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# Barley Crop Yield Forecasting using Ensemble Method-Adaptive Boosting of Weak Regressors

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***Abstract:*** Prediction and forecasting of crop yields based on various climatic conditions are an intensive process. In the proposed work adaptive boosting prediction model is presented, using the datasets of barley crops along with the climatic features of the states located in Colorado, Wyoming, Idaho and Montana. The study discusses the experiments on weak regression technique like the linear regression, SVR Linear regression and proposes a strong prediction method in terms of regression like the Adaptive Boosting (Adaboost) technology in order to increase the accuracy in the prediction techniques. The Adaboost method combines several weak regressors and presents a weighted sum representing a strong final output. It has been observed from the experiments that, the decision of weak regressors varies due to frequent, inherent attributes of climatic conditions for crop production. The various numerical simulations, results and statistical measures demonstrate the efficiency of the strong Adaboost based regressors when compared to weak linear regressors.

***Keywords*:** AdaBoost, Linear regression, Weak regressors, SVR linear regression, Climatic parameters, Crop yield forecasting