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Short Communication

Rainfall shift and its influence on crop sowing period

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Monthly rainfall distribution of the Eastern Dry zone of Karnataka state has been analysed for different periods. The rainfall data collected from 30 rain gauge stations have been analysed. This zone consists of Bangalore and Kolar districts and parts of Tumkur district. This is also called the Tankfed region which constitutes 9.42 per cent of the State's geographical area. Eighty per cent of the area is at an altitude of 800 - 900 meters above mean sea level (Rajegowda 1990). 47.2 per cent of its area is under agriculture/ horticulture crops. The mean monthly rainfall data has been grouped into two based on the trend of rainfall during July and August months, (i) from 1972 to 1990 and (ii) beyond 1990 i.e., 1991 to 1999. Before 1990, the annual rainfall ranged from 619 to 1119 mm with a mean of 869.2 mm. After 1990, the annual rainfall ranged between 611 and 1311 mm with a mean of 1011.2 mm. During the first period, on the average the peaks were observed during May, July and September months which is as shown in Figure 1, and during the second period, the peaks are observed during May, August and October months.

The quantum of May rains received during both the periods more or less remains same. The rainfall received during the south-west monsoon, i.e., starting from June to October which is the crucial period for the growth of the crop apart from the hydrological utility is much more important. The quantum of rain received during June is low, it remains unchanged more or less in both the periods. The average rain during July, which was 114.3 mm during 1972-90, decreased to 73.0 mm during 1991-99. This reduction in July rains seems to be compensated by an increase in August rains (158.7 mm) during 1991-99 compared to the period 1972-90 (109.4 mm). The July and August mean monthly rainfall received during 1972 to 1999 has been plotted in Figure 2. This clearly shows that there is a perceptible shift in rainfall pattern from July to August and also from September to October in this Agroclimatic zone. A distinguished peak was observed in the month of September (216.7 mm) during 1972-90 and October was the next highest rainfall-receiving month. The analysis of monthly rainfall beyond 1991 showed that the highest rains are now received during October i.e. (237.9 mm) and the next highest rainfall is received during September (191.5 mm). This implies that the peak, which was being observed during 1972-90, has shifted to October during 1991-99. There is a marginal increase even in the rainfall of November month after 1990.

The crop sown during July rains would reach the grand growth period i.e., flowering to grain formation stage (long duration crops of about 115 days) during

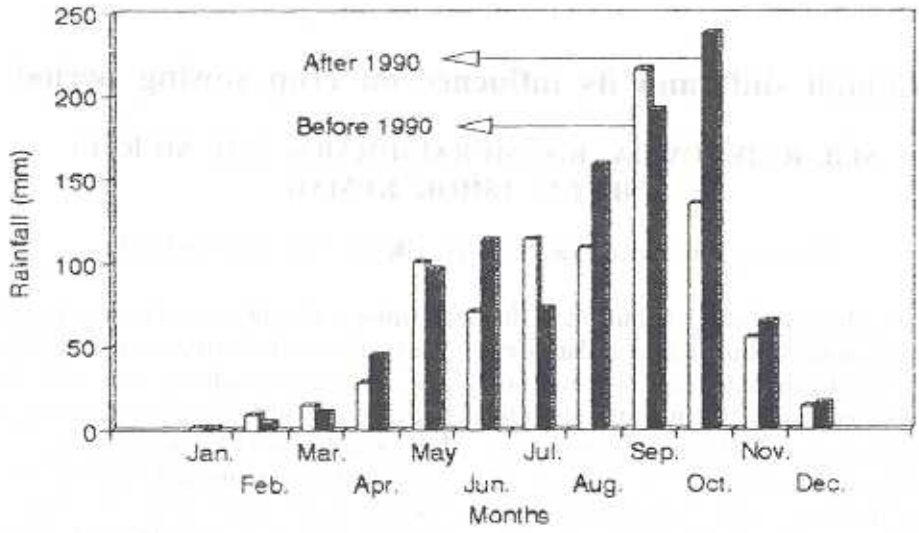

Fig. 1 : Meen monthly rainfall distribution in the Eastern Dry zone of Karnataka

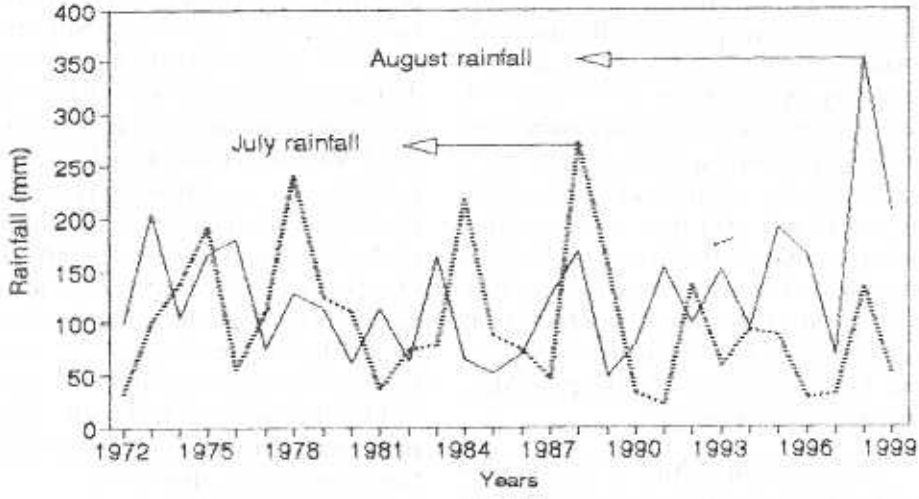

Fig. 2 : Mean monthly rainfall during July and August months of Eastern Dry zone.

September month which was receiving the highest rainfall till 1990, so that there was no moisture stress during the grand growth period. After 1990, as a result of reduction in July and September rains, the crop can not be sown during July, though the land preparation could be done using June rains. Even with scanty rains, if the sowing is done during July, the crop would suffer from moisture stress due to the reduction in rainfall during September and also the crop grown would be caught in the October rains causing considerable loss in the grain yield at the harvest season.

The change in the mean monthly rainfall pattern beyond 1990 does not favour the sowing of crops during July month. This analysis reveals that the sowing of the crops (long duration variety crops of about 115 days) could be done during August and land could be prepared using June and July rains. In the years of early onset of south-west monsoon, sowing can be recommended during last week of July also. The crop sown during August would reach the grand growth period during October. As the October month receives higher rainfall the crop in its grand growth period would not suffer for want of moisture and as a result crop could yield to its maximum capacity. The crop sown beyond August may not be able to complete its life cycle as a result of inadequate moisture availability beyond 2nd fortnight of November (in the event of the intensity of north-east monsoon being low) as crop maturity coincides during this period. Under such circumstances, the short duration variety crops have to be preferred. Further micro level studies in quantum of rainfall shift are needed.

REFERENCE

Rajegowda, M.B. 1990. Climatic conditions in different Agroclimatic zones of Karnataka. Tech. Bulletin, UAS, Bangalore.