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CROP YIELD PREDICTION AND RECOMMENDER SYSTEM USING MACHINE LEARNING

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Abstract— Crop production was formerly done using farmers' firsthand experience. Though, crop yields are already being severely impacted by climate change. As a result, farmers are unable to select the best crops based on soil and environmental parameters, and manually selecting the best crop or crops for a particular piece of land has, more often failed. Machine learning is used to predict the best crop to grow in a particular land based on the parameters like Soil minerals, moisture, and temperature. By analyzing these parameters optimal crops to grow in particular land will be predicted by models trained using Random Forest, Decision Tree and Linear Regression. The best crop to produce will be predicted based on inputs such as temperature, moisture, and the amount of land minerals such as phosphorus, potassium, nitrogen, and pH value. The dataset is first gathered, and pre-processing is done. The models of Crop Recommendation, Yield Prediction, and Fertilizer Recommendation are then trained using supervised machine learning algorithms, followed by model evaluation and prediction. Crop recommendation accuracy is 96.30%, yield prediction accuracy is 97.80%, and fertilizer recommendation accuracy is 98.73% by using the Random Forest Algorithm.