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Probability analysis of rainfall for planning water harvesting and irrigation in semi arid region of Uttar Pradesh

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ABSTRACT

The present study was carried out for analyzing the rainfall under changing climatic scenario for better planning of farming practices in semi arid region of Uttar Pradesh. Analysis showed that there was a decreasing trend of rainfall as well as rainy days during last decade (2000-2010). Occurrence of frequent long dry spell of 10-15 was recorded during the period, indicated the need of construction of water harvesting structures for life saving irrigation for the survival of crops. Probability analysis showed that occurrence of probable rainfall was of 440.0 mm, 26.5 mm, 11.9 mm and 508.0 mm, respectively for the *kharif*, *rabi*, summer season and annual at 76% confidence level, the occurrence of rainy days was found to be 30, 21, 2 and 1 day for the annual, *kharif*, *rabi* and summer season, respectively. Probability analysis of rainfall revealed that selection of less water demanding crops such as green gram, pearl millet, and guar in *kharif* season. The onset of effective monsoon on 5th July is assured at 80 % probability, dry sowing of *kharif* crops can be undertaken during last week of June to take the advantage of such rainfall distribution. There is 85% probability that there would be no rain after 15th September so limited chances of receiving adequate amount of moisture at the root zone level for proper germination of *rabi* crops. This also demanded that during *kharif*, short duration varieties of crops should be chosen so that they mature by 37th standard week. For *rabi* crops, early sowing or pre sowing irrigation through water harvesting in ponds and recycling is very good strategy for proper germination of *rabi* crops like mustard, lentil and barley.