



Data-Driven Crop Advisory System

-PREPARED BY

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Addressing Agricultural Challenges

Agriculture today faces numerous hurdles. Climate change, soil degradation, and inefficient resource management lead to reduced yields and economic instability for farmers.

Challenges Faced:

Unpredictable weather patterns:-

Unpredictable weather patterns pose significant challenges to agriculture, affecting crop yields, farmer livelihoods, and global food security.

Nutrient depletion in soil:-

Soil nutritional depletion can lead to reduced crop yields, lower nutritional value of produce, and increased reliance on synthetic fertilizers.

Suboptimal crop selection:-

Suboptimal crop selection can lead to reduced yields, increased pest and disease susceptibility, and inefficient use of resources such as water and fertilizers.



Key Performance Indicators & Vision

Our system aims to revolutionize farming by providing precise, data-backed recommendations.



Optimal Crop Selection

Suggesting the best crop based on N, P, K, pH, temperature, humidity, and rainfall.



Fertilizer Advisory

Providing tailored fertilizer recommendations to small farm holders.



Real-time Analysis

Analyzing current soil and weather conditions for accurate suggestions.



Empowering Farmers

Increasing yield, reducing waste, and improving farmer livelihoods.

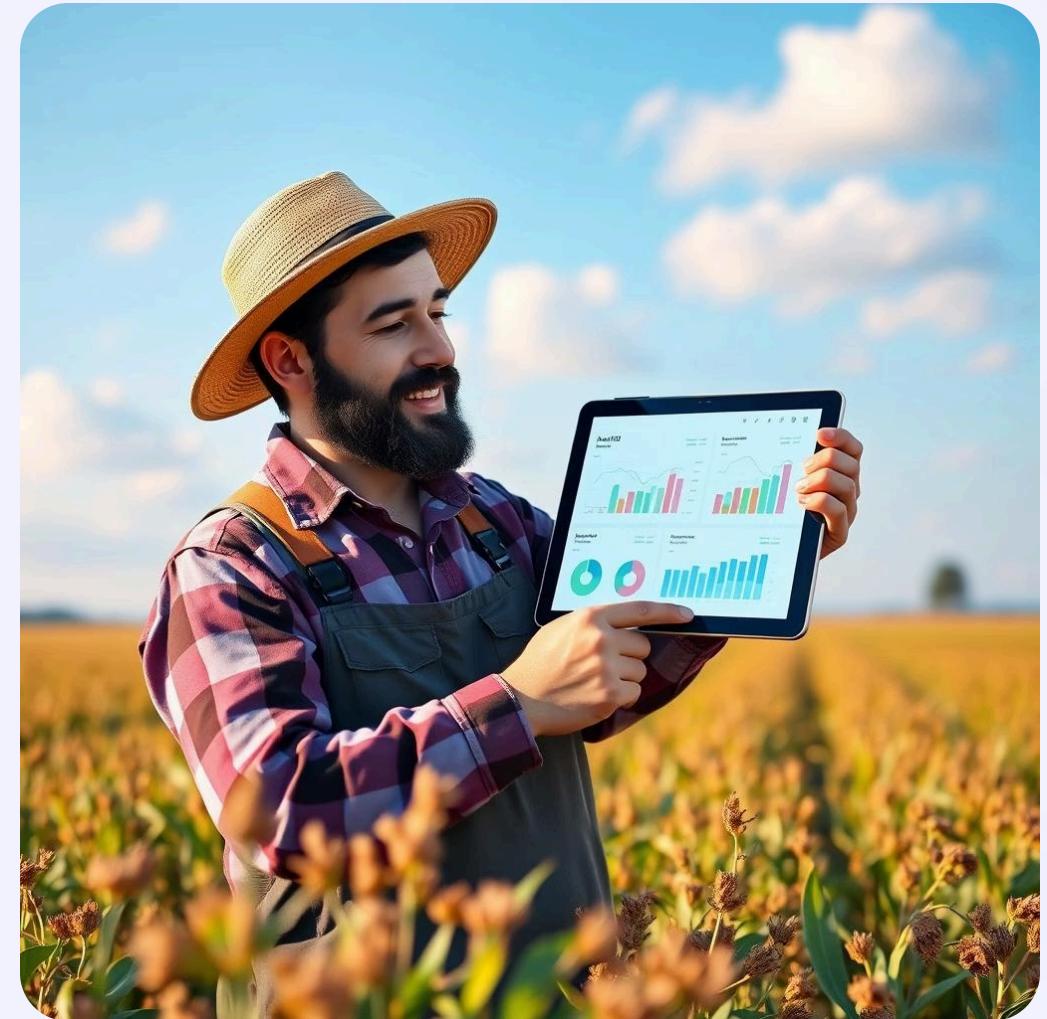
Actionable Insights & Technology

Our system leverages cutting-edge AI and data science tools to transform raw data into practical advice for farmers.

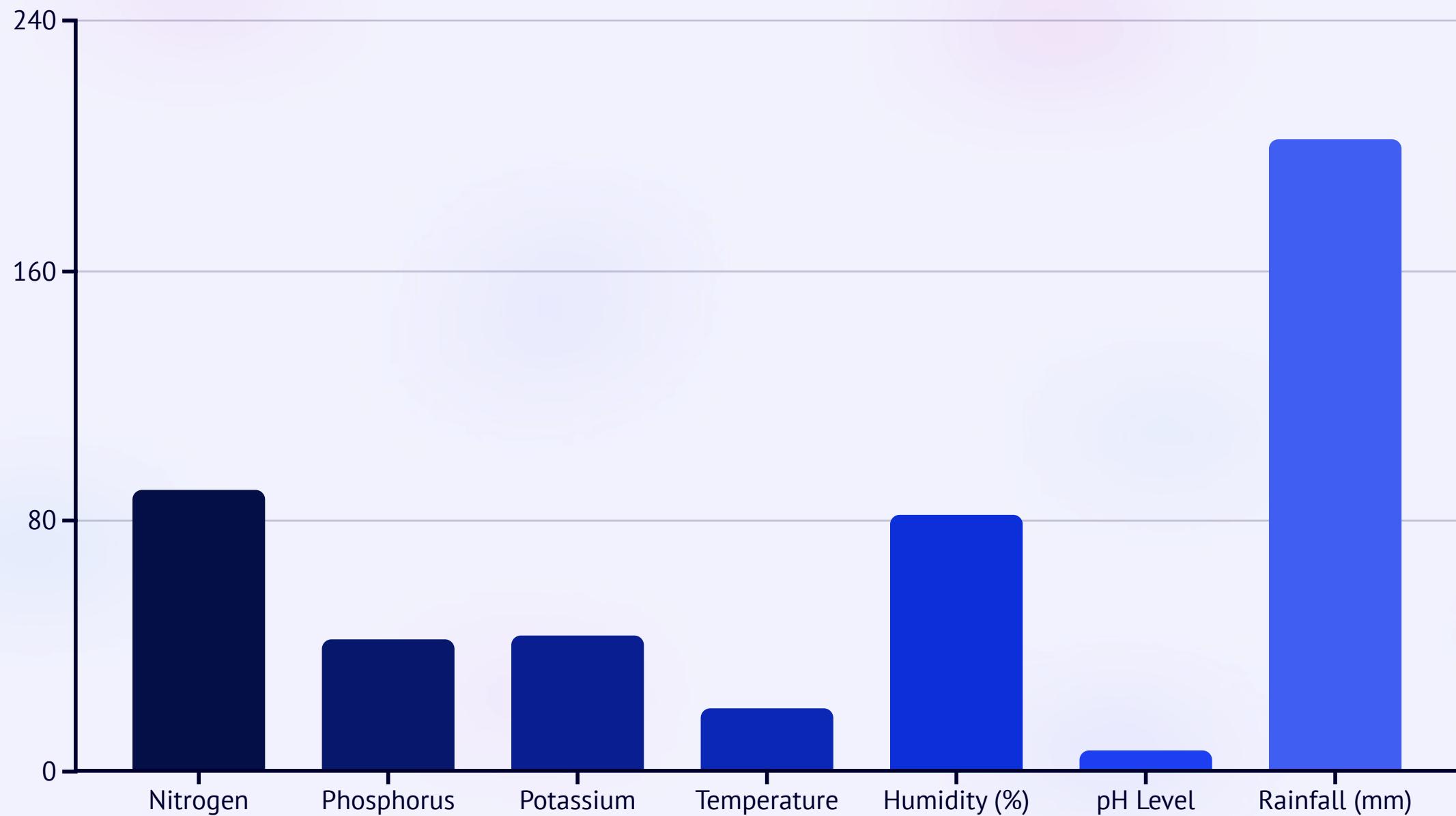
Google Colab: For collaborative development and powerful GPU access.

Python Libraries: Pandas for data manipulation, NumPy for numerical operations, Scikit-learn for machine learning models.

Data-driven Models: Implementing predictive analytics for crop suitability and resource optimization.



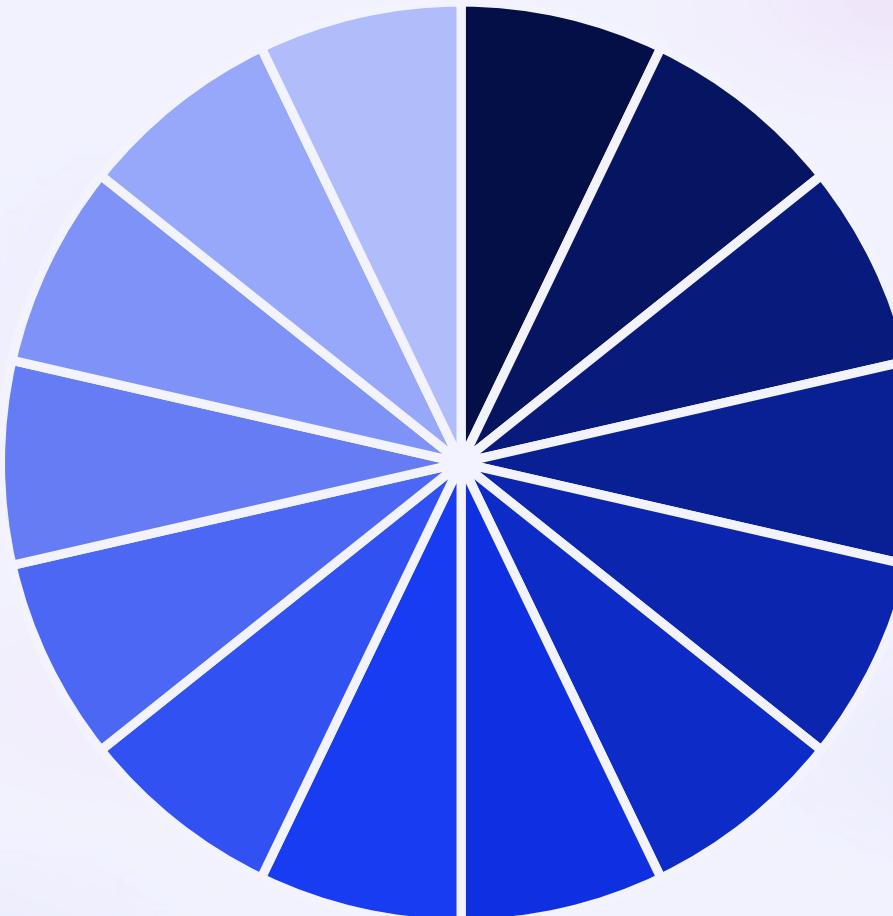
Soil and Environmental Data for rice Recommendation.



- Nitrogen(N): 90.00
- Phosphorus(P): 42.00
- Potassium(k): 43.00
- Temperature: 20.50
- Humidity(%): 82.00
- pH level: 6.50
- Rainfall: 202.00

This bar graph illustrates the key environmental and soil parameters considered for optimal rice production.

Distribution of Crop Recommendations

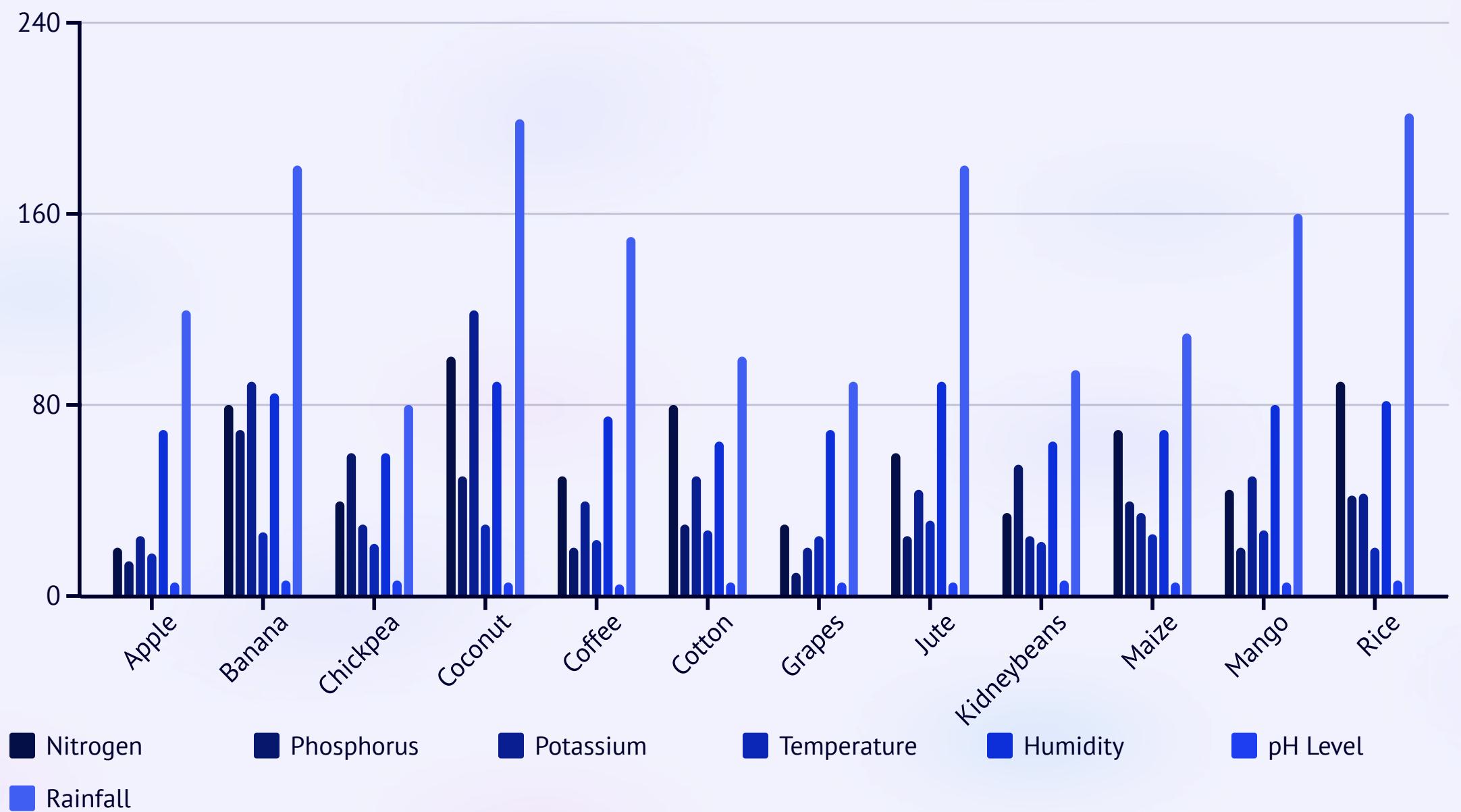


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|---------------|--------------|----------|---------|-------------|--------------|
| ■ Coconut | ■ Papaya | ■ Orange | ■ Apple | ■ Muskmelon | ■ Watermelon |
| ■ Grapes | ■ Mango | ■ Coffee | ■ Rice | ■ Maize | ■ Chickpea |
| ■ Kidneybeans | ■ Pigeonpeas | | | | |

This pie chart shows an equal distribution of crop recommendations, indicating the system's versatility across various crop types.

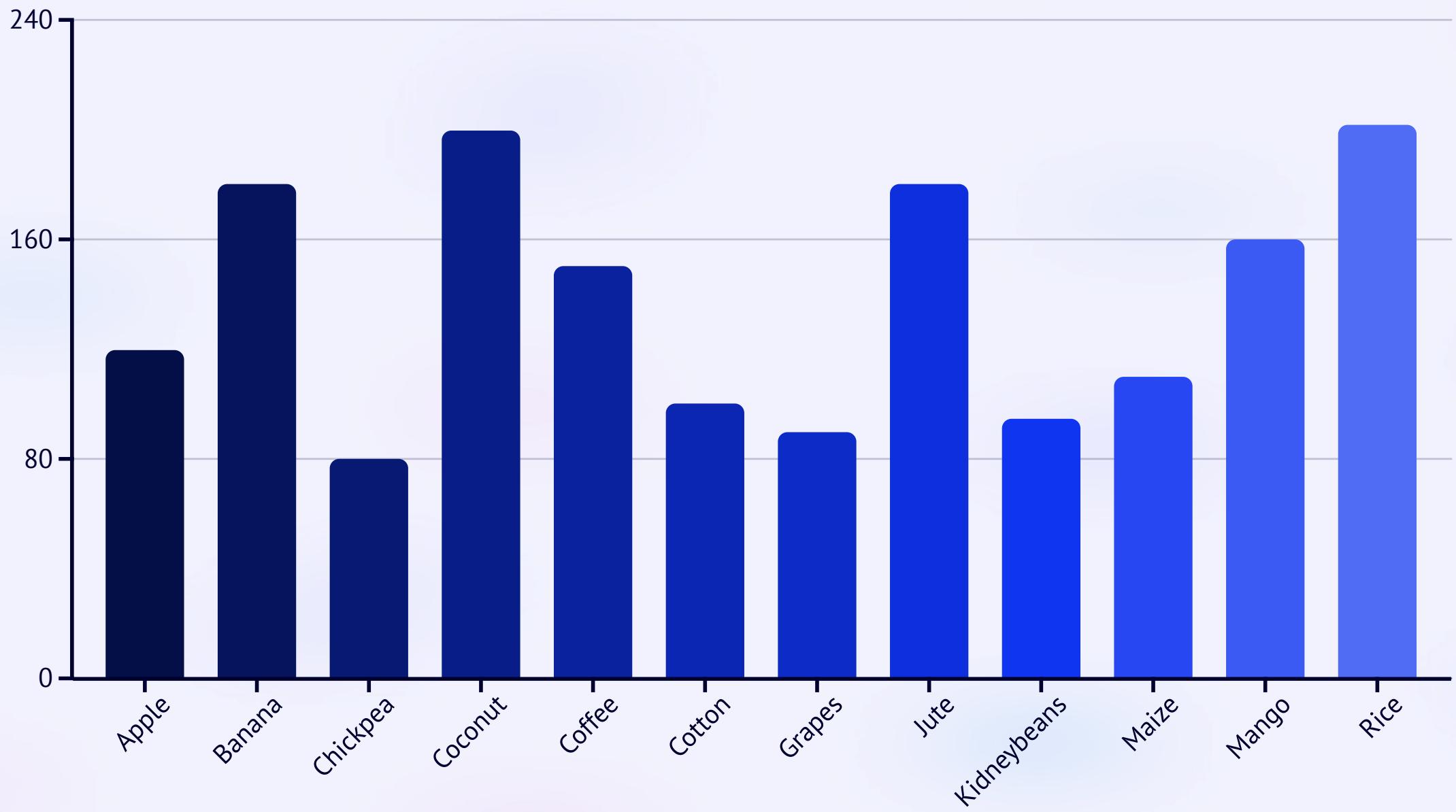
Average Feature Values per Crop Type

This chart provides a comparative view of the average nutrient and environmental requirements for various crops.



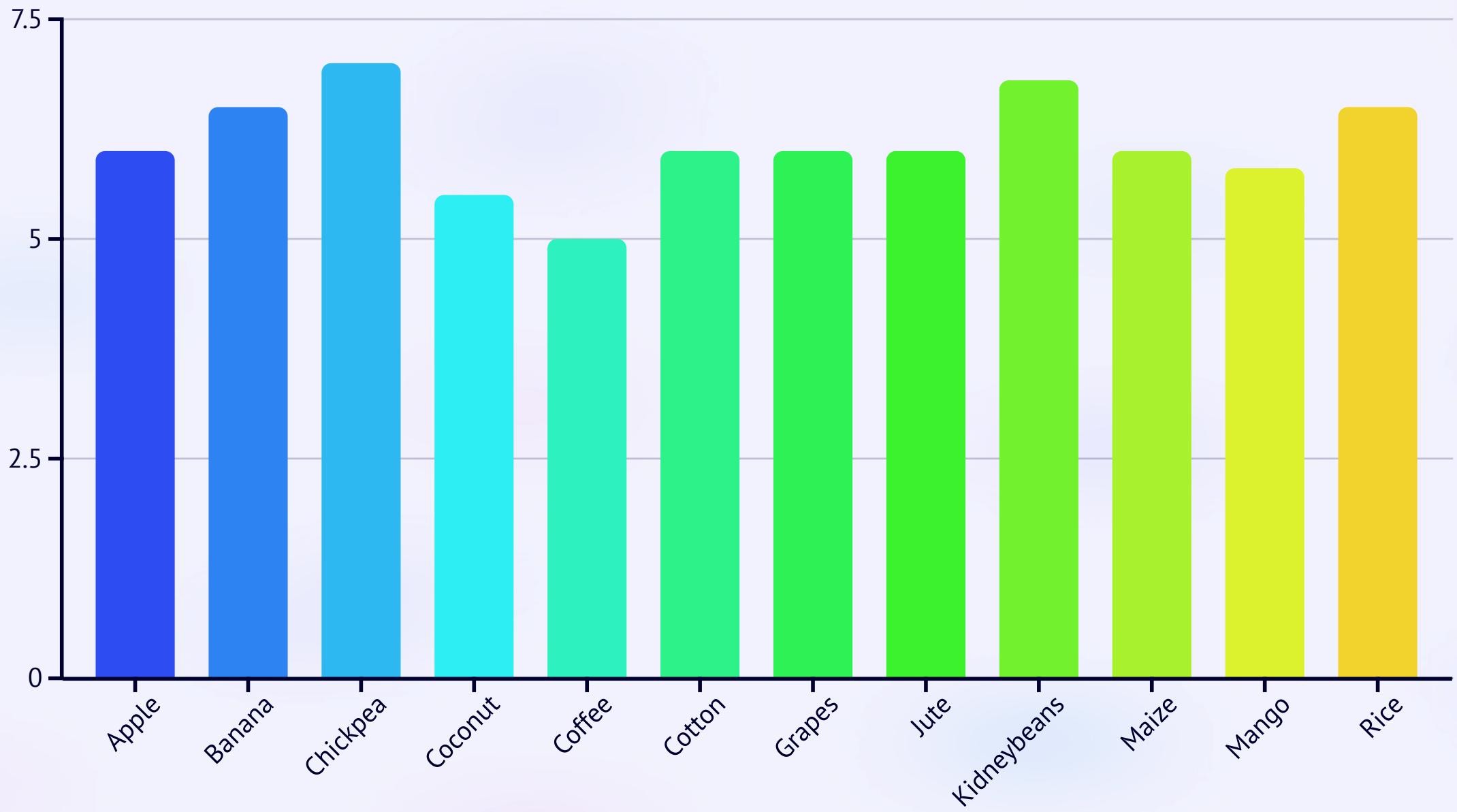
Rainfall Distribution per Crop

The following displays the distribution of optimal rainfall levels required for various crop types, highlighting their unique hydrological needs.



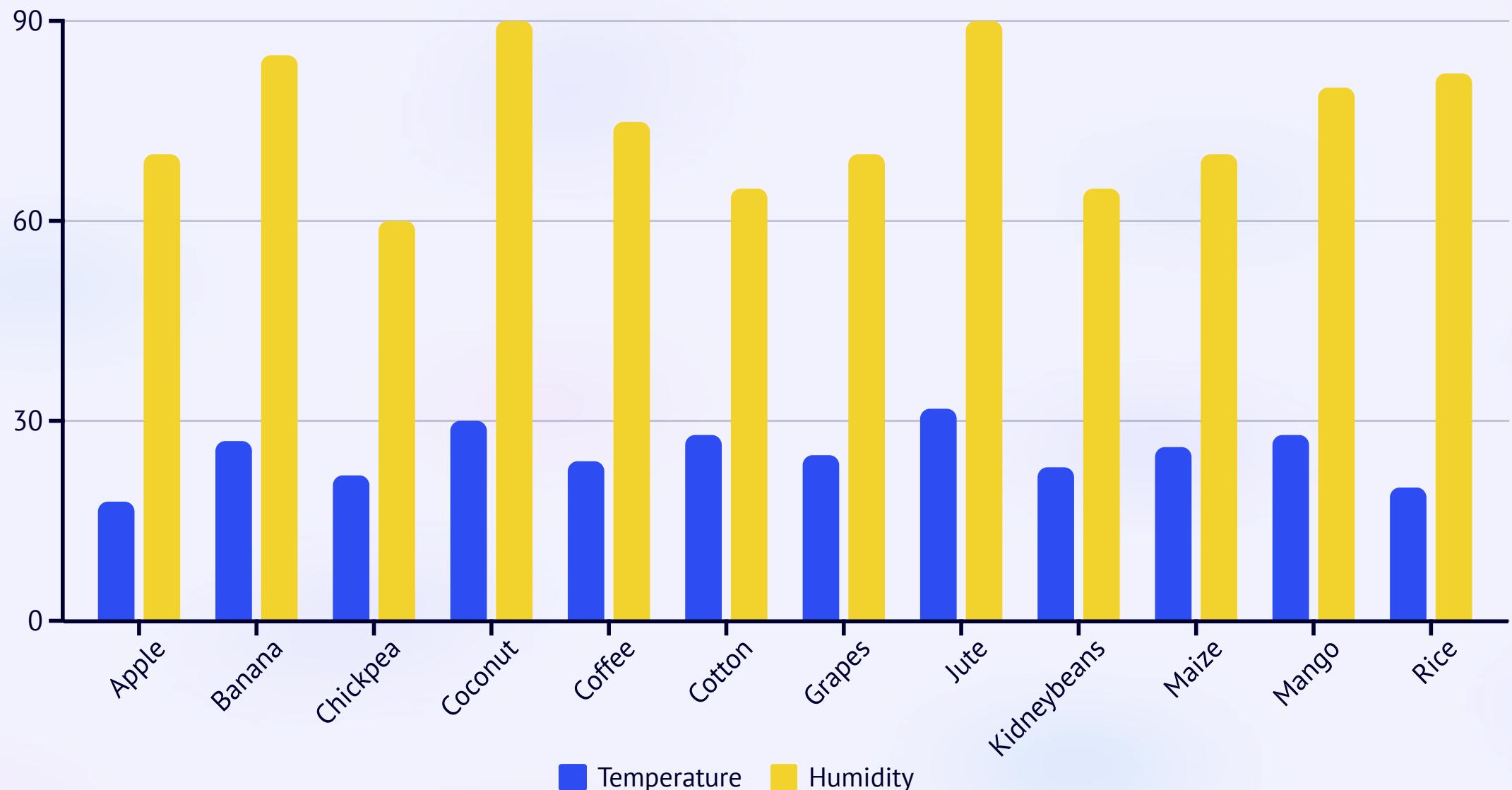
PH Distribution per Crop Type

This box plot visualizes the pH distribution for various crop types, indicating their preferred soil acidity or alkalinity levels.



Temperature vs. Humidity for Crop Types

This scatter plot visualizes the relationship between optimal temperature and humidity levels for different crop types, providing insights into their climatic preferences.



THANK YOU

