

Response of fodder cowpea (*Vigna unguiculata*) varieties to application of phosphorus

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Identification of suitable varieties of cowpea [*Vigna unguiculata* (L.) Walp.] for fodder purpose and their nutritional requirements specially of phosphorus is important for obtaining higher forage yields under rainfed conditions. Therefore an attempt was made to evaluate the comparative performance of 4 cowpea varieties ('IFC 8401', 'IFC 8503', 'UPC 8801') and 'EC 4216') under 3 levels of phosphorus (0, 30 and 60 kg P₂O₅/ha) at Tiptur. The experiment was conducted during the rainy season (*kharif*) 1991.

The soil was red acidic in reaction, medium in organic carbon (0.69%) and available N (300 kg/ha), low in available P (6.2 kg/ha) and rich in available K (295 kg/ha).

There was a long drought spell (33.8 mm in 7 rainy days) from mid-June to mid-September. The crop was sown on 18 September 1991. A basal dose of 20 kg N/ha and 20 kg K₂O/ha was applied along with P as per treatment. The crop was harvested at 50% flowering stage which took 65 days from sowing. A rainfall of 288 mm was received in 15 rainy days during the crop-growth period.

The plant height and number of leaves/plant were not affected due to varieties and phosphorus (Table 1). Green-fodder yields of 'IFC 8503' and 'IFC 8401' were significantly higher (9.7 and 16.4%, respectively) than 'EC 4216', while all these were at par with 'UPC 8801'.

The dry-matter yield of 'IFC 8503' was significantly higher than that of 'IFC 8401' and 'EC 4216'. There was a significant improvement in dry-matter yield at 60 kg P₂O₅/ha compared with the control. On per day production basis, the varieties 'IFC 8503' and 'UPC 8801' performed better (a mean yield of 493 kg green fodder or 59.3 kg dry matter/ha) than 'EC 4216' cowpea. A dose of 30 kg P₂O₅/ha is needed for fodder cowpea crop to obtain higher fodder yields.

Table 1. Growth parameters, green-fodder and dry matter yields of cowpea varieties as influenced by phosphorus

Treatment	Plant height (cm)	Trifoliate leaves/plant	Yield (q/ha)	
			Green fodder	Dry matter
<i>Variety</i>				
'IFC 8401'	122.8	16.2	332.2	36.0
'IFC 8503'	116.5	15.0	313.4	41.0
'UPC 8801'	114.7	16.3	308.5	38.9
'EC 4216'	118.1	20.5	285.6	32.9
CD (P = 0.05)	NS	NS	26.9	3.2
<i>P₂O₅ (kg/ha)</i>				
0	113.1	15.3	300.7	35.1
30	120.4	18.5	317.4	37.5
60	120.5	17.2	311.7	39.1
CD (P = 0.05)	NS	NS	NS	2.8