InAgri

Information of Agriculture – Smart Crop Recommendation System

TEAM NAME- AGRICO
MEMBER ROLL NO-24CSEAIML201
24CSEAIML123
LEARNATHION 4.0
Built With: Google Colab, Python, Scikit-learn,
Pandas, Matplotlib

Overview

InAgri (Information of Agriculture) is an intelligent, ML-powered crop advisory system designed to assist farmers and agri-planners in selecting the most suitable crops based on soil health, climate conditions, and profitability.

Built entirely on Google Colab, InAgri combines data science, agriculture knowledge, and visual dashboards to deliver actionable insights.

GOALS

- Empower farmers to make informed crop choices using data
- Promote sustainable agriculture through crop rotation insights
- Estimate costs and profitability for better planning
- Make agri-intelligence accessible to all via a no-install, interactive dashboard
- Lay the foundation for a future-ready, real-time AgriTech assistant

PROBLEM STATMENT

Farmers often lack:

- Awareness about soil conditions
- Knowledge of market trends
- Guidance on sustainable farming

This leads to:

- Low yield and profit
- Unsuitable crop selection
- Soil exhaustion
- loss of fertility

SOLUTION

A smart agri-intelligence tool that:

- Recommends the Top 3 crops based on soil & weather data
- Displays detailed crop information
- Calculates cost, revenue & profit
- Suggests crop rotation plans for sustainability
- Presents everything in a visual, interactive dashboard
- The API helps the farmer to increase profit after each crop.
- suggest the farmer when to plant the crop

Key Features of InAgri

- Top 3 Crop Recommendations
- Crop Information Panel
- Ideal soil, season, irrigation, fertilizer tips

Cost-Profit Estimator

- Calculates estimated revenue and profit per acre

- Crop Rotation System
- Suggests next-season crops for sustainability
- Dashboard
- Pie and bar charts with crossfilters

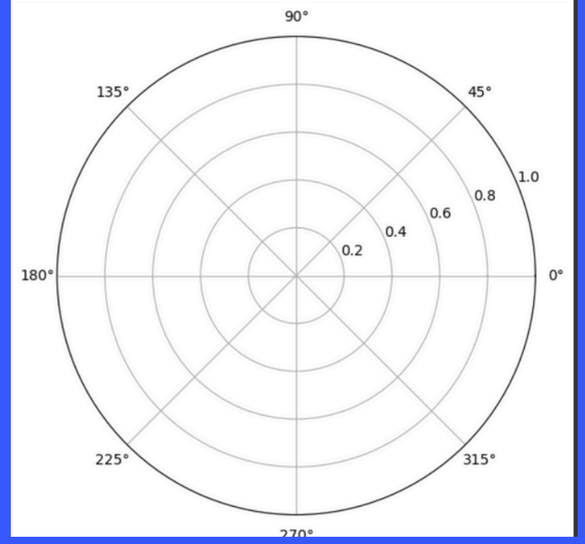
Impact & Benefits

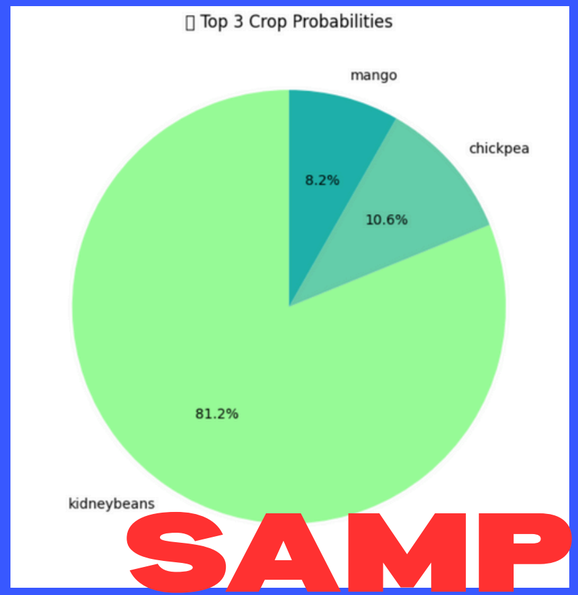
- Empowers farmers to make data-driven crop decisions
- Promotes sustainable agriculture through rotation
- Helps boost yield and income
- Easy to access – runs on Colab, no installation needed
- Future-ready for integration with mobile/web apps

Future Scope

- Integrate with real-time weather APIs
- Link to market price data from AgMarkNet
- Add multi-language support (Hindi, regional)
- Build mobile/web version using Streamlit or React
- Collect feedback to improve model over time

	Current Crop	Recommended Next Crops
0	Rice	wheat, mustard, chickpea
1	Jute	No data available
2	Pomegranate	No data available





🔹 Kidneybeans:
❗ No information available.

🔹 Chickpea:
❗ No information available.

🔹 Mango:
Soil Type: Red loamy, alluvial
Season: Summer (flowering in Jan–Feb, harvesting May–June)
Irrigation: Moderate, avoid waterlogging
Market Trends: Seasonal spikes in prices

🔄 CROP ROTATION SUGGESTIONS:

	Current Crop	Recommended Next Crops
0	Kidneybeans	No data available
1	Chickpea	No data available
2	Mango	short-season crops like okra or chili

SAMPLE OUTPUT

Nitrogen (N): 21.00
Phosphoru... 42.00
Potassium ... 43.00
Temperatur... 14.10
Humidity (%): 27.00
pH Level: 3.30
Rainfall (m... 101.00
Get Crop Recomm...

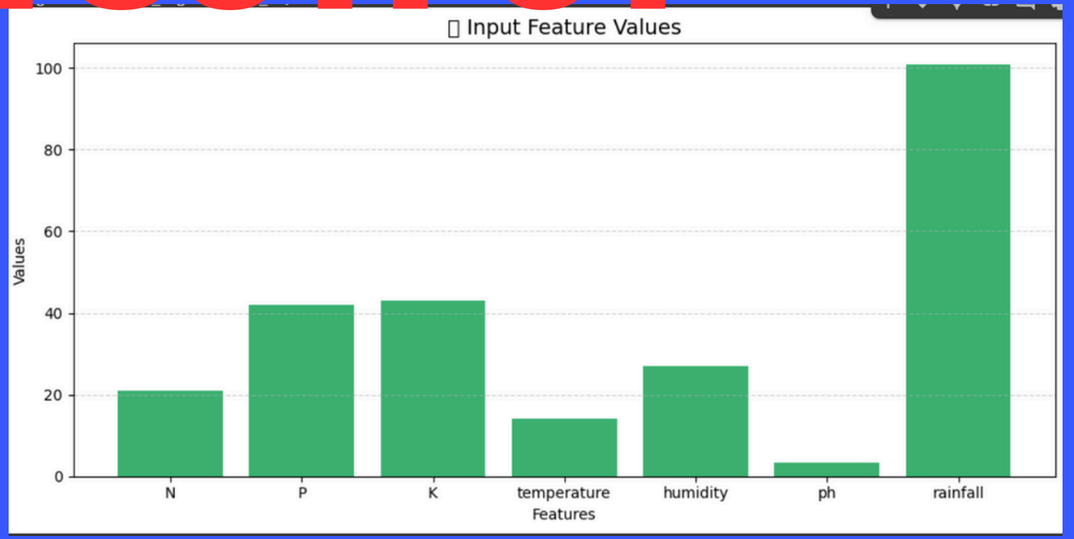
🌿 CROP RECOMMENDATION DASHBOARD 🌿

Top 3 Crop Suggestions based on your soil & weather data:

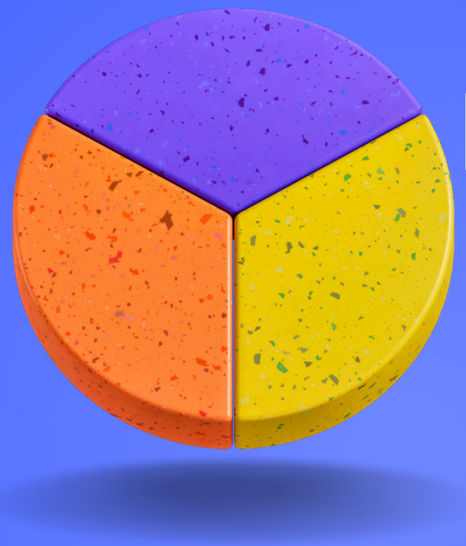
➡️ kidneybeans (69.00%)
➡️ chickpea (9.00%)
➡️ mango (7.00%)

💰 Estimated Profit per Acre (Example Values):

	Crop	Cost (₹/acre)	Yield (kg/acre)	Market Price (₹/kg)	Revenue (₹)	Net Profit (₹)
0	Kidneybeans	N/A	N/A	N/A	N/A	N/A
1	Chickpea	N/A	N/A	N/A	N/A	N/A
2	Mango	30000	12000	10	120000	90000



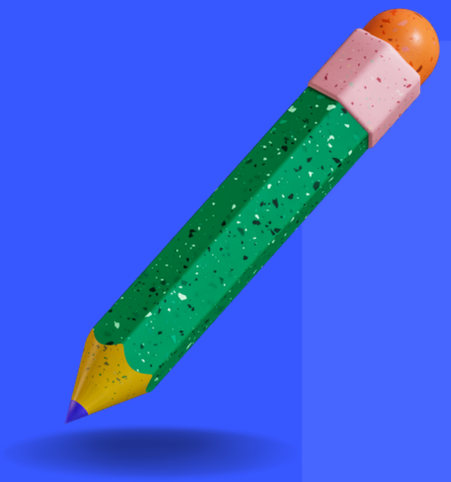
SCREENSHOT OF THE OUTPUT FROM THE ML MODEL



Dataset & Tools

- Dataset: Crop Recommendation Dataset from Kaggle
- Tools Used:
- Google Colab (Notebook Environment)
- Scikit-learn (ML model)
- Pandas, NumPy (data handling)
- Matplotlib, Plotly (visualizations)
- ipywidgets (interactivity)

Your paragraph text



Machine Learning Model

- Algorithm: Random Forest Classifier
- Accuracy: 99% on test data
- Input Features:
- N, P, K levels
- Temperature, Humidity, Rainfall
- Soil pH
- Output: Most suitable crop(s)

THANK YOU

Let’s make agriculture smarter, together.