**1.An Experimental Analysis of Crop Yield Prediction using Modified Deep Learning Strategy**

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Agriculture is the most significant and important backbone to the country's economy and as compare to other countries Indian civilization depends this agricultural field a lot. Different climate conditions such as rainfall, temperature, humidity levels, pesticide problems and so on need to be monitored continuously to maintain the agricultural field in good manner. Now-a-days, there are lots of Artificial Intelligence assisted technologies are available to predict the climate conditions and report it properly to the respective user. In this paper, a novel deep learning strategy is designed to support agricultural field to predict the crop yield level in fine manner, in which the proposed learning scheme is called as Modified Deep Learning Strategy (MDLS). This MDLS is derived from the conventional learning schemes called K-Nearest Neighbor and the Decision Tree Algorithms. The proposed approach consider the parameters such as rainfall ratio, pesticide usage and the weather conditions like temperature level as the prediction constraints to analyze the crop yield nature. The resulting section shows the proper efficiency ratio of all the mentioned algorithms in clear manner with graphical representations. A novel crop yield prediction dataset is considered to estimate the prediction level of crops, in which it is obtained from the open source database called Kaggle. The performance evaluation of the proposed approach is portrayed in the resulting section as well as it is cross-validated with the conventional learning schemes called k-Nearest Neighbor and the Decision Tree algorithms to prove the efficiency of the proposed approach called Modified Deep Learning Strategy.

# 2. Crop Yield Analysis Using Machine Learning Algorithms

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# 3.Predictive Analysis to Improve Crop Yield using a Neural Network Model

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Agriculture has been the sector of paramount importance as it feeds the country population along with contributing to the GDP. Crop yield varies with a combination of factors including soil properties, climate, elevation and irrigation technique. Technological developments have fallen short in estimating the yield based on this joint dependence of the said factors. Hence, in this project a data-driven model that learns by historic soil as well as rainfall data to analyse and predict crop yield over seasons in several districts, has been developed. For this study, a particular crop, Rice is considered. The designed hybrid neural network model identifies optimal combinations of soil parameters and blends it with the rainfall pattern in a selected region to evolve the expectable crop yield. The backbone for the predictive analysis model with respect to the rainfall is based on the Time-Series approach in Supervised Learning. The technology used for the final prediction of the crop yield is again a branch of Machine Learning, known as Recurrent Neural Networks. With two inter-communicating data-driven models working at the backend, the final predictions obtained were successful in depicting the interdependence between soil parameters for yield and weather attributes.

# 4. A Comparative Analysis of Crop Yield Prediction using Regression

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Agriculture plays a vital role in the growth of the economy of various countries like India. Therefore, predicting crop yield before its cultivation can help farmers and the agriculture departments in deciding which crop is better to grow and take appropriate marketing and storage measures. Predicting crop yield is one of the applications in the field of machine learning (ML). Many models have been recommended and certified to date. Crop yield prediction necessitates the use of a few datasets because it is dependent on a variety of parameters such as climate, soil, location, area, season, and so on. This methodology focuses on predicting crop yield based on available data using different Regression models like Linear Regression (LR), Lasso Regression (LASSO), Decision Tree Regression (DT), and Random Forest (RF) Regression and evaluate which model is best for the prediction of crop yield. The inspiration for this project is that this will help farmers to predict and see the yield of their crop before they cultivate it and make the right decisions and also develop new ideas in the field of crop yield forecasting and for further research. Agricultural yield prediction is very important at regional as well as national levels for early decision-making. An accurate model of crop yield forecast will help in deciding what to grow and get how much yield can be produced.

# 5. Machine Learning based Crop Yield Prediction on Geographical and Climatic Data

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Accurate forecasts of local and regional agricultural production are essential for agricultural market contractors and farmers to assist prize agreements as early as possible in the crop growing season. These kinds of predictions will also help farmers minimize losses due to crop failure and can also help businesses that depend on agricultural products to plan their business logistics and resources. In this paper, a method is proposed which would help predict the estimate of the crop yield for a specific land based on the analysis of geographical and climatic data using Machine Learning. Regression models such as Decision Tree Regression, K-Nearest Neighbor Regression, Gaussian Process Regression and Support Vector Regression are used along with feature selection, feature scaling, cross validation and hyperparameter tuning techniques to enhance their performance.