

Effect of Levels of Irrigation and Fertigation on Growth, Yield and Quality Parameters in Tomato (*Lycopersicon esculentum* L.)

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ABSTRACT

An experiment was conducted during *rabi* seasons of 2007 and 2008 to study the effect of two levels of irrigation and six fertigation levels on the dry matter production, 100 fruit weight, fruit yield, quality parameters and monetary returns in respect of tomato crop at Water Technology Center, College of Agriculture, Rajendranagar, Hyderabad. Results indicated that maximum total dry matter production (5.96 t ha⁻¹) was obtained with the application of 100 per cent RD of N with 100 per cent RD of K and tended to decrease with the decrease in application levels of recommended dose of nitrogen (50-75%) and potassium (75%). Application of 75 per cent RD of N along with 100 per cent RD of K recorded significantly higher 100 fruit weight (8.7 kg) and fruit yield (35.32 t ha⁻¹) as compared to all other treatments. No significant difference in fruit yield was noticed between the two irrigation levels *i.e.* 1.0 E pan (31.08 t ha⁻¹) and 0.8 E pan (32.18 t ha⁻¹). Quality parameters *viz.*, ascorbic acid, reducing sugars, non-reducing sugars, total soluble solids, lycopene, acidity and pulp ratio were not influenced significantly due to levels of irrigation and fertigation. Scheduling of irrigation at 0.8 E pan recorded higher net returns (Rs. 79,861 ha⁻¹) and B C Ratio (2.44) as compared to returns of Rs 76,028 and B.C ratio of 2.32 recorded under 1.0 E pan. Among the fertigation levels, application of 75 per cent of RD of N and 100 per cent of RD of K registered maximum net returns (Rs. 90,755 ha⁻¹) and B C Ratio of 2.76 and the lowest returns of Rs 64,672 ha⁻¹ and B C ratio 1.95 was recorded with application of 50 per cent of RD of N and 75 per cent RD of K. Significant positive correlation was observed between yield and various parameters.

Key words : Irrigation levels, Fertigation, Tomato, Quality parameters, Yield .