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

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Abstract: The experiment was conducted at Z.A. Bhattu 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⁻¹. 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 leguminease. 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.

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 cayan L.) varieties

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Plant Height (cm)</th>
<th>Branches/ Plant</th>
<th>Maturity (Days)</th>
<th>Pods/ Plant</th>
<th>Seed Index (100 grain wt. gm)</th>
<th>Grain Yield (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>74078-1</td>
<td>182.25</td>
<td>7.75</td>
<td>156.00</td>
<td>138.25</td>
<td>6.77</td>
<td>1942.00</td>
</tr>
<tr>
<td>ICPL-4</td>
<td>196.75</td>
<td>5.75</td>
<td>156.00</td>
<td>108.00</td>
<td>6.67</td>
<td>1741.15</td>
</tr>
<tr>
<td>Local Check</td>
<td>160.25</td>
<td>8.75</td>
<td>157.00</td>
<td>139.25</td>
<td>6.85</td>
<td>1720.62</td>
</tr>
<tr>
<td>ICPL-2</td>
<td>177.50</td>
<td>5.75</td>
<td>154.25</td>
<td>109.25</td>
<td>6.30</td>
<td>1958.77</td>
</tr>
<tr>
<td>ICPL-6</td>
<td>128.50</td>
<td>9.50</td>
<td>150.00</td>
<td>161.50</td>
<td>7.35</td>
<td>2166.75</td>
</tr>
<tr>
<td>ICPL-84</td>
<td>130.00</td>
<td>5.25</td>
<td>157.25</td>
<td>138.75</td>
<td>6.17</td>
<td>1780.97</td>
</tr>
<tr>
<td>T-21</td>
<td>167.00</td>
<td>5.75</td>
<td>152.25</td>
<td>150.75</td>
<td>6.85</td>
<td>1617.27</td>
</tr>
<tr>
<td>ICPL-150</td>
<td>146.20</td>
<td>7.75</td>
<td>159.00</td>
<td>148.75</td>
<td>6.67</td>
<td>1623.92</td>
</tr>
</tbody>
</table>

SE of Means

Cdi | 8.32 | 1.60 | 1.52 | -  | 0.13 | 77.64 |
Cdii| 11.31| 2.17 | 2.07 | -  | 0.18 | 105.64 |
Cy% | 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).

References


