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PRE-HARVEST WHEAT YIELD FORECAST THROUGH AGRO-METEOROLOGICAL INDICES FOR NORTHERN REGION OF HARYANA

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ABSTRACT

Parameter estimation in statistical modeling plays a crucial role in the real world phenomena. Several alternative analyses may be required for the purpose. An attempt has been made in this paper to assess the impact of weather variables for district-level wheat yield estimation in the Northern region (Haryana). Phase wise weather data and trend based yield was used for developing the zonal trend-agro meteorological (agromet) models within the framework of multiple linear regression and principal components analysis. The results indicate the possibility of district-level wheat yield prediction, 4-5 weeks ahead of the harvest time. Zonal weather models had the desired predictive accuracy and provided considerable improvement in the district-level wheat yield estimates. The principal component analysis offers a considerable improvement over least squares method in the presence of multicollinearity. The estimated yield(s) from the selected models indicated good agreement with State Department of Agriculture (DOA) wheat yields by showing 2-10 percent average absolute deviations in most of the districts except for the Panchkula district.

KEYWORDS: *Linear Time Trend, Eigen Value, Eigen Vector, Weather Variables, Multicollinearity, Principal Component Score*

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