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Research Paper

A study on different row spacings suitable for pigeonpea varieties

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ABSTRACT

The investigation on response of pigeonpea varieties to different row spacings was carried out during *Kharif* season of 2001-2002 at Agril. College Farm, Marathwada Agriculture University, Parbhani. The two different varieties were used for study *i.e.* BSMR-736 and BSMR-853. The treatments consisted of three row spacing *i.e.* 60 cm, 90 cm and 120 cm. Six combinations of row spacings were laid out in main plots; while varieties of pigeonpea were laid out in the subplots. As regards the row spacing, the inter row spacing of 90 cm followed by 60 cm was found to be advantageous in producing higher grain yield.

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Key words : Pigeonpea, Varieties, Row spacings

INTRODUCTION

Pigeonpea [*Cajanus cajan* (L.) Millsp] is one of the most important pulse crop cultivated in the semiarid areas of tropics and subtropics. The ability of pigeonpea to produce economic yields in moisture deficit soil make it an important crop of dryland agriculture. The farmers grow it in various row spacings. The knowledge of row spacing of these newly developed pigeonpea varieties still help to enhance the productivity and stabilize the yield of these varieties. Therefore, experiment was laid out to findout the response of pigeonpea variety to different row spacings.

MATERIALS AND METHODS

The field experiment was conducted during *Kharif* season of 2001-2002 at Agriculture College Farm, M.A.U., Parbhani. The soil topography of plot was fairly leveled. Soil samples from 0-30 cm strata were taken all over the experiment area for the purpose of studying physico-chemical properties of soil. The experimental field was ploughed with mould board plough and brought to fine tilth by subsequent harrowings. Stables of previous crops were collected and field was kept ready for sowing. The experiment was laid out in Split Plot Design replicated thrice. The treatments consisted of three row spacings *i.e.* R_1 (60 cm), R_2 (90 cm) and R_3 (120 cm) and two varieties of pigeonpea *i.e.* V_1 (BSMR-736) and V_2 (BSMR-853).

RESULTS AND DISCUSSION

The results of the present investigation based on means and their statistics are interpreted. The plant characters namely height of plant, number of functional leaves, number of branches, number of root nodules and total dry matter accumulation per plant were significantly influenced by different treatments at most of the growth stages. In case of biometric observation *i.e.* plant height, number of leaves, number of branches and dry matter accumulation; the row spacing of 90 cm was found significantly higher than the row spacing of 120 cm and 60 cm (Table 1) except number of root nodules found higher in row spacing of 120 cm.

Where as regards the yield parameters *i.e.* pod, grain, stalk, bhoosa and biological yield (q/ha) were also significantly influenced by row spacing under study (Table 2). The inter row spacing of 90 cm produced significantly higher pod (29.92), grain (18.92), stalk (34.98), bhoosa (9.86) and biological yield (78.24) quintals per hectare than 60 cm and 120 cm of row spacings. Significantly lowest

Table 1 : The growth attributes influenced by different row spacing at various growth stages

Growth attributes	Treatments (planting pattern)	Days after sowing (DAS)					
		30	60	90	120	150	at harvest
Height of plant (cm)	R_1- 60 cm	33.36	71.96	116.45	156.97	191.50	192.50
	R_2- 90 cm	33.11	72.15	115.89	155.90	192.82	194.22
	R_3- 120 cm	31.17	68.99	108.57	151.14	183.66	189.48
	S.E.±	0.37	0.76	1.64	0.76	1.11	0.97
	C.D. (P=0.05)	1.18	2.41	5.18	2.41	3.49	3.07
Number of functional leaves	R_1- 60 cm	8.31	42.78	193.02	188.36	122.65	79.38
	R_2- 90 cm	8.30	43.08	192.96	188.59	122.86	79.42
	R_3- 120 cm	7.26	39.21	190.40	184.37	119.60	72.68
	S.E.±	0.12	0.50	0.8	0.39	0.42	0.80
	C.D. (P=0.05)	0.39	1.59	1.51	1.25	1.34	2.53
Number of branches	R_1- 60 cm	3.05	4.28	10.63	12.50	14.42	15.56
	R_2- 90 cm	3.15	4.49	10.88	12.82	14.87	15.97
	R_3- 120 cm	3.24	4.34	10.92	12.89	14.68	16.00
	S.E.±	0.10	0.08	0.06	0.07	0.10	0.13
	C.D. (P=0.05)	NS	NS	NS	0.23	NS	NS
Number of root nodules	R_1- 60 cm	11.67	26.60	12.22	---	---	---
	R_2- 90 cm	14.14	29.83	14.03	---	---	---
	R_3- 120 cm	14.49	32.91	15.13	---	---	---
	S.E.±	0.43	0.40	0.56	---	---	---
	C.D. (P=0.05)	1.32	2.89	1.76	---	---	---
Total dry matter accumulation (g/plant)	R_1- 60 cm	1.63	10.16	35.30	57.64	66.73	72.00
	R_2- 90 cm	2.09	11.50	38.93	59.17	72.34	76.13
	R_3- 120 cm	2.06	11.55	38.93	60.05	72.75	75.50
	S.E.±	0.08	0.14	0.28	0.20	0.24	0.20
	C.D. (P=0.05)	0.25	0.45	0.89	0.64	0.75	0.63

NS=Non-significant

Table 2 : The yield parameters influenced by different planting pattern

Treatments (planting pattern)	Yield parameters (q/ha)					Harvest index (%)
	Pod yield	Grain yield	Stalk yield	Bhoosa yield	Biological yield	
R_1- 60 cm	27.12	17.54	31.97	9.62	75.89	23.26
R_2- 90 cm	29.92	18.92	34.98	9.86	78.94	24.13
R_3- 120 cm	24.18	15.15	28.30	7.94	67.70	22.32
S.E.±	0.36	0.70	0.95	0.29	1.99	0.90
C.D. (P=0.05)	2.63	2.20	3.00	0.90	6.30	N.S.

yield contribution was obtained at 120 cm row spacings. In brief, the inter row spacing of 90 cm followed by 60 cm was found to be advantages in producing higher grain yield. Similar trend was observed by Ahlawat *et al*. (1975) and Singh *et al.* (1991).

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