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A study on occurrence of optimum sowing rains in Bangalore district

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ABSTRACT. The probabilities of getting optimum sowing rains for long, medium and short duration varieties of ragi in Bangalore district were analysed on the basis of daily rainfall records of ten taluk raingauge stations. The study reveals that the farmers cannot depend upon the same duration variety all the years and they have to choose a variety depending upon the date of receipt of sowing rains under dry land conditions. In general, it was found that sowing will be a considerable problem in southern parts of Bangalore district, comprising of Channapatna, Ramanagaram and Kanakapura taluks.

1. Introduction

It is an established fact that timely sowing is necessary for getting better yield especially in case of crops grown under rainfed conditions. Raman (1974) studied the dates of commencement of sowing rains in Maharashtra State in detail and presented the mean dates of commencement of sowing rains, its standard deviation, inter spell duration etc; without considering the optimum sowing periods for different varieties of crops. An attempt has been made in this paper to study (*i*) the probabilities of getting sowing rains for long, medium and short duration varieties of ragi (*Eleucine coracana*) during the optimum sowing periods and (*ii*) the probabilities of getting sowing rains at least once, twice and thrice within the same season.

2. Material and method

Ramana Rao *et al.* (1977) analysed the weekly rainfall data recorded at the Central Observatory, Bangalore and suggested that the sowings have to be so adjusted in Bangalore region such that the reproductive stage of crop growth should be over by the last week of October. Accordingly the optimum sowing periods were worked out for long, medium and short duration varieties of ragi as shown below :

Variety	*Duration (days)*	*Optimum sowing period*
Long duration	140	9 Jul to 24 Jul
Medium duration	120	25 Jul to 8 Aug
Short duration	100	9 Aug to 24 Aug

The daily rainfall data of 10 taluk raingauge stations were obtained from the Deputy Director General of Observatories (Climatology and Geophysics), Meteorological Office, Pune for the years 1921 to 1970. Red soils with water holding capacity of 100 mm for one metre depth of the soil column are found in Bangalore district. The top 20 cm layer of the soil should be sufficiently wet for the preparation of the seed bed. Hence a rain spell of at least 20 mm received either in one or two consecutive days was considered as the 'sowing rain' as suggested by Virmani (1975). Whenever there were three consecutive rainy days with a rainfall of at least 20 mm on two consecutive days separately, it was considered as two spells of sowing rain. The number of occasions on which sowing rains were received during the optimum sowing period for long, medium and short duration varieties were counted from the daily rainfall data for the years 1921 to 1970.

3. Results and discussion

The percentage probabilities of getting the sowing rains at least once, twice and thrice during the optimum sowing period for long, medium and short duration varieties at different stations are given in Table 1.

The percentage probabilities of getting sowing rains at least once, twice and thrice within the period from 9 July to 24 August are plotted on maps and isolines drawn at 5 per cent intervals are shown in Figs. 1(a), (b) and (c) respectively.

3.1. *Probabilities for sowing long, medium and short duration varieties*

From Table 1, it can be seen that the probability of getting sowing rains at least once for a long

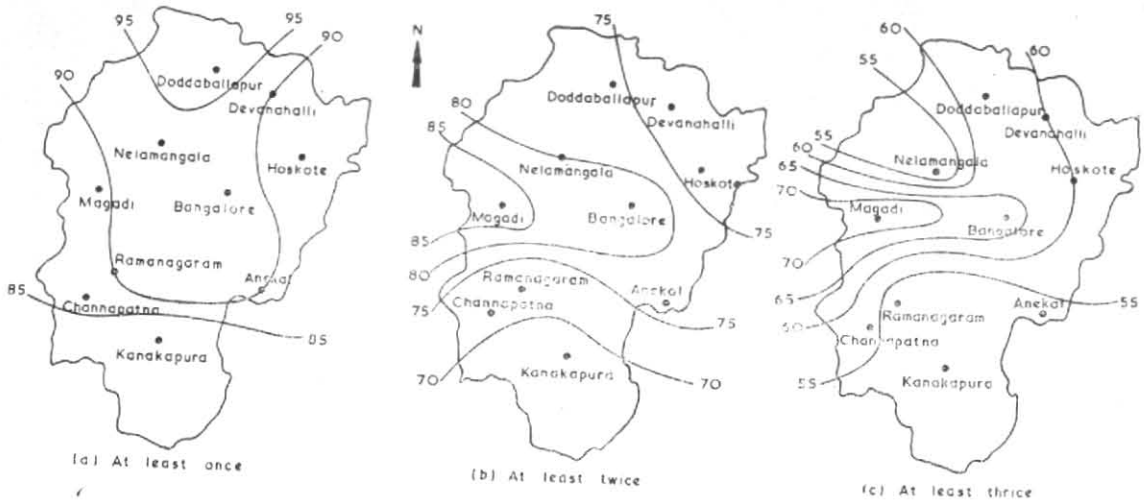

Fig. 1. Probabilities of getting sowing rains during the period from 9 July to 24 August in Bangalore district

TABLE 1

Percentage frequency of occurrence of sowing rains at least once, twice and thrice for different varieties of ragi in Bangalore district

Station	Percentage frequency of occurrence of sowing rains for different varieties								
	Long (9 Jul—24 Jul)			Medium (25 Jul—8 Aug)			Short (9 Aug—24 Aug)		
	Once	Twice	Thrice	Once	Twice	Thrice	Once	Twice	Thrice
Bangalore	52	32	12	54	34	22	70	46	32
Doddaballapur	56	26	10	46	26	18	68	36	24
Kanakapura	46	14	6	50	26	18	50	28	14
Nelamangala	52	26	14	54	32	24	74	40	24
Devanahalli	56	32	16	42	22	12	52	30	12
Hoskote	50	24	12	40	28	12	56	36	20
Ramanagaram	46	18	10	56	28	14	50	30	18
Magadi	60	26	4	60	28	14	68	52	28
Channapatna*	41	18	10	51	20	12	63	36	20
Anekal	56	26	10	48	26	14	62	34	18

*Based on 49 years data only

duration variety varies from 41 per cent to 60 per cent. The probability of sowing medium duration crop during the optimum sowing period is less than 50 per cent in Kanakapura, Hoskote, Anekal and Doddaballapur taluks. The probability of sowing short duration variety is found to vary from 55 per cent to 70 per cent in Bangalore district. Therefore, the chances of sowing the same duration crop every year are not encouraging and there is need to think of adjusting the duration of the crop according to the date on which the sowing rains are received for getting better yield. Even if the sowing rains are received once for any variety in time, the chances of completing

the sowings with the same variety are not bright as the chances of getting the second spell of sowing rain are very less during the optimum sowing period.

3.2. *Probabilities of sowing the entire area under cultivation in time*

In order to complete the sowing in the entire area under cultivation, the farmers require sowing rains at least twice during the same season. From Fig. 1(b), it can be seen that the probability of getting sowing rains at least twice during the period from 9 July to 24 August is below 75 per cent in southern parts of Bangalore district comprising of Ramanagaram, Channapatna and Kanakapura taluks as a result of which large area of land will be left out without sowings in time during some of the years. The probability of getting sowing rains thrice within the period from 9 July to 24 August is less than 55 per cent in these parts. Therefore, great care has to be taken to complete the sowings in time after the receipt of the second sowing rain.

3.3. *Strategy for the selection of varieties*

The farmers with small holdings will be able to complete the sowing with the receipt of the first sowing rain and therefore they can depend upon long and medium duration varieties so that one of the two varieties can be sown during the optimum sowing period. The farmers with large holdings require two or three spells of sowing rain in order to complete the sowings in time. Such farmers can depend upon long and medium duration varieties during some of the years. Only during the years in which there will not be second spell of sowing rain upto 8 August, they have to go for short duration variety of ragi.

4. Conclusions

The above study cautions that the sowings should be completed as early as possible with the receipt of the sowing rains under rainfed conditions. Otherwise timely sowing may not be possible for getting better yield. Further, the farmers should give up the idea of growing the same variety of the same duration every year. Sowing will be a considerable problem in southern parts of Bangalore district compared to northern parts.

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