# AgroPredict: Crop Yield Prediction System


## ABSTRACT

Agriculture is one of the most important sectors in India, and many people depend on farming for their income. Farmers often face difficulties in estimating how much yield they will get and in deciding which crop is suitable for a particular season. Uncertain factors such as seasonal variations and changes in production trends make crop planning difficult. Therefore, there is a need for a system that can predict crop yield and help farmers make better decisions.

This project focuses on developing a **machine learning-based system to predict crop yield and recommend the best crop for the current season**. Historical agricultural data containing information such as crop name, season, cultivated area, and production is collected from reliable sources. Crop yield is calculated using production and area values and is used to train machine learning models.

The collected data is preprocessed to handle missing values and convert categorical data into numerical form. Machine learning algorithms such as Linear Regression, Decision Tree, and Random Forest are used to predict crop yield. The performance of these models is evaluated, and the best model is selected for prediction.

In addition to predicting yield, the system classifies the predicted yield as low, medium, or high to make the results easier to understand. The project also compares the predicted yields of different crops for the same season and recommends the crop that provides better yield at the current time. A simple risk analysis is included to indicate whether the predicted yield is stable or risky based on past data.

The proposed system helps farmers in crop selection, yield estimation, and seasonal planning. It also provides useful insights for agricultural planners and decision-makers. This project demonstrates how machine learning can be effectively used in agriculture to support better crop management and improve productivity.