The Asian Journal of Horticulture; Vol. 5 No. 2; (December, 2010) : 444-449

Received : August, 2010; Accepted : November, 2010

Research Paper

Effect of different organic manures and inorganic fertilizers on growth and yield of brinjal (*Solanum melongena* L.)

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ABSTRACT

Treatments with organic manures, inorganic fertilizers and their combinations showed significant difference for growth and yield of brinjal crop. Application of recommended 25 t/ha of FYM N through vermicompost and green manure (50% each) + recommended NPK (125:100:50 kg/ha) recorded maximum plant height, number of leaves and total dry matter of plant. The number of branches was highest in the treatment of 150% recommended FYM only, while the maximum Chlorophyll content of the leaves was recorded with application of FYM N through FYM and green manure (50% each) + recommended NPK. Earliness for first, fifty per cent flowering and first harvest was observed with 100 per cent recommended FYM alone. Application of recommended FYM + NPK recorded maximum yield per plot, per hectare and harvest index during late *Rabi* season of 2004-2005, these treatments were significantly superior to recommended inorganic fertilizer treatment, as well as to application different doses of organic manures alone such as FYM and vermicompost, this indicated that integration of both organic manures and inorganic fertilizers was important to improve the growth and yield characteristics of the crop.

Key words : Vermicompost, FYM, NPK, Dry matter, Chlorophyll, Harvest index

Mohankumar, A.B. and Narase Gowda, N.C. (2010). Effect of different organic manures and inorganic fertilizers on growth and yield of brinjal (*Solanum melongena* L.), *Asian J. Hort.*, **5** (2) : 444-449.

Brinjal (*Solanum melongena* L.) is one of the most common tropical fruit vegetable. It is a rich source of vitamins, minerals and organic acids. For realizing higher yields and quality produce, soil health is a critical factor. Therefore, chemical fertilizers must be integrated with organic manures such as FYM, vermicompost, crop residues and green manures which are renewable and eco friendly to achieve sustainable productivity with minimum deleterious effects of chemical fertilizers on soil health and environment. The yield per unit area can be increased along with the improvement of its quality through the balanced application of organic and inorganic fertilizers in proper combination, therefore the present investigation was undertaken to find out the optimum dose and best combination of organic manures and inorganic fertilizers for obtaining higher yield of brinjal.

MATERIALS AND METHODS

The field experiment was conducted at the Horticulture Research Station, University of Agricultural Sciences, Bangalore during late *Rabi* season of 2004-2005. The experimental site is located at an altitude of 930m above MSL lying in eastern dry zone of Karnataka (Zone 5). The soil was red sandy loam having organic carbon (0.360%), pH (7.12), available N (197.16 kg/ha), available P (25.00 kg/ha), available K (245.00 kg/ha). The experiment was laid out in Randomized Complete Block Design with three replications at a spacing of 75 x 60 cm. Twelve treatments of organic manures, inorganic fertilizers and their combinations *i.e.*, T_1 - 75 per cent recommended FYM only, T_2 - 100 per cent recommended FYM only, T_3 - 125 per cent recommended FYM only, T_4 - 150 per cent recommended FYM only, T_5 - 75 per cent of FYM N content was substituted through vermicompost, T_6 -100 per cent of FYM N content was substituted through vermicompost, T_7 -125 per cent of FYM N content was substituted through vermicompost, T_8 -150 per cent of FYM N content was substituted through vermicompost, T_9- Recommended FYM N was substituted through FYM and green manure (50% each) + recommended level of NPK, T_{10} - Recommended FYM N was substituted through vermicompost and green manure (50% each) + recommended level of NPK, T_{11} – Recommended FYM + NPK, T_{12} – Only recommended