RESEARCH PAPER International Journal of Agricultural Sciences, Vol. 7 Issue 1 (January, 2011) : 70-73

Studies on effect of different sources of nitrogen on growth and yield of okra [*Abelmoschus esculentus* (L.) Moench]

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ABSTRACT

The growth parameters *viz.*, plant height, number of leaves, leaf area, number of branches, number of nodes and length of internode have been significantly influenced by different treatments. The plant height was maximum in treatment T_9 (50 per cent N through urea + 50 per cent N through neem cake). The growth in terms of number of leaves, leaf area, number of branches, number of nodes was significantly higher in the treatment T_9 (50 per cent N through urea + 50 per cent N through neem cake). Length of internode was found minimum in treatment T_4, while it was maximum in treatment T_8. All yield contributing characters like weight, breadth and length of fruit, number of fruits per plant and yield per hectare were significantly influenced due to different treatments tried. The treatment T_9 recorded significantly maximum weight, breadth and length (10.47 g, 1.50 cm and 9.54, respectively) of okra fruit. The number of fruits per plant was maximum (19.56) with treatment T_9. The highest yield (154.47 q ha^{-1}) was obtained in treatment T_9 (50 per cent N through urea + 50 per cent N through neem cake).

Shelar, R.B., Kadam, A.S., Patil, V.K. and Narsude, P.B. (2011). Studies on effect of different sources of nitrogen on growth and yield of okra [*Abelmoschus esculentus* (L.) Monech]. *Internat. J. agric. Sci.*, **7**(1): 70-73.

Key words : Growth, Yield, Vermicompost, Urea neem cake, Okra

INTRODUCTION

Vegetables play an important role in human diet. Okra or bhindi [*Abelmoschus esculentus* (L.) Monech] is mainly cultivated for its immature fruits which are used as vegetable. It is also useful in clarification of juice during jaggery making. Application of higher levels of fertilizer inputs and pesticides could lead to residue in grains, fruits and vegetables. The residual toxicity levels reported to be more in fruits and vegetables as compared to grains. The ill effects of chemicals in agriculture has been documented by Carson (1962). The large scale use of chemical fertilizers cause the problem of environmental pollution and deterioration of soil structure. There are also problems of loss of applied fertilizers through leaching, volatilization and de-nitrification of nitrogen and fixation of phosphorus. Among the different organic manures used, farm yard manure is a commonly used manure, plays an additional role than its capacity to contribute N, P, K. Green manuring also helps in restoring the organic matter content in the soil. Hence, to obtain more production and for balanced nutrient status of soil, proper combination of organic manures and inorganic fertilizers is needed. Therefore, the present studies were undertaken to decide proper combination of organic manure and inorganic fertilizers for better growth, yield and quality of okra variety Parbhani Kranti.

MATERIALS AND METHODS

The experiment was conducted in the plot of Department of Horticulture, College of Agriculture, Latur, Marathwada Agricultural University, Parbhani during *Kharif* season 2006-2007. The experiment consisted of 10 treatments replicated thrice in Randomized Block Design. The different sources of nitrogen *viz.*, urea, FYM, vermicompost, karanj cake were used and neem cake in combinations like T_1) Control, T_2) R.D.F. (N) through Urea (100%), T_3) 75% N through urea + 25% N through vermicompost, T_4) 75% N through urea + 25% N through karanj cake, T_5) 75% N through urea + 25% N through neem cake, T_6) 75% N through urea + 25% N through FYM, T_7) 50%N through urea + 50% N through vermicompost, T_8) 50% N through urea + 50% N through karanj cake, T_9) 50% N through urea + 50% N through neem cake, T_{10}) 50% N through urea + 50% N through FYM. Observations were recorded and statistically analyzed as per method given by Panse and Sukhatme (1967).

RESULTS AND DISCUSSION

The findings of the present study as well as relevant discussion have been summarized under following heads:

Effect on growth parameters:

The growth parameters *viz.*, plant height, number

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