



CROP RECOMMENDATION SYSTEM

USING MACHINE LEARNING

BY: D. KAVITHA



WHAT IS CROP RECOMMENDATION?

It refers to the method of using machine learning to suggest the most suitable crop for a specific location based on various factors.

WHY IS IT IMPORTANT?

- Farmers face challenges in choosing the right crop
- MI can recommend crops using Soil, weather and crop data



OUR PROJECT

- Crop yield depends on multiple factors like soil, climate, rainfall, etc.
- Hence, there is a need for smart, automated and accurate recommendations.

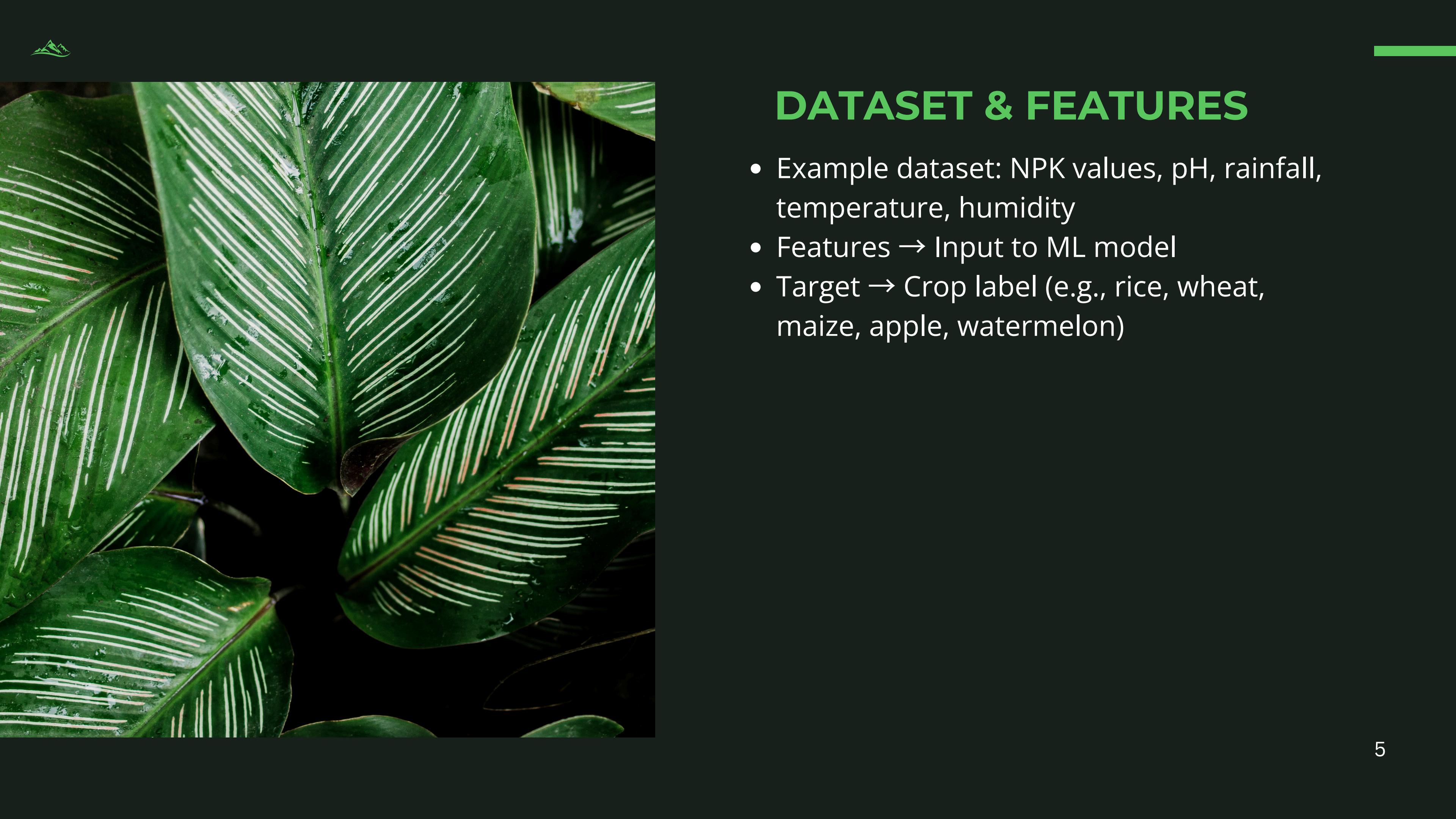




OBJECTIVES

- To build a ML model that predicts the best crop
- To use soil & climate parameters as inputs
- To provide actionable insights for farmers





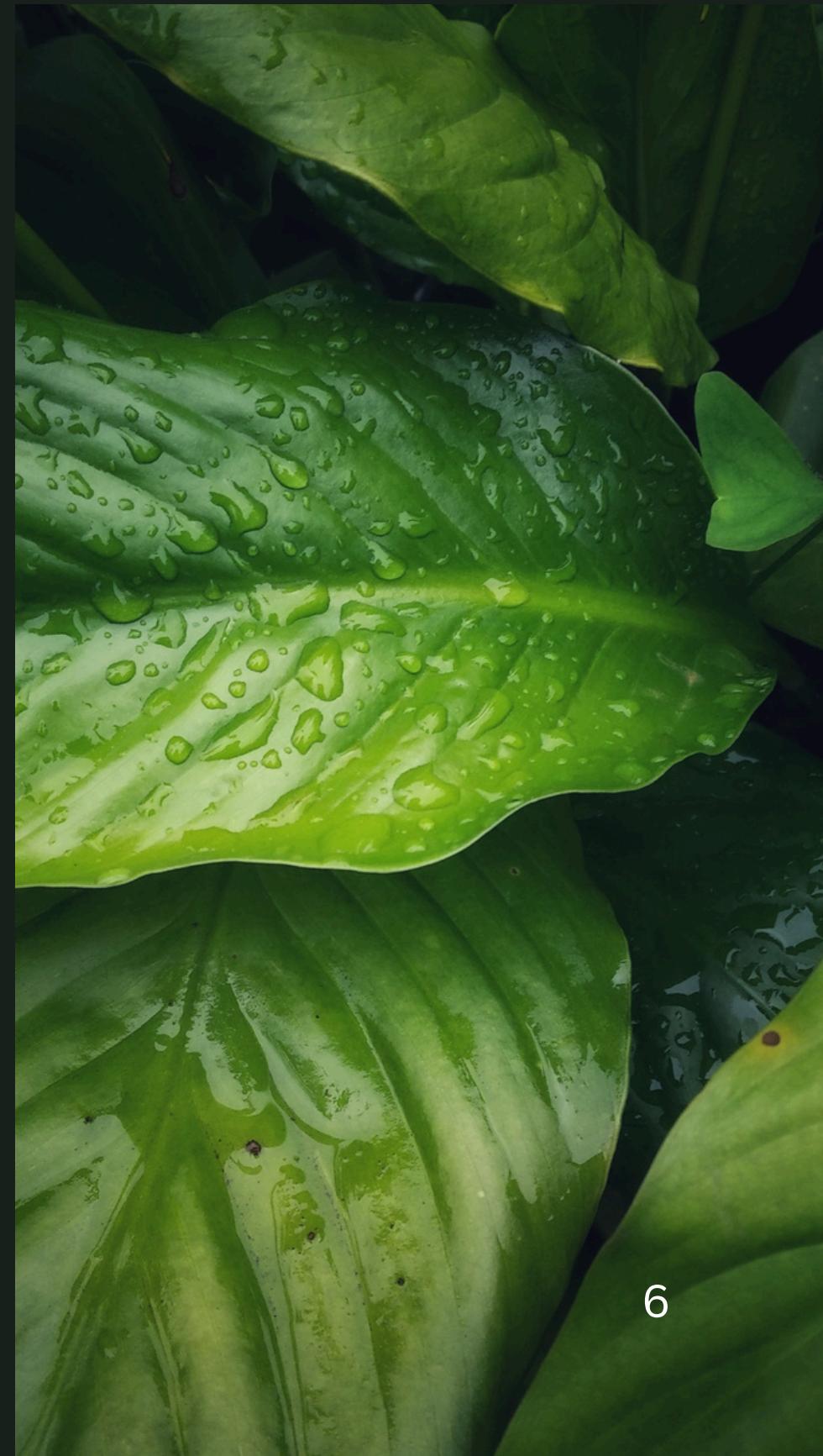
DATASET & FEATURES

- Example dataset: NPK values, pH, rainfall, temperature, humidity
- Features → Input to ML model
- Target → Crop label (e.g., rice, wheat, maize, apple, watermelon)



METHODOLOGY (ML PIPELINE)

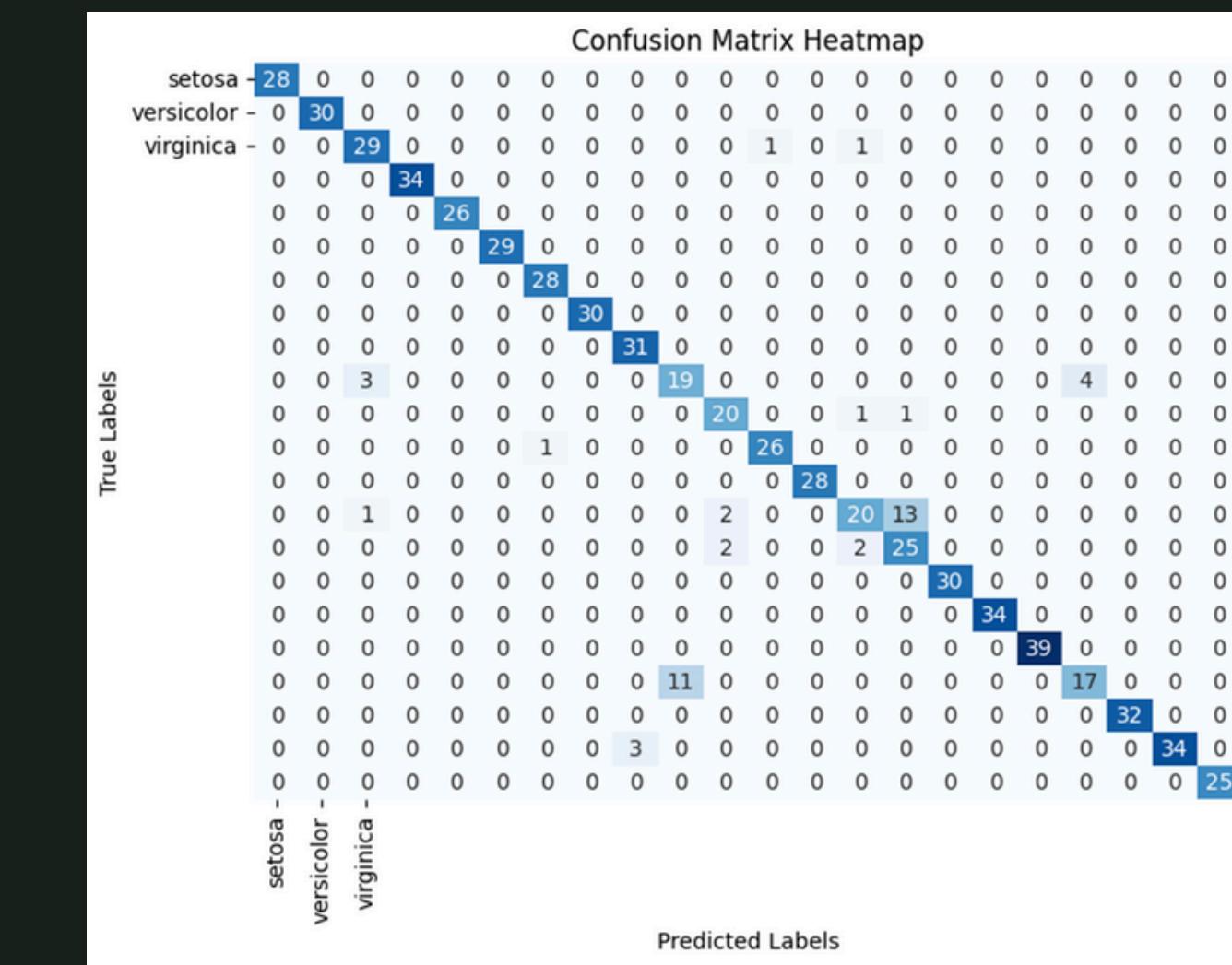
- Data Collection (dataset - N, P, K ,temperature,humidity,pH)
- Data Preprocessing (cleaning, normalization)
- Model Selection (Decision Tree, RandomForest, SVM, etc.)
- Training & Testing (split dataset, accuracy check)
- Prediction (recommend crop)





MODEL EXAMPLE & ACCURACY

- Algorithm used: e.g., Random Forest Classifier
- Performance metrics: Accuracy, Precision, Recall
- Graph/Confusion Matrix showing results





CROP RECOMMENDATION EXAMPLES

INPUT-117,32,34,26.272418

OUTPUT-APPLE

INPUT-117,30,50,24.90123

OUTPUT-WATERMELON

Crop Recommendation

Please enter repetitive fields

Nitrogen*

Phosphorus*

Potassium*

Rain fall*

Crop Recommendation

For the values

Nitrogen:68

Phosphorus:58

Potassium:38

Rain_fall:221

You **will** have Crop Recommendation:**others**



BENEFITS

Data-driven decision-making
Increased yield & farmer income
Scalable with mobile apps

CHALLENGES

Quality dataset required
Need real-time weather data
Farmers' digital adoption



CONCLUSION & FUTURE SCOPE

- ML makes crop recommendation smarter & reliable
- Can integrate with IoT sensors & mobile apps
- Future: Region-specific recommendations, AI-powered advisory systems