

Response of pigeonpea (*Cajanus cajan*) to row spacing, nitrogen and phosphorus

B. G. SARVAIYA, M. P. PATEL AND H. S. PATEL

Gujarat Agricultural University, Navsari 396 450

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An experiment was conducted during the rainy season of 1989 to study the response of pigeonpea [*Cajanus cajan* (L.) Millsp.] to spacing and fertilizers. The field trial was conducted at 12 Navasari. There were 12 treatment combinations, consisting of 3 row spacings (60, 90 and 120 cm) and 4 levels of nitrogen and phosphorus (0 : 0, 10 : 20, 20 : 40 and 30 : 60 N : P kg/ha). The experiment was laid out in factorial randomized block design with 4 replications on 'Gujarat Tur 1'. The soil was clayey, with pH 8.1 and low in available N, medium in available P and rich in available potassium. The crop was sown on 24 June 1989 and harvested on 18

December 1989. A full dose of NP fertilizer as per treatments was applied basal at the time of sowing.

Plant performance in terms of growth and yield and attributes with wider row spacing of 120 cm. The seed yield was significantly higher with medium row spacing of 90 cm compared with other row spacings, because of adequate plant population and also due to less competition between the plants for light, water and nutrients (Table 1). Ahlawat *et al.* (1985) also reported similar results.

Higher grain yield recorded under 90 cm-row spacing was mainly due to optimum plant density along with favourable growth

Table 1. Effect of spacing and NP fertilizer on growth, yield and yield attributes of pigeonpea

Treatment	Plant population ('000/ha)	Plant height (cm)	Branches/plant	Pods/plant	Test weight (g)	Yield/plant (g)	Grain yield (kg/ha)
<i>Spacing (cm)</i>							
60	81.0	204.4	17.5	179.0	9.9	24.46	941
90	52.7	183.0	23.5	249.8	11.5	43.38	1,394
120	39.4	157.4	25.3	318.6	13.3	57.49	1,093
CD (P=0.05)	0.8	10.6	2.2	10.3	0.5	4.07	130
<i>N : P₂O₅ (kg/ha)</i>							
0 : 0	57.7	172.6	19.4	213.8	10.2	35.83	890
10 : 20	57.9	175.2	21.5	244.1	11.4	39.03	1,022
20 : 40	57.5	185.8	23.4	261.8	12.3	45.77	1,319
30 : 60	57.7	192.8	24.1	276.8	12.4	49.13	1,340
CD (P=0.05)	NS	12.2	2.6	11.9	0.8	4.70	150

and yield attributes, viz. branches/plant, seed weight/plant, pods/plant and test weight. Cumulative effect of these parameters might have resulted in higher yield.

Grain yield/ha increased significantly up to 20 kg N/ha along with 40 kg P_2O_5 /ha. Though, it was on a par with $N_{30} P_{60}$. Higher yield under these fertilizer levels resulted from increase in various growth and yield attributes under these levels. Thus, application of 20 kg N + 40 kg P_2O_5 /ha was found optimum for obtaining higher yield of

pigeonpea. Patel *et al.* (1984) also reported similar results.

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Response of fababean (*Vicia faba*) genotypes to sowing date and row spacing

RAJENDER KUMAR AND R. C. SINGH

Pulses Section, Haryana Agricultural University, Hisar 125 004

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Non-conventional pulse fababean (*Vicia faba* L.) performs better than traditional winter-season pulse crops, viz. chickpea, pea and lentil in northern Madhya Pradesh (Srivastava and Bansal, 1988) and in Haryana (Singh *et al.*, 1986). The present study, therefore, was undertaken to evaluate newly developed genotypes of fababean under different sowing dates and row spacing.

The field experiment was conducted during the winter season of 1990-91 at Hisar. The soil was sandy loam, low in available N (130 kg/ha), medium in available

phosphorus (14 kg/ha) and high in available potassium (420 kg/ha), with slightly alkaline in reaction (pH 8.2). A basal dose of 15 kg N and 45 kg P_2O_5 /ha was drilled below the seed at the time of sowing. Treatments comprised 5 sowing dates (1, 15 and 30 October and 15 and 30 November) as main-plot treatment and 6 combinations of 3 row spacings (30, 45 and 60 cm) and 2 genotypes ('VH 82-1' and 'HB 180') as subplot treatments, replicated thrice in split-plot design. The crop was sown at the seed rate of 100 kg/ha.

The crop sown on early dates (1 and 15 October) gave significantly higher yield than