

Effect of different sowing dates on growth and yield of *Rabi* sorghum (M-35-1)

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ABSTRACT

The investigation on the effect of different sowing dates on growth and yield of *Rabi* sorghum (M-35-1) was carried out during 1998-99 in *Rabi* season with an object to assess the effect of different sowing dates on growth and yield attributes of *Rabi* sorghum in M-35-1 genotype. The four different time periods of sowing dates were used. Effect of D₂ sowing date on 28 Sept. 1998 (39th MW) gave highest yield. Similarly, the D₂ (28 Sept. 1998/39th MW) produced highest dry matter in M-35-1 genotype contributing the growth attribute.

KEY WORDS : Sowing dates, Growth, Yield, *Rabi* sorghum and M-35-1

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INTRODUCTION

Sorghum [*Sorghum bicolor* (L.) Moench] is one of the most important millets grow under rainfed as well as irrigated conditions in most of the major states. Its importance is ever increasing as a the source of staple food for poor people, fodder for cattle and raw material for industries. Although sorghum has great importance as well as considerable area under *Rabi* season, its productivity is very low due to some factors like use of local low yielding varieties, low adoption of improved technology, untimely sowing, weather variables etc. Therefore, so as to find out most suitable time for the *Rabi* sorghum (which best stands in different crop environments) planting, four dates of sowing viz., D₁ (14th Sept), D₂ (28 Sept.), D₃ (12 Oct.) and D₄ (26th Oct.) which accommodates span of about 15 days which has been considered in this investigation.

MATERIALS AND METHODS

A field experiment was conducted during *Rabi* season in 1998-99, at the Department of Agricultural Meteorology (Central farm), Marathwada Agricultural

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University, Parbhani. The soil of the experimental field was fairly leveled, well retentive for soil moisture, clayey in texture, low in available N, medium in available P₂O₅ and high in K₂O and alkaline in reaction. The experiment was conducted in Randomized Block Design (RBD) with four treatments and six replications. The four treatments comprised of four different sowing dates as main treatments viz., D₁ (14th Sept.), D₂ (28th Sept.), D₃ (12th Oct) and D₄ (26th Oct). The land was ploughed about 20 cm deep. Fine tilth was achieved by a subsequent harrowing. The experimental area was cleaned and leveled to kept the field ready for sowing. The genotype M-35-1 was used for the experiment. Data on respective parameters were collected from randomly selected and tagged ten plants from each net plots.

RESULTS AND DISCUSSION

The results of the present investigation based on means and their test statistics are interpreted under appropriate heads here-in. The differences between sowing dates were significant. The sowing date D₂ (28th Sept *i.e.* 39th MW) was found significantly to be more optimum in plant height, number of leaves and total dry matter per plant at 30, 45, 60, 75, 90, 105 days and at harvest after sowing as compared to rest of three sowing dates *i.e.* D₁ (14th Sept), D₃ (12 Oct) and D₄ (26 Oct) (Table 1).

However, the sowing date D₂ (28th Sept.) produced significantly higher grain (1691 kg/ha), fodder (5106 kg/ha) as well as bhoosa (498 kg/ha) yield than other three sowing dates. The more optimum time for planting (sowing)

Table 1 : The growth attributes affected by different treatments at various growth stages

Observations	Treatments	Days after sowing						At harvest
		30	45	60	75	90	105	
Plant height (cm)	D ₁	12.00	27.81	63.169	128.36	156.25	159.19	162.81
	D ₂	19.08	49.38	104.28	173.26	184.96	193.96	199.61
	D ₃	18.57	43.50	97.56	156.10	159.26	174.20	177.58
	D ₄	17.17	44.47	101.43	168.80	184.27	191.11	194.06
	S.E. \pm	0.81	2.79	6.84	8.09	8.57	8.80	7.24
	C.D. (P=0.05)	2.49	8.36	20.52	24.25	25.70	26.38	23.59
Number of leaves	D ₁	4.31	5.28	6.75	7.10	5.48	30.36	0.58
	D ₂	5.53	6.16	8.93	7.81	7.65	6.21	1.73
	D ₃	4.50	5.56	7.01	7.36	6.90	4.71	1.13
	D ₄	4.58	6.05	7.08	7.81	7.08	5.13	1.60
	S.E. \pm	0.25	0.30	0.30	0.45	0.26	0.23	0.22
	C.D. (P=0.05)	0.76	NS	1.14	NS	0.78	0.69	NS
Total dry matter production (g/plant)	D ₁	6.98	36.10	68.88	75.50	80.55	88.16	120.30
	D ₂	11.89	44.48	86.77	99.72	107.52	117.32	142.35
	D ₃	8.78	39.00	75.33	80.92	87.55	99.28	125.75
	D ₄	10.32	42.13	81.57	86.77	99.73	107.60	132.85
	S.E. \pm	0.28	1.74	3.49	3.77	4.06	3.39	1.48
	C.D. (P=0.05)	0.86	5.20	10.50	11.33	12.21	10.20	4.45

NS=Non-significant

Table 2 : The yield affected by different treatments

Treatments	Grain yield (kg/ha)	Fodder yield (kg/ha)	Bhoosa yield (kg/ha)
D ₁	1005	3031	294
D ₂	1691	5106	498
D ₃	1201	3919	351
D ₄	1487	4494	433
S.E. \pm	14.12	132.88	12.83
C.D. (P=0.05)	133.74	397.88	38.64

shown by D₂ (28th Spet) in respect of growth and yield was due to the factors like more number of leaves, and total dry matter production along with favourable soil and environmental factors *viz.*, soil moisture, soil temperature, rainfall, temperature, humidity, bright sunshine hours etc. Similar types of investigations have been reported by Mohamed *et al.* (1994) and Mulik *et al.* (1996).

From this investigations, it can be inferred that for better harvesting of *Rabi* sorghum grain, fodder and bhoosa yield sowing in 39th MW (last week of sept.) was found to be optimum.

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