

Optimum Seedrate and Spacing for Summer Green Gram Under South Gujarat Condition

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ABSTRACT

A field trial involving three seedrates (20, 25 and 30 kg/ha) and three inter-row spacings (15 cm, 30 cm and 45 cm) was conducted at the College Farm, Department of Agronomy, Gujarat Agricultural University, Navsari during the Summer Season of 1978 and 1979. It was observed that the sowing of Summer Moong with 20 kg seeds per hectare and with inter-row spacing of 30 cm is very ideal for securing higher grain yield and profit per hectare.

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INTRODUCTION

Green gram (*Vigna radiata*, Roxb.) popularly known as moong, is an important catch crop in Summer season. With increasing facilities of irrigation, cultivation of moong in summer season is getting popular in South Gujarat area. Singh and Bhardwaj (1975) reported that 20 cm and 30 cm inter-row spacings gave higher yield than that by the wider spacing of 40 cm. Jana, *et al.* (1975) also reported that 25 cm, inter-row spacing gave significantly more yield than that by 50 cm and 75 cm, inter-row spacings. Twenty kg seeds/ha were sufficient for sowing summer moong (Singh, 1980). Suitable agronomical practices like seed rate and spacing are lacking in this area. With this point in view a field experiment was carried to ascertain opti-

mum seedrate and spacing for summer moong crops.

MATERIAL AND METHODS

A field experiment was conducted at the College Farm of Navsari Campus of the Gujarat Agricultural University during the Summer Season of 1978 and 1979. Nine treatments combinations comprising three seedrates (20 kg/ha, 25 kg/ha and 30 kg/ha) and three spacing between rows (15 cm, 30 cm and 45 cm) were taken in randomised block design with four replications. The land was prepared for sowing after harvest of wheat and banana in 1978 and 1979 respectively. The crop (cv. Guj. 2) was sown on 9th March '78 and 2nd March '79, keeping seedrate and spacing as per treatment and harvested on 27th May '78 and 15th May '79 respectively in the two years of study.

Fertilizer was given at the rate of 20-40-0 NPK kg/ha below seeds at the time of sowing. The crop was irrigated immediately after sowing and there-

after another three irrigation were given in both the years. The data on response of crops to different treatments are given in table-1 and table-2.

TABLE 1

Effect of seedrate and spacing on grain and straw yield of moong.

I. Grain yield kg/ha.

Seed rate kg/ha	1978				1979				Pooled			
Inter row spacing cm.	20	25	30	Mean	20	25	30	Mean	20	25	30	Mean
1	2	3	4	5	6	7	8	9	10	11	12	13
15	1005	983	1005	998	961	991	994	982	983	987	999	990
30	1204	1299	1204	1235	997	1036	1035	1023	1100	1168	1119	1126
45	986	1083	1037	1036	831	806	975	871	908	945	1006	953
Mean	1065	1122	1082	—	930	945	1001	—	997	1033	1042	—
S. E.M.	69	69	98		47	47	66		41	41	58	
C.D. at 5%	N.S.	203	N.S.		N.S.	136	N.S.		N.S.	117	N.S.	

II. Straw yield kg/ha

Seed rate kg/ha	1978				1979				Pooled			
Inter row spacing cm.	20	25	30	Mean	20	25	30	Mean	20	25	30	Mean
1	2	3	4	5	6	7	8	9	10	11	12	13
15	3813	3785	3649	3747	4812	6114	5790	5572	4312	4950	4719	4660
30	3595	3840	4112	3849	5833	5398	5349	5526	4714	4619	4730	4688
45	3515	3676	3649	3613	5182	4502	4997	4894	4348	4089	4323	4253
Mean	3640	3767	3803	—	5276	5338	5379	—	4458	4552	4591	—
S. E.M. ±	118	118	204		250	250	352		144	144	204	
C. D. at 5%	N.S.	N.S.	N.S.		N.S.	N.S.	1029		N.S.	409	N.S.	

N.S. = Non-significant.

TABLE 2

Effect of seedrate and spacing on number of pods per plant and number of branches per plant.

Sr. Treatments No.	Nos. of pods/plant			Nos. of branches/plant		
	1978	1979	pooled	1978	1979	pooled
(A) Seedrate						
1. 20 kg/ha	25.49	26.21	25.85	5.25	7.50	6.37
2. 25 kg/ha	25.89	26.11	26.00	5.24	6.96	6.10
3. 30 kg/ha	25.05	25.03	25.04	5.37	7.03	6.20
S. EM. $\pm$	0.39	0.71	0.49	0.12	0.28	0.15
C. D. @ 5 %	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
(B) Inter-row spacing						
1. 15 cm.	24.53	24.65	24.59	5.51	6.55	5.85
2. 30 cm.	26.53	26.70	26.60	5.24	7.45	6.34
3. 45 cm.	25.39	26.01	25.70	5.48	7.50	6.48
S. EM. $\pm$	0.39	0.71	0.49	0.12	0.28	0.15
C. D. at 5 %	1.13	N.S.	1.41	N.S.	0.65	0.43
(C) Interaction						
S. EM. $\pm$	0.67	1.23	0.70	0.17	0.39	0.21
C. D. at 5 %	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

N. S. = Non-significant.

RESULT AND DISCUSSION

Grain yield : The data given in table-1 revealed that there were no significant difference in the effect of seedrate treatments in both the years as well as in the pooled data, while inter-row spacing of 30 cm gave significantly higher grain yield than by 15 cm in the first year (1978) and 45 cm in the second year (1979) as well as both the spacing in case of the pooled data. The 30 cm inter-row spacing with seedrate 25 kg/ha gave the highest yield in both the years as well as in case of the pooled data (1299, 1036 and 1168 kg/ha respectively). The 15 cm and 45 cm inter-row

spacing with seedrate 25 kg/ha in first year and second year gave lowest grain yield (983 and 806 kg/ha respectively). In pooled data 45 inter-row spacing with seedrate 20 kg/ha gave the lowest grain yield (908 kg/ha). Effect of treatment interaction were non-significant.

Straw-yield : The straw yield was not affected by any of the seedrate and spacing treatments in both the years as well as in case of first year (1978) interaction, while in second year (1979) the interaction was found significant. The 15 cm inter-row spacing with seedrate 25 kg/ha gave the highest straw yield (6114 kg/ha), while the

45 cm inter-row spacing with seedrate 25 kg/ha gave the lowest straw yield (4502 kg/ha). The higher straw yield in second year of the experiment was observed due to residual effect of fertilizer applied to previous season banana crop. In pooled analysis the 30 cm inter-row spacing gave significantly higher straw yield than by 45 cm spacing, however it was at par with that of 15 cm inter-row spacing.

Number of pods per plant: The data given in table-2 showed that number of pods per plant was not significantly affected by any of seedrate treatments in both the years as well as in the pooled data, while the inter-row spacing of 30 cm in first year (1978) and the pooled data for the same spacing gave significantly higher number of pods per plant, than by 15 cm spacing but it was at par with that of 45 cm inter-row spacing.

Number of branches per plant: The number of branches per plant was not significantly affected by any of the seedrate treatments. The inter-row spac-

ing of 45 cm in second year (1979) and the pooled data effects gave significantly higher number of branches per plant than that by 15 cm spacing, however it was at par with 30 cm inter-row spacing in this respect.

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