Crop - Weather Relationship and Weather Health Indices for Rice in Guntur District

V S S Gowthami, V R K Murthy and M Sree Rekha

Department of Agronomy, Agricultural College, Bapatla, A.P.

ABSTRACT

Climate determines and controls the selection of crops for a particular region and the prevailing weather conditions decide the potentiality of the crops. Among the major cereals, rice is a highly weather sensitive crop. Rice crop production in Guntur district is largely influenced by inter annual climate variability and possible climate change in addition to prevailing weather conditions. The fluctuations in its yield effects economy of the district. Therefore, to provide the policy makers and planners with scientific information on the impact of climate change and variability and the prevailing weather conditions on rice crop yields in Guntur district, a study was conducted to investigate the relationship between weather parameters and their effect on rice crop yield in Guntur district of Andhra Pradesh. The weather data of two major locations representing the weather of the Guntur district viz., Bapatla (1984-2014) and Rentachintala (1964- 2015) and rice crop yields from both kharif and rabi (1964- 2015) seasons were used. Analysis of relationship of rice crop yield with weather health indices could be predicted with 91 per cent of coefficient of determination. The weather health indices found predominant are weekly rainfall during maturity stage; average minimum temperature during vegetative stage which are negatively correlated where as the average weekly GDD during reproductive stage which is positively correlated. The other weather health indices that were found optimum are 900 mm rainfall during the cropping season GDD 2340 ^{0} Day Hours and 22 to 32 ^{0}C of temperature range for profitable rice crop yields (4584.32 q ha^{-1}) in Guntur district of Andhra Pradesh .

Key words: *Climate, Regression, Correlation, Phenophase, Weather health indices.*