

EFFECT OF INTEGRATED NUTRIENT MANAGEMENT ON GROWTH AND YIELD OF TOMATO (*Lycopersicon esculentum* Mill.)

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ABSTRACT

The present study entitled "Effect of integrated nutrient management on growth and yield of tomato (*Lycopersicon esculentum* mill.)" was conducted at Department of Horticulture, M.A.U., Parbhani during the year 2003-04. Treatment 100% FYM + 50% RDF produced maximum height, number of primary branches, less number of days to 50% flowering, number of fruit per plant, weight of fruit, yield per plant and total yield per hectare as compared to treatment control and rest of treatments under study.

Key word : F.Y.M., R.D.F., Tomato.

Tomato (*Lycopersicon esculentum* mill) is one of the most important protective foods both because of its special nutritive value and also because of its wide spread production. Organic manures not only increases the yield but also improve physical, chemical and biological properties of soil that improve fertility, productivity, water holding capacity of soil (Blane *et al.*, 1989). The use of both organic and inorganic fertilizers called integrated nutrient management not only increases the yield but also improve physical, chemical and biological properties of soils that improve fertility, productivity, water holding capacity of soil. Use of FYM increase soil organic matter content and had greater residual effects (Kumaran *et al.*, 1998). Very little work has been reported on the effect of organic fertilizers on tomato in Maharashtra state, especially under Marathwada conditions, therefore, the present study was undertaken at the Department of Horticulture, Marathwada Agricultural University, Parbhani during rabi season of 2003-2004.

MATERIALS AND METHODS

The experiment was laid out in randomized block design. There were twelve treatments and three replications. The treatments details are given below T₁ – 100% FYM, T₂ – 50% FYM, T₃ – 100% Glyricidia, T₄ – 100% Vermicompost, T₅ – 100% Neemcake, T₆ – 100% FYM + 50% RDF, T₇ – 50% FYM + 50% RDF, T₈ – 50% FYM + 100%RDF, T₉ – 50% Glyricidia + 50% RDF, T₁₀ – 50% Vermicompost + 50% RDF, T₁₁ – 50% Neem cake + 50% RDF, T₁₂ – 100% RDF (Control). The plot

size was 4.20 x 3.60 m² and spacing 60 x 45 cm. The variety was used ATV-1. The recommended dose of fertilizer 100 : 50 : 50 kg NPK ha⁻¹ was considered as 100% RDF. The vermicompost 5.0 t ha⁻¹ it was applied at 100 and 50 per cent to the plots before 10 days of transplanting. While neemcake 5.00 q ha⁻¹ was applied at 100 to 50 per cent to the plots before 2 weeks of transplanting. FYM applied 40 t/ha (full dose) of F.Y.M. was applied at 100 and 50 per cent to the plots before 10 days of transplanting.

The biometric observations on the height of plant and number of primary branches were taken at 15 days interval commencing from 30 days after transplanting (DAT) upto 90 DAT, days to 50 per cent flowering, number of fruits plant were counted. Yield per plant and per hectare was recorded. The observational data was subjected to statistical analysis.

RESULTS AND DISCUSSION

A) Growth Parameters

Height of Plant :

The data presented in Table 1 indicated that the maximum height of plant (100.40 cm) at 90 DAT was recorded in T₆ treatment where 100% FYM was given along with 50% recommended dose of fertilizer. The next better treatment in this regard was T₈ where 50% FYM + 100% RDF was applied. The similar trend was observed during different dates of observations. Kumaran *et al.* (1998) found that the application of organic manures with combined dose of inorganic fertilizers showed superior performance in plant height of tomato. Atiyeh *et al.* (1999) also made similar observations in tomato.