

Weekly rainfall analysis for crop planning in rainfed Shivalik Himalayas of India

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ABSTRACT

The study was carried out to compare various two-parameter probability distributions for identifying the most appropriate distribution to describe the weekly rainfall data of Standard Meteorological Week (SMW) from 22 to 42 weeks in Shivalik region of India. The "best" distribution among different data sets has been identified using Anderson-Darling (AD) test for goodness-of-fit. Single probability distribution, which can represent all the data sets, was not found among the distributions studied. Weibull distribution was best fit in about nine SMW, followed by Gamma distribution showing best fit in seven weeks out of the 21 weeks studied. Comparing total rainfall at different probability level with average rainfall, it was found that minimum assured rainfall with 50, 40 and 30 per cent probability is 21.35 % lesser, 0.04 % higher and 37.25 % higher, respectively than average rainfall. Thus minimum assured weekly rainfall at 40% probability level is a better representative of long-term average weekly rainfall data of the region. Appropriate time for maize sowing should be between 25th June to 1st July as minimum assured rainfall of more than 25 mm is available with 70 per cent probability. It was found that only short to medium duration maize varieties are suitable taking into account the rainfall pattern and duration in the region.