

Modified Naive Bayes-Based Prediction Modeling for Crop Yield Prediction

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Abstract : Most of greenhouse growers desire a determined amount of yields in order to accurately meet market requirements. The purpose of this paper is to model a simple but often satisfactory supervised classification method. The original naive Bayes have a serious weakness, which is producing redundant predictors. In this paper, utilized regularization technique was used to obtain a computationally efficient classifier based on naive Bayes. The suggested construction, utilized L1-penalty, is capable of clearing redundant predictors, where a modification of the LARS algorithm is devised to solve this problem, making this method applicable to a wide range of data. In the experimental section, a study conducted to examine the effect of redundant and irrelevant predictors, and test the method on WSG data set for tomato yields, where there are many more predictors than data, and the urge need to predict weekly yield is the goal of this approach. Finally, the modified approach is compared with several naive Bayes variants and other classification algorithms (SVM and kNN), and is shown to be fairly good.

Keywords : tomato yield prediction, naive Bayes, redundancy, WSG

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