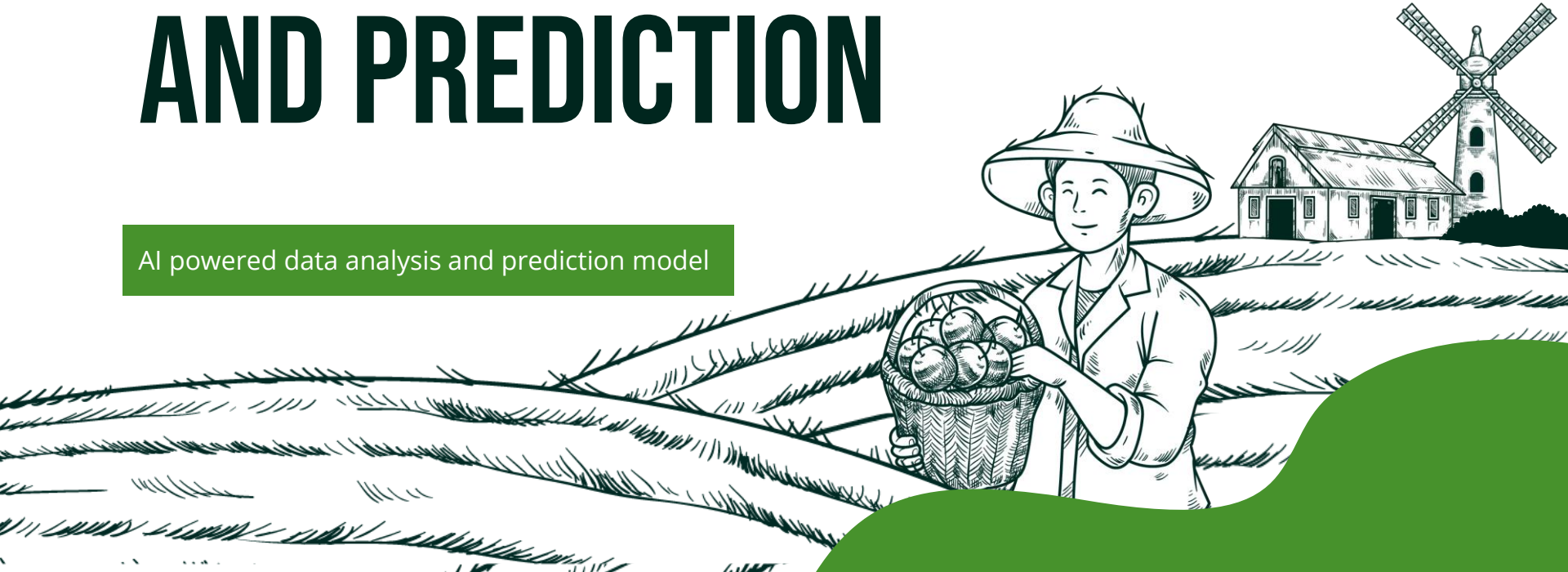
CROP ANALYSIS AND PREDICTION

AI powered data analysis and prediction model



INTRODUCTION

Machine Learning is well equipped when it comes to analyzing data regarding soil conditions, including moisture level, temperature, and chemical makeup, all of which have an impact upon crop growth and livestock well-being.

Using this we can develop means to even predict harvest yields and evaluate crop quality for individual plant species to detect crop disease and weed infestations which were previously impossible!

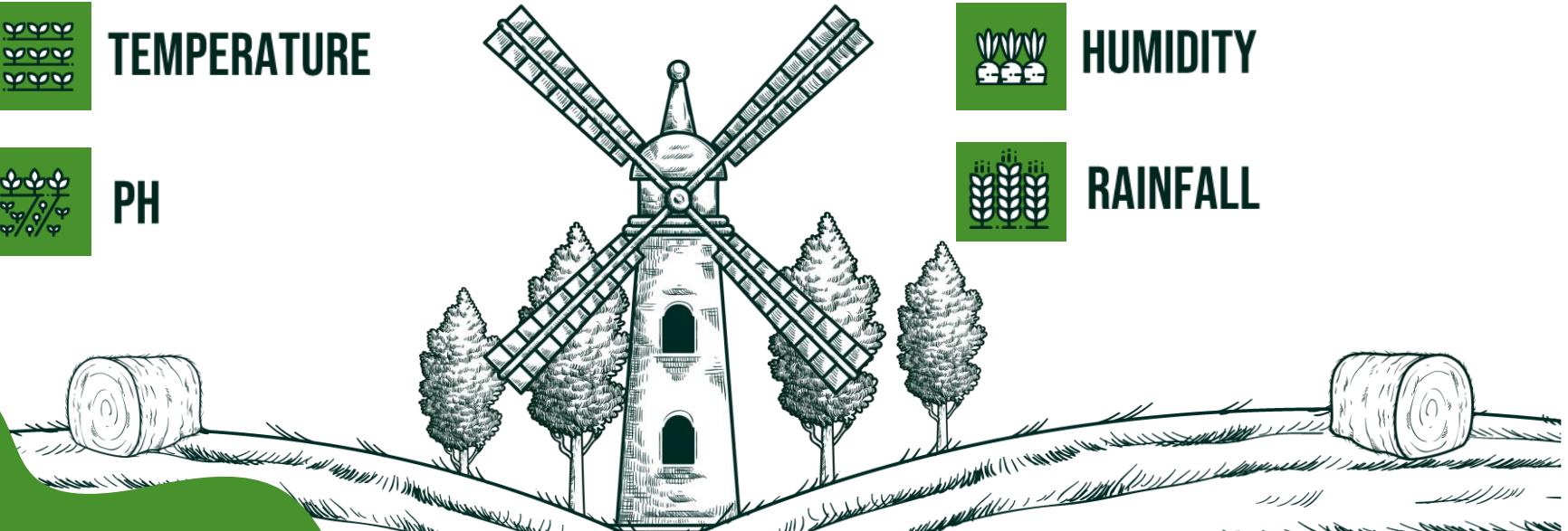
By analyzing historical data and current conditions, machine learning models can predict crop yields with high accuracy. This information helps farmers make informed decisions about planting strategies, harvesting schedules, and marketing plans.

Machine learning can help farmers adapt to changing climate conditions by providing insights into how different crops and cultivation practices perform under varying environmental scenarios. This knowledge allows farmers to adjust their strategies to mitigate risks and maximize productivity in a changing climate.

By analyzing soil moisture levels, weather forecasts, and crop water requirements, machine learning algorithms can optimize irrigation schedules to ensure that crops receive the right amount of water at the right time. This helps conserve water resources and prevents both waterlogging and drought stress.

PARAMETERS IN EFFECT

- NITROGEN CONTENT
- PHOSPHORUS CONTENT
- TEMPERATURE
- HUMIDITY
- PH
- RAINFALL

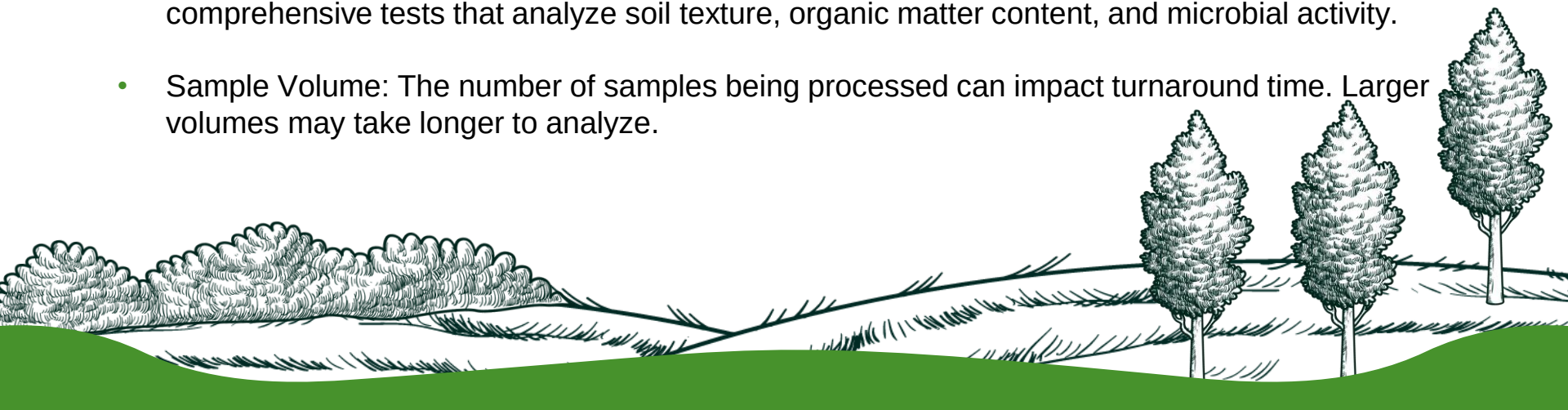


TIMEFRAME FOR SOIL TESTING

- Laboratory Processing Time: Each laboratory may have its own processing time, which can range from a few days to a few weeks. Some labs offer expedited services for an additional fee if you need results more quickly.

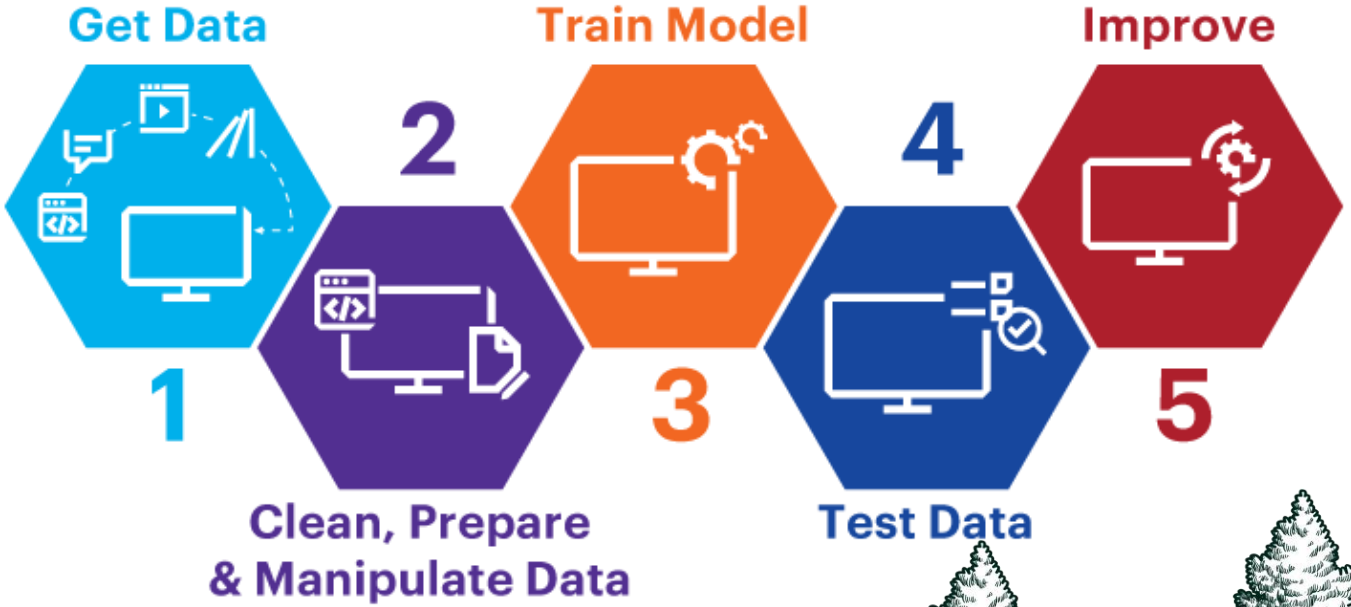
- Type of soil test: Different types of soil tests may require different amounts of time for analysis. Basic tests for pH and nutrient levels may be completed more quickly than more comprehensive tests that analyze soil texture, organic matter content, and microbial activity.

- Sample Volume: The number of samples being processed can impact turnaround time. Larger volumes may take longer to analyze.



- Lab Workload: The workload of the laboratory can affect processing times. During peak seasons, such as spring and fall when many people are testing their soil for gardening or farming purposes, labs may experience higher demand and longer processing times.

- Location of the Lab: The location of the laboratory relative to where the soil samples are being sent from can impact transit times, which in turns affect the overall turnaround time for results.


Get Data
1
2
Clean, Prepare
& Manipulate Data
Train Model
3
4
Test Data
Improve
5

MODEL TIMELINE

STEP 1

Data Analysis

STEP 2

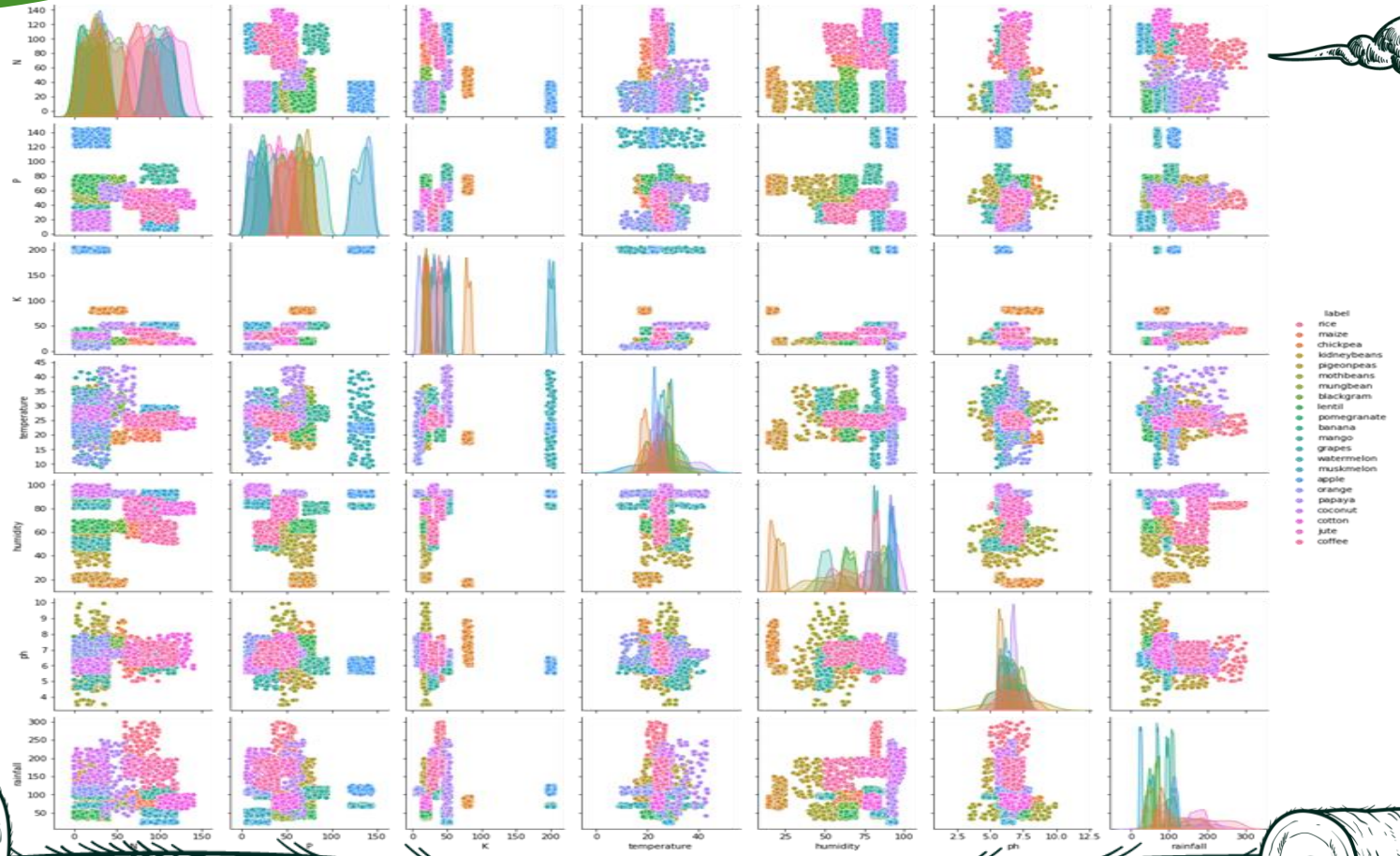
Data Preprocessing

STEP 3

Train Test splitting

STEP 4

Random forest model


N
P
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temperature
humidity
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rainfall
label
rice
maize
chickpea
kidneybeans
pigeonpeas
mothbeans
mungbean
blackgram
lentil
pomegranate
banana
mango
grapes
watermelon
muskmelon
apple
orange
papaya
coconut
cotton
jute
coffee

TECH STACK

NEXT.JS

Next.js is a React framework used for building server-side rendered and statically generated web applications.

Flask API is a lightweight web framework in Python used for building web APIs (Application Programming Interfaces).

99.45%

We boast a whopping 99.45% accuracy in our prediction

THANKS!

- By Rishabh, Abdullah, Kalicharan and Ashish