

The combination of pre- and post-harvest deficit irrigation improves loquat fruits earliness and performance at packing houses

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Abstract

Loquat commercialization and price depend on fruit size and earliness. Fruit earliness can be improved by postharvest regulated deficit irrigation (RDI). An optimization of postharvest RDI strategies by the limitation of the dry period has led to earlier harvests and greater profitability. However, water savings were thus reduced. Aiming to further improve fruit earliness and quality and to increase water savings, we have combined pre- and post-harvest DI. Here, we present results of four treatments differing in the moment in which pre-harvest DI was implemented. Treatments were T1: controls where trees were not irrigated during a 6-week period after harvest; T2: trees that were not watered from the rapid fruit growth phase until harvest (9 weeks DI) in addition to post-harvest DI; T3: trees in which pre-harvest DI was implemented at color break (6 weeks DI); and T4: trees with DI applied during rapid fruit growth, but re-irrigated at color break. Full-irrigated trees were grown in a nearby plot for comparison. Water savings differed among treatments. T1 saved 17% with respect to fully-irrigated trees, and advanced harvest by 16 days. Implementing a dry period prior to harvest resulted in an additional water savings (of 11-23%), in an even earlier harvest date (by 7-10 days), and in a higher amount of earlier yield (by 15-24%). Fruit size was significantly diminished by T2 and slightly by T3, but not at all by T4. The negative effect on fruit size impacted on fruit pack out. A major advantage of T3 and T4 treatments was the better performance of loquat fruit during handling and shelf life.