



Integrated Crop Recommendation Engine

Suggests best crops based on soil, region, and weather, not just disease prevention.

Live Weather Insights + Scheme Finder:

Real-time updates and government scheme recommendations based on the farmer's district.

1. Disease Detection via Image Upload

- Farmers can upload leaf images to instantly detect crop diseases.
- Helps catch infections early, reducing crop loss and improving yield.

2. Crop Recommendation System

- Suggests the best crop to grow based on soil type, location, and season.
- Ensures efficient land use and higher profitability.

3. Weather Forecast Integration

- Displays real-time local weather and forecasts.
- Enables better planning for sowing, irrigation, and harvesting.

4. Government Scheme Awareness

- Provides up-to-date info on agri schemes, loans, and subsidies.
- Helps farmers access support they often miss out on.

5. AI Chat Assistant (Hindi + English)

- Farmers can ask queries and get natural-language replies.
- Makes the app accessible to non-tech-savvy and regional users.



DELIVERABLES



PROJECT WORKFLOW



≡

Khet.ai — Smarter Farming, One Click at a Time

AI-powered tools for disease detection, crop planning, and government support. Empowering Indian farmers with cutting-edge technology.

[Detect Plant Disease](#)
[Get Crop Recommendations](#)

Plant Disease Detection

Upload plant images to detect diseases using our AI-powered CNN model

[Explore →](#)

Crop Recommendation

Get personalized crop suggestions based on soil and weather conditions

[Explore →](#)

Government Schemes

Explore agricultural schemes and financial support from the government

[Explore →](#)

Disease Detection via AI Vision
Upload leaf/soil image → CNN + Gemini → Instant diagnosis in simple terms

AI Crop Recommendation
Suggests ideal crops using ML based on region, climate & soil

Camera Support (No Drone Needed)
Image-based disease detection via smartphone

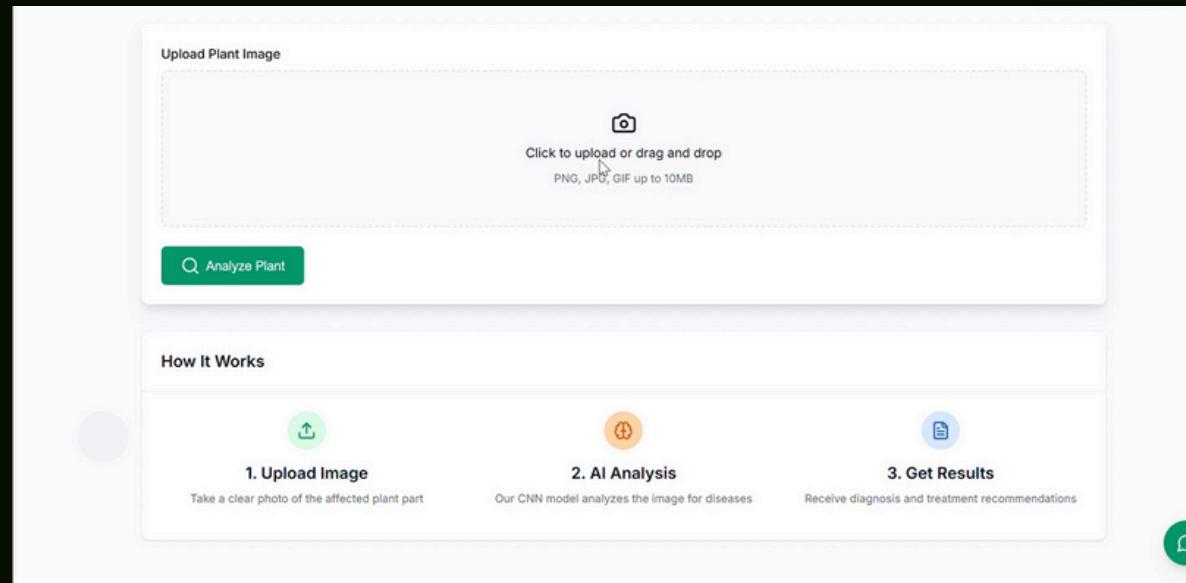
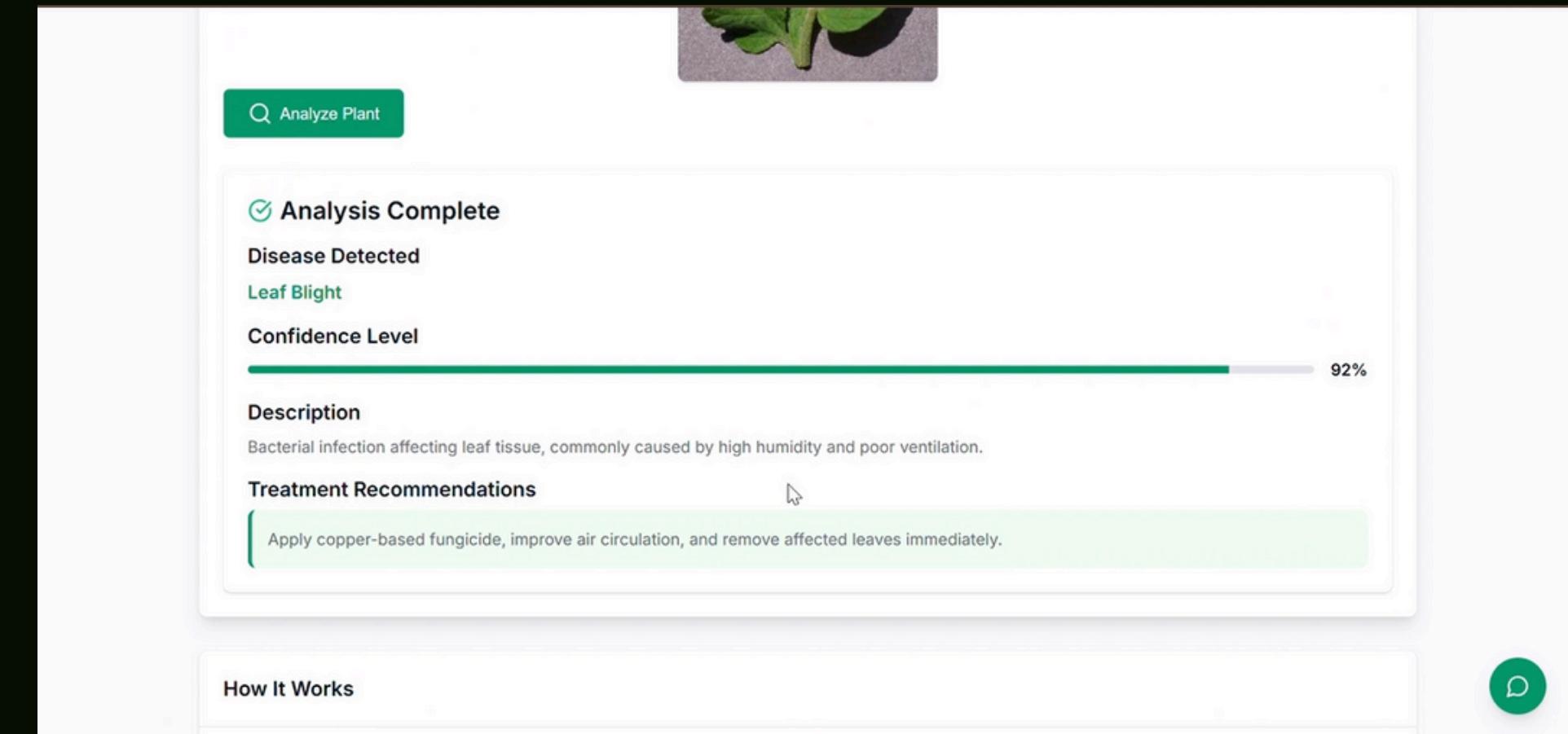
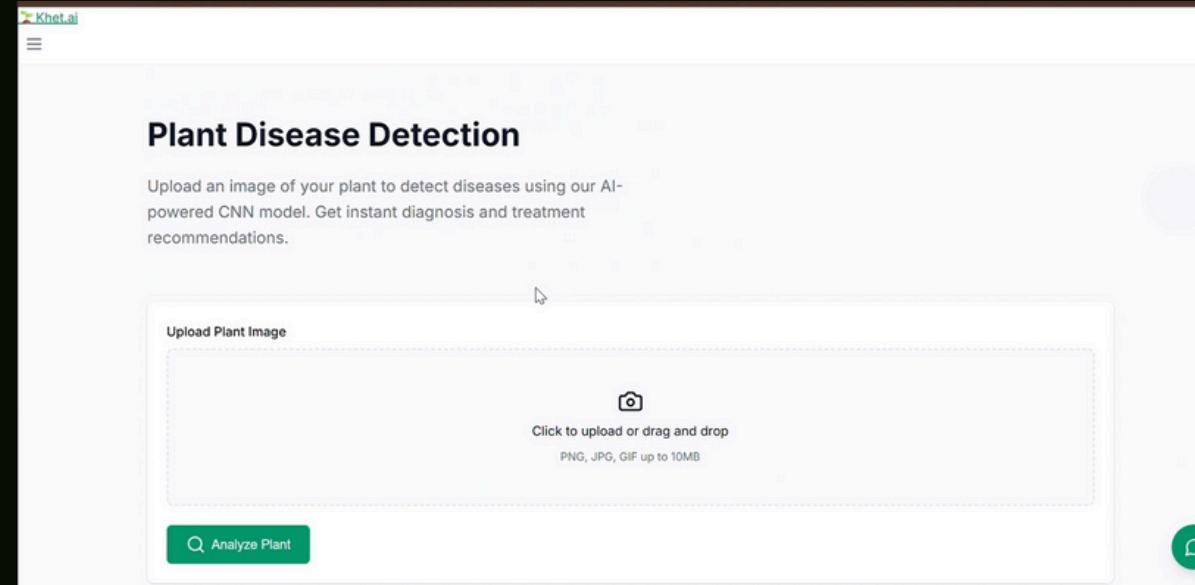
Farmer Chatbot (Hindi + English)
Provides tips, scheme info, pest control help in native language

Real-Time Scheme Alerts
Notifies about subsidies & loans tailored to user location

Weather & Pest Alerts
Uses weather API to inform about potential threats



Disease Detection Model



Plant Disease Detection (CNN Model | Accuracy: 82%)

Using a CNN model trained on leaf images from Kaggle, our system detects plant diseases with 82% accuracy.

The model identifies visual symptoms like spots, discoloration, and wilting, just from an image upload.

Ideal for phone or drone use, it provides instant diagnosis with treatment suggestions in simple language.

This reduces crop loss and boosts early intervention, especially in remote regions.



Crop Recommendation System

Get personalized crop suggestions based on your soil conditions and climate data. Our ML model analyzes multiple factors to recommend the best crops for your farm.

Soil & Environmental Data

Nitrogen (N) - kg/ha 40	Phosphorus (P) - kg/ha 60	Potassium (K) - kg/ha 20	Temperature - °C 25
Humidity - % 65	pH Level 6.5	Rainfall - mm 150	Location Select your region
<input type="button" value="Get Crop Recommendations"/>			

Crop Recommendation Model (Accuracy: 97%)

We trained a machine learning model using a Kaggle dataset enriched with features like soil type, pH, and climate.

After label encoding and experimentation, the Extra Trees Classifier delivered the highest accuracy, 97%.

The model suggests region- and soil-specific crops, optimizing yield and resource use.

Farmers can now make smarter sowing decisions in seconds.

Crop recommendation Model

55 3 142 Northern India

Recommended Crop

CROP NAME	GROWING SEASON	EXPECTED YIELD	PROFITABILITY	MARKET DEMAND
Wheat	Rabi	3.8 tons/hectare	Medium	Good

Understanding Soil Parameters

NPK Values
Nitrogen (N), Phosphorus (P), and Potassium (K) are essential nutrients. Typical ranges: N: 40-120 kg/ha, P: 20-80 kg/ha, K: 20-100 kg/ha.

Climate Factors
Temperature and humidity affect crop growth. Most crops thrive in 20-30°C with 50-70% humidity.

pH & Rainfall
Soil pH affects nutrient availability (6.0-7.5 ideal). Rainfall requirements vary: Rice needs 1000-2000mm, Wheat needs 300-700mm.

Government Schemes & Financial Support

Explore various government schemes designed to support farmers across India. Access financial assistance, insurance, and pension benefits for sustainable agriculture.

Active Agricultural Schemes

PM-KISAN
Active

Income support of ₹6000 per year to farmers with cultivable land holding

ELIGIBILITY
Small and marginal farmers with cultivable land

BENEFIT
₹6,000 per year in 3 installments

[Learn More](#)

Agricultural Finance Tips

Financial Planning

Budget Planning for Farmers

Learn how to create effective budgets for your farming operations, including seasonal planning and emergency funds.

Credit & Loans

Understanding Crop Loans

Complete guide to agricultural loans, interest rates, and repayment options available for farmers.

Digital Finance

Digital Payment Solutions

Explore digital payment methods, UPI transactions, and online banking for modern farming businesses.

Government Benefits

Subsidies and Tax Benefits

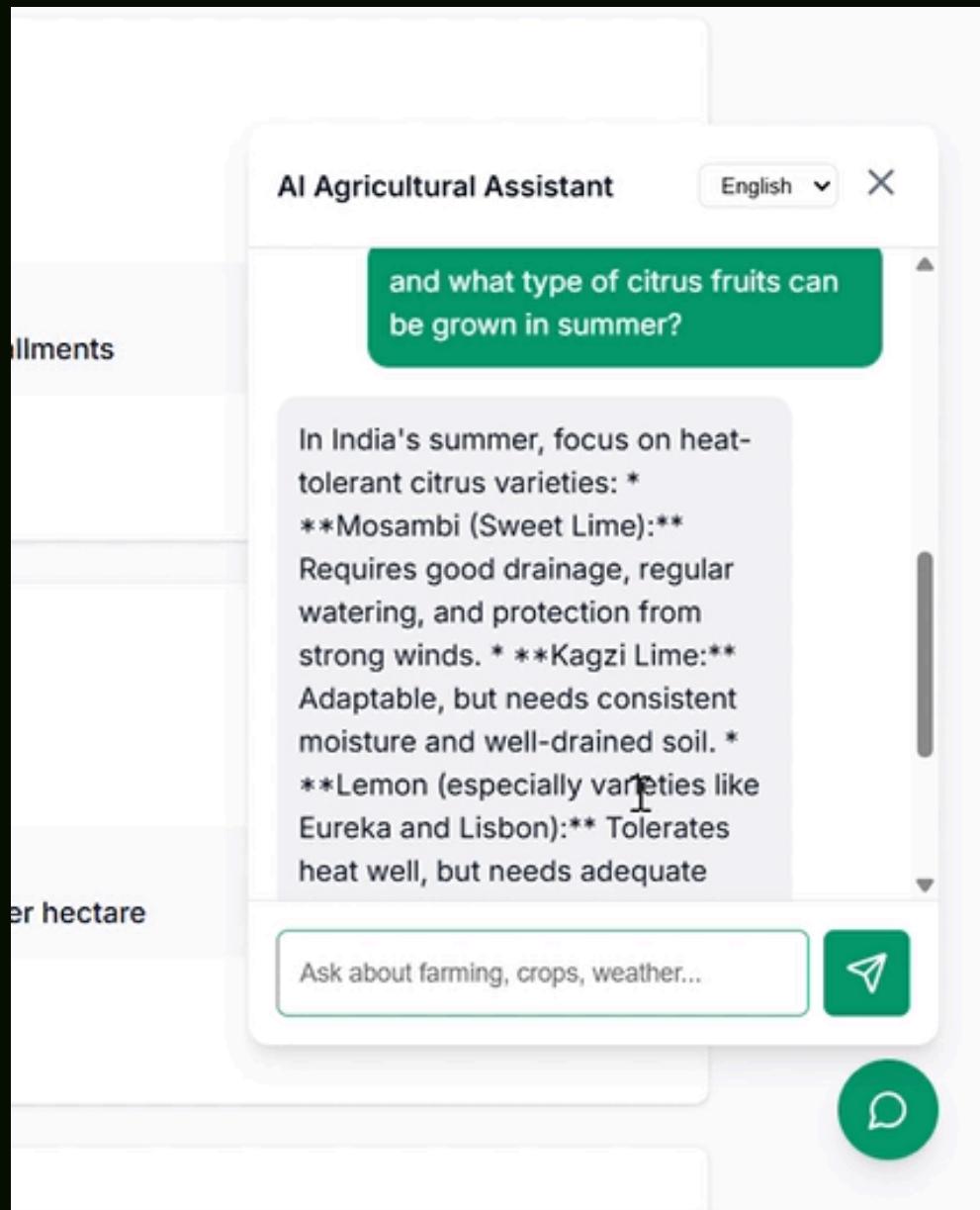
Comprehensive overview of agricultural subsidies, tax exemptions, and government financial support programs.

Need Help with Applications?

Our AI assistant can help guide you through government scheme applications and financial planning.



Functional AI assistant (both languages)



Real time accurate Weather Insights

Weather Insights for Agriculture

Get real-time weather data and AI-powered insights to make informed farming decisions. Monitor conditions that affect crop health and plan your agricultural activities accordingly.

I
Get Weather

Delhi, IN
Scattered Clouds

31°C

Humidity
 76%

Wind Speed
 11 km/h

Pressure
 996 hPa



PROJECT DELIVERY & TECH STACK

[GITHUB](#)

Task / Feature	Planned / Asked For	Delivered	Notes
Plant Disease Detection (AI Vision)	Yes	✓ Completed	CNN + Gemini API
Crop Recommendation System	Yes	✓ Delivered	Based on soil, weather
Phone Camera Image Support	Yes	✓ Done	Non-drone friendly
Bilingual Chatbot (Hindi/English)	Yes	✓ Basic working demo	Using Gemini; no voice yet
Government Scheme Integration	Yes	✓ Implemented	Location-based
Weather & Pest Alerts	Yes	✓ Weather alerts live	Pest prediction noted for future
User Authentication / Tracking	Optional / Future scope	✗ Not implemented	Prioritized core features
Drone Feed Support	Future	✗ Not implemented	On roadmap
Multilingual Voice Assistant	Future	✗ Text-based chatbot only	Planned in next phase

Layer	Tools / Tech Used
Frontend	HTML, CSS, JavaScript (basic UI with Flask templating)
Backend	Python (Flask Framework)
AI / ML	CNN Model for Disease Detection, Crop Recommendation ML
APIs Used	Gemini Pro Vision API, OpenWeatherMap API, Govt. APIs
Database	Local storage (prototype), JSON-based data handling
Other	GitHub (version control), Canva (design assets)

USP, RELIABILITY & SCALABILITY SCORES

A practical, scalable, multilingual solution built with real farmer needs in mind



Hyperlocal & Inclusive

- Offers weather-based insights tailored to the farmer's exact location.
- Supports Hindi and English — breaking language barriers for real adoption.

Robust & Accurate

- Built using tested ML models with high accuracy in disease detection and crop suggestions.
- Works seamlessly on basic systems; reliable even in low-resource settings.

Designed to Scale

- Modular architecture allows easy integration of more crops, regions, or languages.
- Future-ready for drone image input, satellite mapping, and real-time alerts.

THANK YOU!

KhetAI bridges the digital divide in agriculture by empowering farmers with accessible, intelligent tools tailored to their real-world needs. In just 24 hours, we went beyond the basic problem statement to create a multilingual, AI-powered platform that not only detects crop diseases but also offers personalized crop advice, weather alerts, government scheme updates, and a supportive chatbot – all in a farmer's own language.

END OF PPT



BY: SOMYA VATS