Journal of Animal &Plant Sciences, 2016. Vol.29, Issue 1: 4575-4588
Publication date 1/06/2016, **http://www.m.elewa.org/JAPS***; ISSN 2071-7024*

The effects of regulated deficit irrigation on yield and certain fruit characteristics of tomato (*Solanum lycopersicon* mill)

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Key words: RDI, Tomato, water saving, water stress, yield

1 ABSTRACT

Studies on effective use of water resources for sustainable agricultural production are necessary to achieve the required food production to meet the growing demand in the world. This study was conducted, under the field conditions to determine the effects of regulated deficit irrigation (RDI) on yield, and to suggest irrigation management guidelines for tomato farming in the semi-arid area. Irrigation was applied in three-day intervals, at ratios of 133% (T_1), 100% (T_2) and 66% (T_3), as determined from the amount of total irrigation (IW)/total evaporation (CPE) for different three growth stages. Although the greatest water saving was 43%, the yield loss was increased up to 62%. The total fruit yield ranged from 33.34 t ha^{-1} to 83.59 t ha^{-1}. The water savings were 21% and 43% for the T_2 and T_3 treatments, respectively, compared with the T_1 treatment. In tomato, the water saved with deficit irrigation does not compensate for the yield reduction that resulted under these experimental conditions.