

DETERMINATION OF IRRIGATION WATER REQUIREMENTS OF FIELD GROWN TOMATO USING CLASS A PAN EVAPORATION

A. F. Omran¹, N. M. Malash¹, F. A. Ali¹, G. M. Salama² and Entsar, A Khatab²
1- Faculty of Agriculture, Minufiya University., 2- Horticulture Research Institute,
Ministry of Agriculture. ,,

ABSTRACT:

The effect of different irrigation water amounts on tomato vegetative growth, yield and yield components, water use efficiency and plant minerals composition was studied in 2005 and 2006 in field conditions. Treatments consisted of four irrigation water amounts i.e., 50, 75, 100 and 125% times of class A pan evaporation value. The results indicated that increasing irrigation water amounts from 50 to 125% of class A pan value gradually increased plant vegetative growth i.e., plant height, number of branches / plant, number of leaves / plant, leaf area / plant and dry weights of different plant organs. However, irrigating tomato plants with the lowest ratio of class A pan (50%) gave the highest value of specific leaf weight and the deepest roots only, when measured at later growth stage (85 days after transplanting). Although, irrigation of tomato with 125% of class A pan gave the highest total and marketable yields, this particular treatment showed the lowest ratio of marketable yield / total yield. Such results also indicated that the marketable yield obtained by irrigation tomato with 100% in both seasons and that obtained by irrigation with 75% of class A pan value in one season did not significantly differ than marketable yield obtained when the highest ratio (125%) of A pan value was used. This may suggest that using amounts of water in irrigation equal or even lesser than that of 100% of class A pan value could be used successfully in irrigation tomato without severe reduction in yield. Fruits produced from plants received the lowest and moderate amounts of water i.e., 50 and 75% of class A pan showed the highest TSS, vitamin C and dry matter contents.

Key words: class A pan evaporation, tomato yield, water use efficiency, amount of irrigation water, fruit quality