

Growth and Yield Potentials of Various Pigeonpea (*Cajanus cajan L. Millsp*) cultivars

¹N.M. Soomro, ²F.C. Oad, ¹G.N. Sohu, ²N.L.Oad, ¹A.W. Gandahi, and ¹Z.A. Abbasi
¹Z.A. Bhutto Agricultural College, Dokri, Larkana, Sindh, Pakistan
²Sindh Agriculture University Tando Jam, Pakistan

Abstract: The experiment was conducted at Z.A. Bhutto Agricultural College, Dokri, Larkana, Sindh, Pakistan in experimental design of RCBD, replicated four times in net plot size of 3m x 5m, where 74078-1, ICPL-4, Local check, ICPL-2, ICPL-6, ICPL-84, T-21, ICPL-150 pigeonpea varieties/lines were planted for growth and yield potentials. Among the tested cultivars ICPL-6 was observed as dwarf and appeared to be superior one by recording maximum branches, having early maturity, and attempted maximum number of pods and seed index. ICPL-6 also proved itself as high yielding pigeonpea cultivar by recording 2166.70 kg grain yield^{ha}. Thus, it is recommended the ICPL-6 pigeonpea cultivar should be grown for early maturity and high potential yield.

Key Words: Pigeonpea, Varieties, Growth, Yield

Introduction

Pigeon pea (*Cajanus cajan L. Millsp*), local name "arhar" and "Red Gram", belongs to family leguminese. The name "pigeonpea" was reportedly first used Barbados, where the seeds were considered for medicine (Vandermaesen, 1990), and plays pivotal role in the human diet, animal feed, and in the maintenance of soil fertility (Rajput et al. 1987). In Pakistan, pigeonpea is generally grown as a border crop around fields of sugarcane, cotton, and groundnuts, but, in Sialkot, Peshawar, and Nawabshah it is also grown as a sole legume/pulse crop on a small scale. India is major world producer contributing 92% of world pigeonpea production (Malik, 1994). Pigeonpea research is being conducted at Indian International Crop Research Institute for Semi Arid Tropics (ICRISAT) and PARC in various crop and climatic aspects with the objective(s) to fulfill the proteinous requirements of the nation. This research is one of the attempt to explore the high yielding varieties for an alternate source in pulses.

Materials and Methods

The experiment for growth and yield potentials of different pigeonpea cultivars/lines was conducted at Z.A. Bhutto Agricultural College, Dokri during growing season of 1999. The experiment was laid-down in RCBD, replicated four times. The sowing was done during the month of May. All the recommended cultural practices for irrigation, fertilization were adopted to maintain the area.

The area was kept free from insects and diseases. The experiment consisted eight pigeonpea varieties i.e. 74078-1, ICPL-4, Local check, ICPL-2, ICPL-6, ICPL-84, T-21, ICPL-150 tested for their growth and yield potentials.

Results and Discussion

Plant height exhibited significant difference among the tested cultivars. The mean height ranged from 196.75 to 128.50 cm. The tallest plants were observed in plots where ICPL-4 was planted, however, ICPL-6 was observed dwarf cultivar attempting 128.50 cm plant height. Branches per plant were found to be significantly different in various pigeonpea cultivars. The maximum branches appeared in ICPL-6 followed by local check. However, minimum branches per plant were recorded in ICPL-84. The pigeon pea variety ICPL-6 was found to be superior in case of maturity, recording 150 field days, having maximum number of pods per plant, efficient in seed index, and potential yielder. The overall results showed that yield and yield contributing parameters were higher in ICPL-6. The findings are supported by Siag and Verma (1994), who reported that seed yield was significantly influenced by genotype, number of seeds per pod, seed index, and pods per plant (Satpute, 1994). ICPL-316 when intercropped with soybean under paired rows gave higher seed yield and monetary return (Joshi et al., 1994). Higher yields are also associated with timely sowing, because delayed sowing results in

Table 1: Growth and Yield parameters of pigeonpea (*Cajanus cajan* L.) varieties

Varieties	Plant Height (cm)	Branches/Plant	Maturity (Days)	Pods/Plant	Seed Index (100 grain wt. gm)	Grain Yield (kg ^{ha})
74078-I	182.25	7.75	156.00	138.25	6.77	1942.00
ICPL-4	196.75	5.75	156.00	108.00	6.67	1741.15
Local Check	160.25	8.75	157.00	139.25	6.85	1720.62
ICPL-2	177.50	5.75	154.25	109.25	6.30	1958.77
ICPL-6	128.50	9.50	150.00	161.50	7.35	2166.75
ICPL-84	130.00	5.25	157.25	138.75	6.17	1780.97
T-21	167.00	5.75	152.25	150.75	6.85	1617.27
ICPL-150	146.20	7.75	159.00	148.75	6.67	1623.92
SE of Means	2.83	0.54	0.52	12.39	0.05	26.39
Cdi	8.32	1.60	1.52	-	0.13	77.64
Cdii	11.31	2.17	2.07	-	0.18	105.64
Cv%	3.51	15.49	0.67	18.19	1.36	2.90

decreased yield. However, early sowing of the crop have higher plant population as compared to late sown crop (Venkataraman *et al.*, 1989), because harvest index decreases with low plant population (Tripathi, 1986).

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