Data Analysis of Agricultural Yield Factors

Exploratory Data Analysis (EDA) Findings

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Introduction

- Brief Overview of the Project.
- Importance of EDA in Agriculture.
- Objectives of the Analysis.

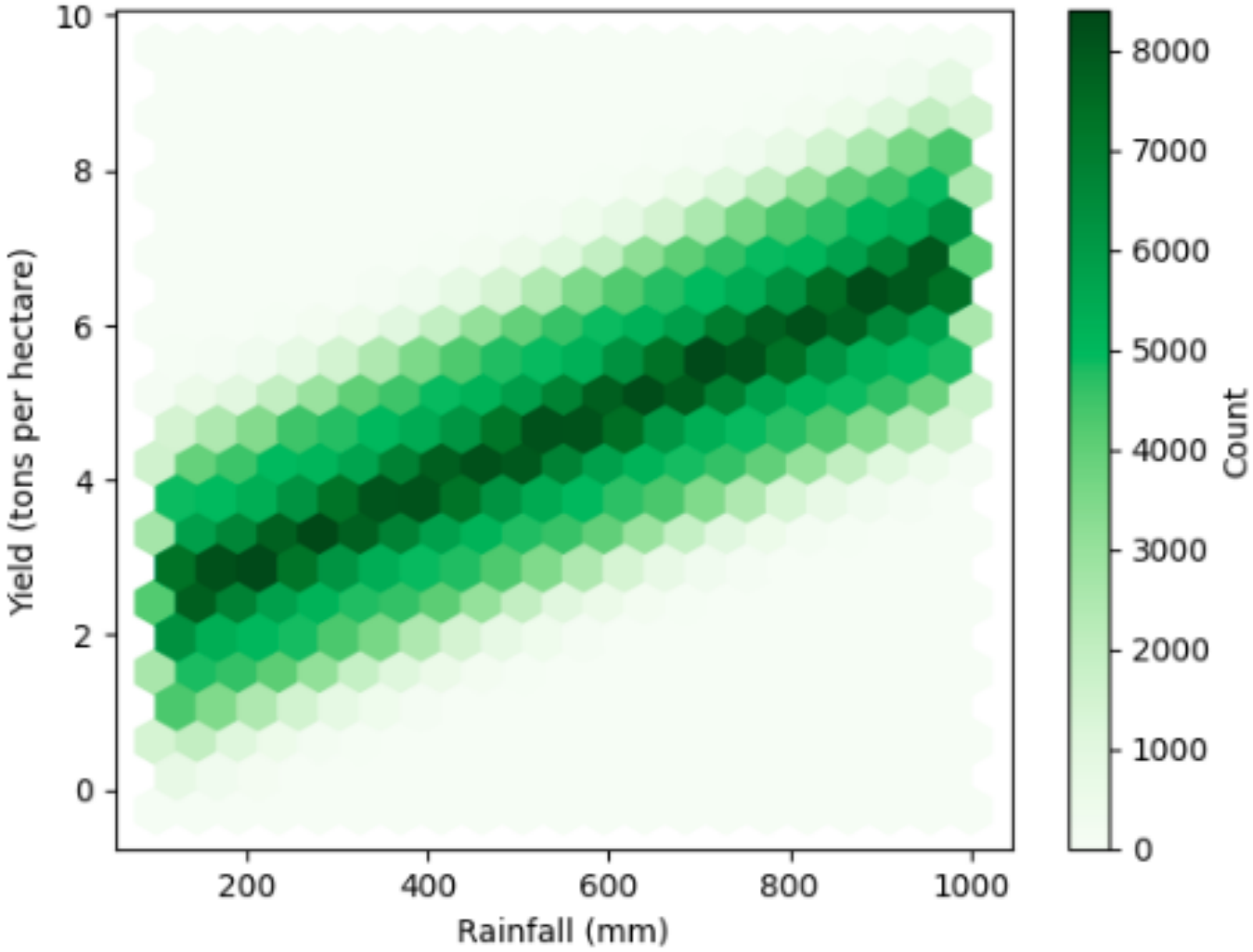
Data Overview

Key Variables

- **Numerical Data –** Rainfall ,Temperature, Days to Harvest, Yield tone per hectare.
- **Categorical Data** - Soil Type, Crop, Fertilizer Used, Irrigation Used, Region, Weather Condition.

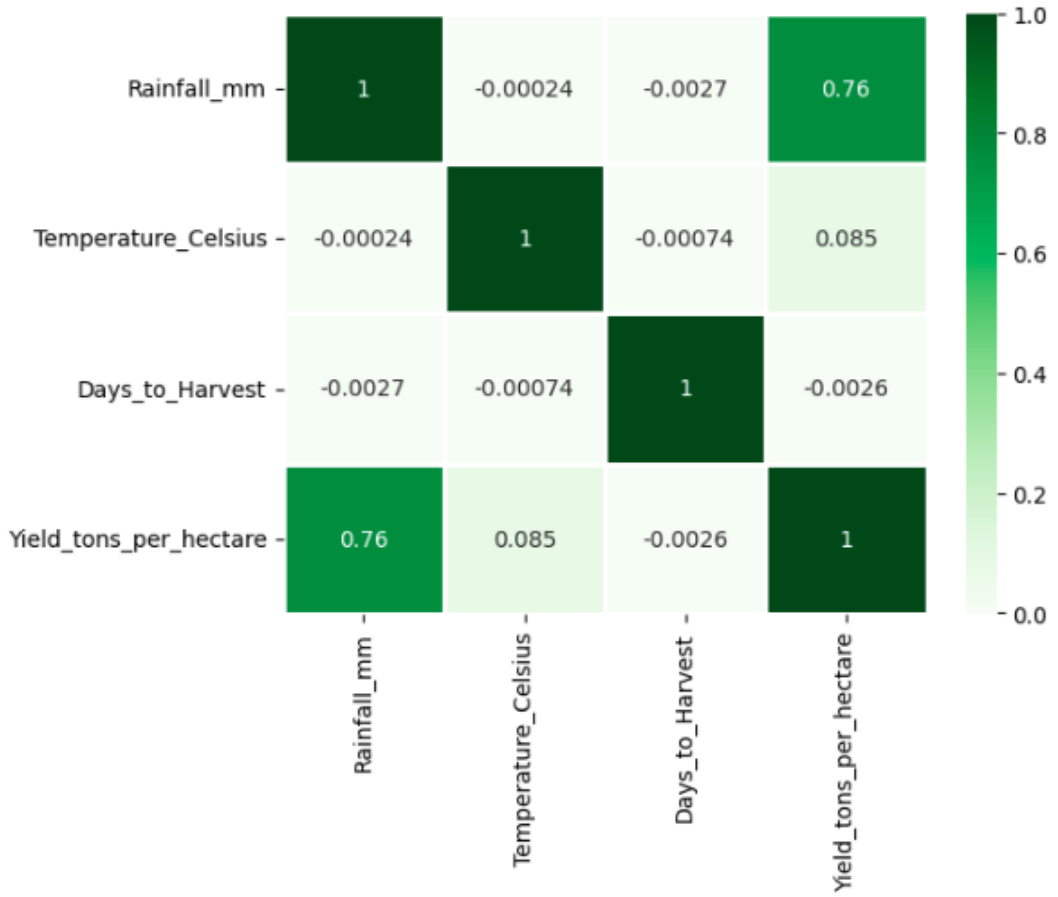
Rainfall and Yield Relationship

- Positive correlation between rainfall and crop yield.
- Variability in yield based on other factors.
- Yield at Extreme Rainfall Levels.



Temperature's Limited Impact

- Strong positive correlation between rainfall and yield.
- Days to Harvest is negatively correlated (but value is too close to zero) to Rainfall and Temperature.
- No significant relationship between days to harvest and other variables.
- Other factors may have more significant effects.



Fertilizer and Irrigation Impact

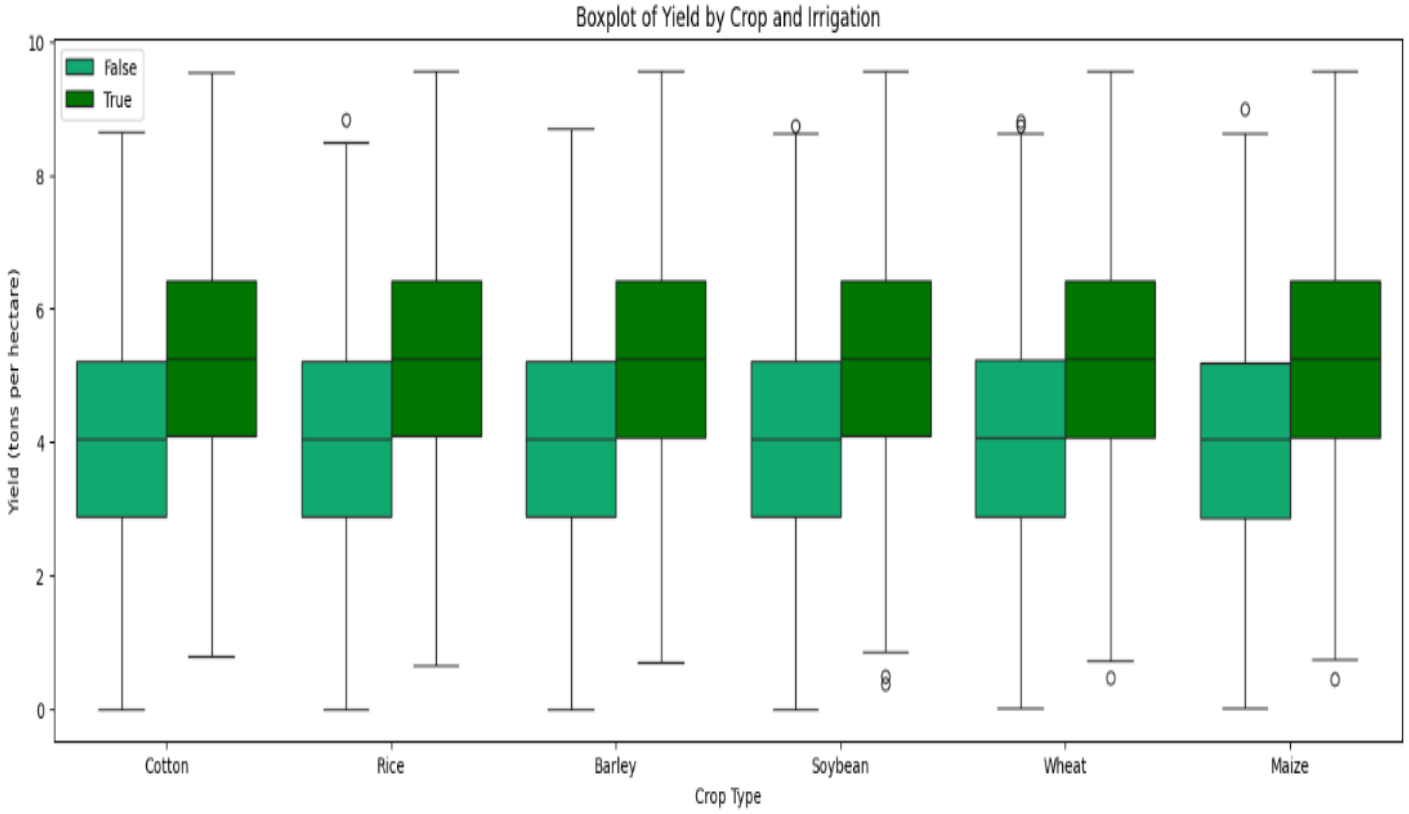
- Significant yield enhancements with fertilizer and irrigation.
- Consistent Positive Impact.
- Effectiveness across various crops and regions.
- Largest Yield Improvement with Fertilizer and Irrigation.
- Yield is Less compared to yield with fertilizers.

Fertilizer effect on Day to harvest

- Crops consistently show the highest yields when fertilizer is applied, regardless of the amount of rainfall.
- Combining fertilizer use with good water management practices leads to sustainability in agricultural systems.
- Fertilizer application not only boosts yields but also crops optimize water use, .
- Use of fertilizer allows crops to make better use of available water, significantly boosting yields

Crop and Irrigation Compatibility

- **Rice, Barley, Wheat, and Maize** show the most significant difference in yield between irrigated and non-irrigated conditions.
- **Cotton** and **Soybean** also show yield improvement with irrigation, but the difference appears to be slightly smaller compared to the other crops.
- **Rice** and **Maize** have the highest yields under irrigation conditions.
- **Barley** and **Wheat** have the lowest yields without irrigation,



Recommendations for Farmers

- Optimize Water and Fertilizer Management
- Focus on Rainfed Crops.
- Adapt to Regional Conditions.
- Monitor and Adjust Based on Weather.
- Explore Further Factors Affecting Yield Variability

Conclusion:

- Importance of EDA in uncovering insights
- Data-driven decision-making for improving agricultural productivity
- Future analysis directions and possibilities

Q&A

Open the floor for questions

Thank You

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