

Recurrence Probability, Intensity Pattern And Agro- Climatic Analysis Of Drought In Eastern U.P.

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ABSTRACT

Drought is climatic anomaly, which is characterized by deficient supply of soil moisture resulting from either under normal rainfall, erratic distribution, higher water need or a combination of all three factors. In view of the importance of kharif season rainfall for rainfed crops, the probabilities of drought in the various regions of eastern U.P. have been worked, based on its occurrence during year 1970 to 2000. The analysis indicated that maximum area of eastern U.P. was affected under the disastrous drought year 1979 followed by 1986 and 1992, which possess only 20-51% short of rainfall from normal reduced the production of rice from 131.1mt to 109mt i.e., 17% reduction from normal year. Dry sub- humid eco region, where rainfall varies between 750-1200 mm., experiences contingent drought situations due to breaks in monsoon. As a result, drought characterization of districts of various Agro-climatic zones, of eastern U.P. are the key component for planning and scheduling the various agricultural practices at different crop growth stages for successful crop production. Therefore, in present study drought occurrence, types of drought and intensity of rainfall pattern etc. have been made of eastern U.P. consisting of 24 districts comprising in three agro- climatic zones. Assured rainfall of districts have been analyzed at different probability level of 70%, 60%, 50%, 40% and 30% observed that 29th, 31st & 32th meteorological week possess highest assured rainfall in all the districts of eastern U.P. at all probability level followed by 36th & 37th week for 50-60% probability level.

Scanty water resource for protective irrigation and lack of high yield biological materials were perhaps, the contributing factors underlying the threat of drought of rainfed regions, therefore, creation of permanent water resource through harvesting of rainwater and its judicious use can neutralize the adverse affect of drought.

Key words : Agro-climatic Analysis of Drought.

INTRODUCTION

Drought is a climatic anomaly, characterized by different supply of moisture resulting either from subnormal rainfall, erratic rainfall distribution and higher water need or a combination of all the three factors. In addition, several definitions of drought are given in Literature (Palmar 1965, Van Bavel 1953 and Ramdas 1960). Thornwaite 1948 classified the drought in four types namely permanent, seasonal, contingent and invisible types and defined the drought as condition in which the amount of water needed for transpiration and direct evaporation exceeds the amount available in the soil. National commission on agriculture (1976) on the other hand has categorized drought in three types viz., Meteorological drought, Hydrological drought and Agriculture drought based on the concept of its utilization.

Indian Agriculture mostly depends upon the vagaries of weather especially quantum of rainfall and its spatial and temporal variability. In spite of the adoption of improved

technologies, inter-annual fluctuations in production and productivity of the crops is a major obstacle for achieving the sustainability in rainfed agriculture. Since rice is grown extremely as a rainfed crop in eastern U.P. hence for agriculture planning purposes, a knowledge of agriculture drought in addition to other types of drought for sustaining the rainfed rice productivity are of paramount importance as crop production under rainfed condition is influenced by various intensities of drought experienced at different crop growth stages. Therefore present study has been made to generate the knowledge on the frequency of drought of varying intensity. Drought pattern, drought persistence and vulnerability of drought in eastern U.P. for developing the suitable technologies to increase the sustainable production.

MATERIALS AND METHODS

The drought has been classified as an occasion when rainfall is half of the normal or the weekly rainfall is above 5mm or more. If such four consecutive weeks occur from

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