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Effect of organic manures with biofertilizer on yield contributing characters of tomato

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ABSTRACT

The present investigation was carried out at Mahatma phule Kristi Vidyapeeth, Rahuri during *Kharif* 2004 to study the effect of some organic manures with biofertilizers on yield of tomato fruits and find out an organic manure dose for tomato. The experiment consisted of eleven treatments with three replications in randomized block design. FYM, cotton seed cake and poultry manure were applied in combination at 25,50 and 75 per cent level of N source. Vermiphos and sulphate of potash were used as source of phosphorus and potassium, respectively. The quantity of P_2O_5 and K_2O from organic manures was considered as bonus application in respective treatments. Number of fruits/ plant, average weight of fruit, yield / plant and yield / ha were obtained with organic manures over inorganic fertilizer and absolute control .The maximum yield and yield attributing character could be obtained by the application of FYM (50%N)+cotton seed cake (50%N) + vermiphos + sulphate of potash + package @ 200 kg/ha + *Trichoderma viride* @ 4g/ha + *Azospirillum* @ 299g/10 lit + PSB (200g/ 10 lit. water + NSKE 4%(spray) + other organic spry).Thus it could be concluded that organic farming with use of biofertilizers had a beneficial effect in tomato production and can be practiced for more yield and better quality fruits.

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Key words : Organic manures, Biofertilizer, Cotton seed cake, Vermiphos, Yield

INTRODUCTION

Tomato (*Lycopersicon esculentum* Mill.) is an annual vegetable crop of wide spread culture and popularity. It is the most popular vegetable all over the world and ranks second. Tomato is mostly grown for vegetable purpose, yet it is widely consumed as salad or in processed from, in fact it ranks first in processing. It is used in preparation of products like puree, ketch-up, etc nutritionally it is equally important food owing to the appreciable contents of vitamins A ,B and C (Arora *et al.*, 1993).

In India, tomato is mostly grown in the plains over an area of 5.35 lakh ha with annual production of 93.62 lakh metric tones.(Anonymous, 2008) In Maharashtra the area under tomato is about 0.36 lakh ha with an estimated production of about 11.83 lakh tones (Anonymous, 2003). The prices of chemical fertilizer have gone up tremendously and the marginal farmers can not afford such costly fertilizers. About 50 per cent of applied inorganic fertilizers are lost through leaching. Under this situation use of organic manures and biofertilizers could be the key to sustain soil fertility and to obtaine the desired level of yield and quality. Organic fertilizers positively affected and also improve keeping quality at room tempreture and in storage of vegetable (Vogtmann *et al.*, 1993)

The nutrient management in organic farming is done through materials like farmyard manure, neem cake, organic manure, poultry manure, vermicompost, green manures and crop residues. These can substitute for inorganic fertilizer to maintain the environmental quality and safety. Biofertilizers are natural fertilizers containing carried based micro-organisms which help to enhance productivity by biological nitrogen fixation or solubilization of phosphate or producing hormones, vitamins and other growth factors required for plant growth.

MATERIALS AND METHODS

The present investigation was carried out at Mahatma Phule Kristi Vidyapeeth, Rahuri during *Kharif* 2004 to study the effects of organic manures and biofertilizers on growth and yield of tomato hybrid RTH-2. The experiment consisted of 11 treatment *viz.*, T_1 FYM (75%N) + cotton seed cake(25%N)+ vermiphos + sulphate of potash + package, T_2 FYM (75%N) + poultry manure(25%N) + vermiphos + sulphate of potash + package, T_3 -FYM (50%N) + cotton seed cake(50%N) + vermiphos + sulphate of potash + package, T_4-FYM (50%N) + poultry manure (50%N) + vermiphos + sulphate of potash + package, T_5-FYM (25%N)+ cotton seed cake (75%N) + vermiphos + sulphate of potash + package, T_6 - FYM (25%N) + poultry manure(75%N) + vermiphos

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