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Rainfall behaviour of Belval and Bhusawal stations of Jalgaon district

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ABSTRACT : Rainfall is one of the most important natural resources for human being in rainfed farming. The crop planning and it success depend upon amount and distribution of rainfall. The rainfall in Jalgaon district is very uncertain, most of the area under rainfed condition. The weekly rainfall data of 30 years (1976-2005) for Belval and Bhusawal stations was collected. The behavior of rainfall, occurrence of dry spell and critical dry spell was worked out by using initial and conditional probability methods. It can be inferred that the initial probabilities >20 mm varied between 60-70 per cent at Belval while at Bhusawal it was 75-80 per cent. The conditional probability (W/W) of both the stations varied between 80-90per cent. At >30mm rainfall initial probabilities varied between 50-60 per cent at both the stations and the conditional probability (W/W) varied between 60-70 per cent at Belval, while at Bhusawal it was in the range of 70-80 per cent. The conditional probability (W/D) varied in between 40-50per cent at Belval and Bhusawal. The dry spells were found 62 at Belval, and 44 at Bhusawal and the critical dry spells were 12 and 9 for Belval and Bhusawal respectively.

KEY WORDS : Rainfall behavior, Dry spell, Conditional probability

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The success or failure of crop particularly under rainfall condition is closely linked with the rainfall pattern and the basic source of water is precipitation in the form of rainfall and snowfall. India receive adequate amount of rainfall annually through the four different type weather phenomenon, south-west monsoon 74 per cent, north east monsoon 5per cent, pre monsoon 13 per cent, and post monsoon 10 per cent. Rainfall is one of the most important natural resources for human being in rainfed farming. The three fourth of the net cultivated area of India in under rainfed agriculture is greatly influenced by the characteristic of the monsoon (Ashok Raj, 1979).The crop planning and it success depend upon amount and distribution of rainfall. Weekly data are more useful than monthly, seasonal and annual rainfall for planning agriculture operation (Gupta *et al.,* 1975; Venkantraman, 1979).

The crucial months for agriculture are July and August and fate of rained *Kharif* crop largely depends upon amount and distribution of rain especially during these two months. Even though most parts India is blessed with fairly high rainfall, average annual rainfall of India is 1140 mm. The agriculture productivity remains poor. One of the reasons for this poor productivity is the non availability of water for timely application to the crop. Rainfall during the monsoon period is not a continuous process; breaks in monsoon are common phenomenon. Knowledge of the occurrence of dry and wet spell is of vital important for successful planning of agricultural crop. Aagnihotri *et al.* (1984) studied the conditional probability based dry and wet spell occurrence by fitting it in the first order Markova chain model.

The rainfall pattern of Jalgaon district of Maharashtra state is very uncertain with most of the area under rainfed condition. Knowledge of the distribution of dry spells during the monsoon period is very much essential for successful management of dry land agriculture. Also it is important to know the chance of occurrence of dry spell during the critical period of lifecycle of the crop planning the sowing period along the variety of current crops.

METHODOLOGY

Study area :

The present study was carried out for Jalgaon district. The selected stations were, Belval station located at latitude 20°58' NS, longitude 75°42' EW and Bhusawal at latitude 21°42'NS and longitude 75°47'EW.

Data collection :

The daily rainfall data of Belval and Bhusawal stations for 30 years (1976-2005) were collected from State Surface