

Response of rainy-season pigeonpea (*Cajanus cajan*) to spacing and fertilizer

A. B. MOHITE, P. S. POL AND N. K. UMRANI

Mahatma Phule Agricultural University, Rahuri, Maharashtra 413 712

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A field experiment was conducted during the rainy season of 1990 at Rahuri, to study the effect of agronomic practices (inter-row spacing, intra-row spacing and fertilizer) on yield of pigeonpea [*Cajanus cajan* (L.) Millsp.].

The experimental soil was clayey in texture, having pH 8.0, available N, P and K 112.9, 14.76 and 403 kg/ha respectively. There were 18 treatment combinations due to 2 inter-row spacings (30 and 45 cm), 3 intra-row spacings (10, 15 and 20 cm) and 3 levels of diammonium phosphate (50, 100 and 150 kg/ha). The experiment was conducted in randomized block design with 3 replications. Pigeonpea 'ICPL 87' was sown on 21 June 1990 by dibbling 2 seeds/hill at 5 cm depth. The spacing between rows and within the row was as per treatments. Diammonium phosphate @ 50, 100 and 150 kg/ha was applied at the time of sowing as per the treatments. The fertilizer was placed about 7 cm below the soil surface and 10 cm away from the seeding line. The crop was harvested on November 1990. The crop was grown under protective irrigation. About 563.5 mm rain was recorded during the crop growth. Total 3 irrigations were applied during the vegetative, flowering and pod-filling stages of crop growth.

The grain and stalk yields were significantly influenced by various treatments (Table 1). Inter-row spacing of 30

cm gave significantly higher grain and stalk yields than 45 cm inter-row spacing. These findings are in conformity with those of Sinha *et al.* (1989).

Intra-row spacing of 10 cm gave significantly higher grain and stalk yields than 15 and 20 cm intra-row spacings. These results are in accordance with the findings of Goyal *et al.* (1989).

Application of diammonium phosphate

Table 1. Grain and stalk yields as influenced by inter-row spacing, intra-row spacing and fertilizer application

Treatment	Yield (q/ha)	
	Grain	Stalk
<i>Inter-row spacing (cm)</i>		
30	12.500	33.702
45	11.318	27.194
CD (P = 0.05)	0.238	1.076
<i>Intra-row spacing (cm)</i>		
10	12.922	38.710
15	11.920	29.455
20	10.886	23.178
CD (P = 0.05)	0.291	1.318
<i>Fertilizer (DAP kg/ha)</i>		
50	9.603	26.639
100	14.498	33.579
150	11.627	31.129
CD (P = 0.05)	0.291	1.318

DAP, Diammonium phosphate

increased the grain and stalk yields significantly up to 100 kg/ha (18 kg N + 46 P₂O₅/ha) over 50 kg/ha (9 kg N + 23 kg P₂O₅/ha), however no additional advantage was observed when 150 kg/ha (27 kg N + 69 kg P₂O₅/ha) diammonium phosphate was applied.

It was concluded that for rainy-season 'ICPL 87' pigeonpea under Rahuri conditions, 30 cm × 10 cm spacing with application of 100 kg diammonium

phosphate/ha is desirable for optimum yield.

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Effect of date of sowing and seed rate on summer blackgram (*Phaseolus mungo*)

H. S. SEKHON, A. S. GILL, GURIQBAL SINGH AND DEVINDER SINGH

Department of Plant Breeding, Punjab Agricultural University, Ludhiana 141 004

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The time of sowing is an important non-monetary input to achieve synchronous maturity and higher productivity of summer blackgram (*Phaseolus mungo* L.). At the same time the optimum seed rate is essential to obtain proper plant stand which may help efficient utilization of abundant light energy available during April-June and may contribute towards higher grain yield. Therefore, a field study was undertaken to examine the effect of date of sowing and seed rate on the productivity of summer blackgram.

The field experiment was conducted during the summer seasons of 1989 and 1990 at Gurdaspur and Ludhiana. At Gurdaspur,

all the combinations of 3 seed rates (25, 50 and 75 kg/ha) and 2 genotypes ('Mash 218' and 'UG 518') in 1988 and 3 genotypes (Mash 218', 'UG 518' and 'UG 414') in 1989 were arranged in randomized block design, having 4 and 3 replications in respective years. At Ludhiana, 2 dates of sowing (1 and 25 March) were kept in the main plots and 3 seeds rates (25, 50 and 75 kg/ha) in the subplots, having 3 replications. Variety 'Mash 218' was sown in rows 22.5 cm apart. At Gurdaspur, the crop was sown on 15 and 7 April during the 2 consecutive years. A fertilizer dose of 12.5 kg N and 40 kg P₂O₅/ha was drilled at the time of sowing. Experimental site of Gurdaspur was sandy