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Research Paper

Effect of different spacings and varieties on yield parameters of cowpea [*Vigna unguiculata* (L.) Walp.]

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ABSTRACT

The present investigation entitled effect of different spacing and varieties on yield parameters of cowpea (*Vigna unguiculata* (L.) Walp.) var. GUJARAT COWPEA – 3 was conducted during summer, 2008. The results revealed that yield attributes of different varieties of cowpea were significantly influenced length of pod, number of grains per pod, green pod yield per plant, plot and per hectare and took minimum days to first flowering. Maximum length of pod, number of grains per pod and green pod yield per plant was recorded with S_3V_3 treatment combination *i.e.* 60 x 15 cm spacing with GC-3 while green pod yield per plot and per hectare was found with S_1V_3 treatment combination *i.e.* 30 x 15 cm spacing with GC-3.

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Key words : Cowpea, Spacing, Varieties

Cowpea [*Vigna unguiculata* (L.) Walp.] is a promising vegetable crop of India. In India, the pulse green vegetables are very important source of protein for human diet, as more than 80 per cent of population is vegetarian. However, the production of vegetables is not keeping pace with growing population of the country. Cowpea is shallow rooted crop and is grown well under low fertility soil and low moisture regime conditions prevailing in some Indian states. Cultivation of cowpea in summer season is increasing in Gujarat, especially in South Gujarat where perennial water supply from Ukai-Kakrapara project is available to meet the demand of irrigation. Total area under vegetable crop in Gujarat is 3,66,051 ha and production is 60,62,626 M.T. Anonymous (2007). Whereas, area under cowpea in Gujarat is 18,811 ha with production of 1,66,391 M.T. (Anonymous, 2007). The chemical analysis of cowpea seed shows that it which contains moisture 11.00 per cent, protein 23.40 per cent, fat 0.30 per cent, carbohydrate 56.80 per cent, fibre 3.90 per cent and ash 3.20 per cent (Smartt, 1976). Cowpea is known for its ability to restore soil fertility, but inadequate attention has been paid to increase its potential although its yield potential is limited. When promising genotypes with higher yield potential are identified, it is necessary to establish the appropriate agronomic manipulations for obtaining higher yield. A plant population is one such factor that has a direct influence on the yield level of any particular genotype. Spacing plays an important role in maintaining adequate plant population. Establishment of appropriate row spacing for maintaining the optimum plant population per unit area is the most pre-requisite to obtain maximum yield for any field crops.

MATERIALS AND METHODS

The experiment was conducted at College Farm, Navsari Agricultural University, Navsari during summer season – 2008. The soil of experimental field was deep, moderately drained, clayey soils known as deep black soil. These soils are heavy clay, which cracks heavily after drying. The treatments consisted of four varieties *viz.*, Pusa Phalguni, Pusa Komal, Gujarat Cowpea – 3 and Gujarat Cowpea – 4 and three inter row spacing *viz.*, 30, 45 and 60 cm with a fixed intra-row spacing of 15 cm. The experiment was laid out in Randomized Block Design with Factorial concepts with three replications. The field was cross cultivated with tractor drawn cultivator and finally land was prepared by harrowing and planking. Well decomposed FYM @ 25 tones per hectare was applied uniformly to all the experimental plots. Common application of nitrogen and phosphorus @ 20 and 40 kg/