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Managing irrigation of fruit trees using plant water status

PDF (Size: 337KB) PP. 35-43 DOI : 10.4236/as.2012.31006

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ABSTRACT

Optimum growth and production of fruit crops is strongly linked to managing irrigation water. Various method of estimating tree water requirements have been utilized such as direct and indirect soil, water, and climatic measurements. Due to differences in fruit tree anatomical and morphological structures and their adaptation to excess and deficit soil water content, such estimates of irrigation water requirements may be more suitable for herbaceous plants but not as accurate for trees. Studies on temperate and tropical fruit trees, using apple (*Malus domestica*) and star-fruit (*Averrhoa carambola*), respectively, showed that tree water potential is highly correlated to soil water status. Irrigation based on climate data (ET) and monitoring of soil water resulted in no significant differences in soil or tree water status of orchard-grown fruit trees under temperate and subtropical climatic conditions. The results indicated the need for better understanding and utilization of tree physiological parameters for management of irrigation water of fruit crops. This will ultimately lead to achieving optimum yield and fruit quality while conserving water resources.

KEYWORDS

Apple; Star-Fruit; Water Potential; Water Content; Tree Physiology; Temperate; Tropics; Irrigation Scheduling; Tree Water Status

Cite this paper

 Al-Yahyai, R. (2012) Managing irrigation of fruit trees using plant water status. *Agricultural Sciences*, 3, 35-43. doi: 10.4236/as.2012.31006.

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