The Asian Journal of Horticulture, December 2007, Vol. 2 (2) : 50-54

EFFECT OF FERTIGATION AND MULCHING FOR YIELD AND QUALITY IN TOMATO cv. PKM-1

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Accepted : October, 2007

ABSTRACT

An experiment with different mulches and fertigation was carried out on Tomato at Horticultural College and Research Institute, Tamil Nadu Agricultural University, Periyakulam. Increased plant height (127.20cm) was observed by mulching with Black Polythene mulch along with the application of 100% of recommended dose in the form of Urea + Phosphoric acid + Potassium sulphate. Earlier flowering (29.30 days) was observed when mulched with Black Polythene mulch with 100% of recommended dose in the form of Urea + Phosphoric acid + Potassium sulphate. Increased number of fruits per plant (32.7 no), single fruit weight (65.25gm) and yield per plant (6.40kg) was also observed when mulched with Black Polythene mulch along with the application of 100% of recommended dose in the form of Urea + Phosphoric acid + Potassium sulphate. The quality attributes was also high. Increased Total soluble solids (3.60^0 brix), Acidity content(0.79%) and ascorbic acid content (64.20mg/100gm) was observed in the treatment m1s6 (mulching with Black Polythene mulch along with the application of 100% of recommended dose in the form of Ammonium sulphate + Super phosphate + Potassium chloride).

Key words: Tomato, Mulching, Fertigation, Yield, Quality.

Tomato (*Lycopersicon esculentum* Mill.) is a crop of international importance both in consumption, production and in terms of nutrient contribution to the diet. It is in cultivation all over the world and all through the year. The superiority of this crop among the vegetables is highly felt by the existence of large number of improved varieties and hybrids developed from both research institutes and private sectors. Generally, vegetable crops require and consume comparatively more water owing to increased number of harvests. Of late, water sources have become scarce, consequently, farmers tend to switch over to alternative crops. However, year round production of vegetables like tomato should be ensured considering the everlasting demand for this vegetable, which finds a definite place in almost all the preparations of our dishes and even as salads. The fertigation at regular intervals and mulching improved the potential yield, fruit quality and shelf life.

Fertigation has gained popularity in developed countries and is being now extensively implemented in developing countries. This techniques could help in a long way for efficient and uniform application of water and fertilizers with minimum labour input. In addition to soil and water conservation, improved yield and quality suppression of weed growth, mulches can improve the fertilizer use efficiency (Chakravarthy and Sudha, 1994). Moreover, efficient utilization of appropriate quality of water as well as nutrient will be achieved by use of appropriate mulch material, resulting with enormous saving of water and other inputs.

Consequently, cost of cultivation may also get reduced with simultaneous increase in yield of fruits, which could also fetch better price in the market, owing to the improved quality of the fruit on fertigation. This paper embodies the results of the investigation carried out on the influence of fertigation and mulches on yield and other yield attributing characters.

MATERIALS AND METHODS

The study was carried out at Horticultural College and Research Institute, Periyakulam. The tomato crop was raised under fertigation with different mulch materials. The treatments on mulches were black polythene mulch, Sugar cane trashes, Paddy straw and Control (without any mulch). The fertigation treatments include application of recommended dose of fertilizers (150:100:50 kg NPK/ha) in the form of Urea + Phosphoric acid + Potassium sulphate and in the form of Ammonium sulphate + Super phosphate + Potassium chloride with different levels(50%,75% and 100%) along with the control(soil application of fertilizers). A basal dressing of 25 tonnes