Use of Subirrigation for Weed Management in Ornamental Plant Production Systems[1]

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Weed and crop growth in nursery containers with reservoirs for subirrigation were compared to conventional pots irrigated by overhead sprinklers or by spot spitters. The use of automatic sensors for managing irrigation timing was also investigated. In general, subirrigated woody plants had significantly greater growth as indicated by plant height and by root and shoot dry weights. Weed dry weight and percent cover were also significantly reduced in the subirrigated treatments. The use of a sensor to initiate irrigation reduced percentage weed cover and dry weight in one study.

Weed pressure as affected by method of irrigation. Left are subirrigated star jasmine, right are those irrigated by overhead sprinklers. Note the soil moisture sensor which is used to regulate when plants are irrigated. This reduces overirrigation and runoff.

Effect of method of irrigation and timing on star jasmine root and top growth. Subirrigated plants had significantly greater top and root growth than the other two methods.

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Effect of method of irrigation on growth of bottlebrush (*Callistemon*). Subirrigated plants were significantly larger than those irrigated by spot spitters and had less weed pressure.

Subirrigated Spot spitters

Tipping rain bucket with datalogger used to monitor amount of water applied where irrigation was triggered by soil moisture level.

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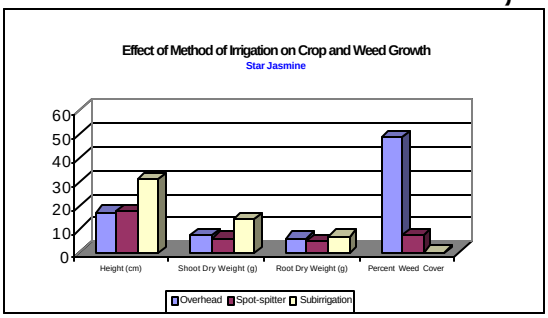
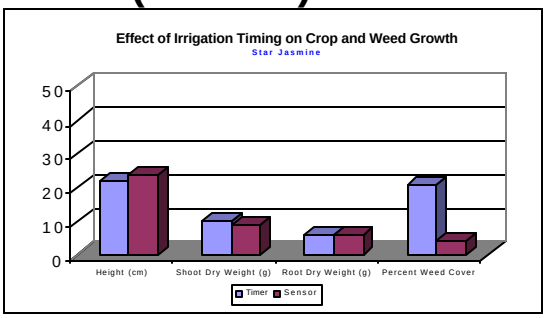
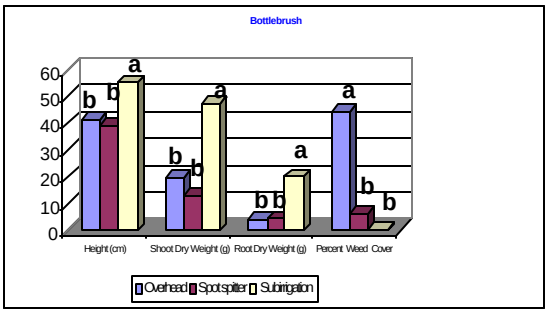
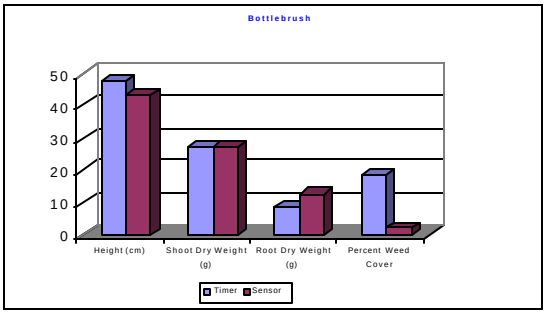
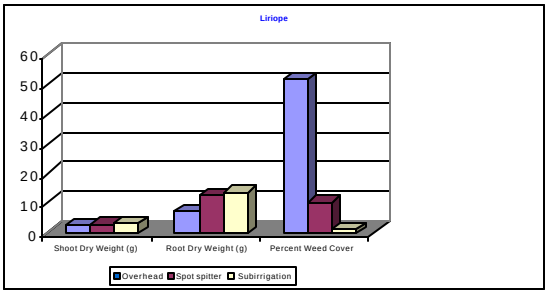
Location 1: Irvine, California (Coastal)

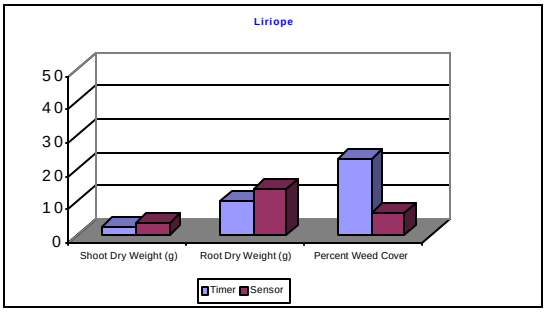






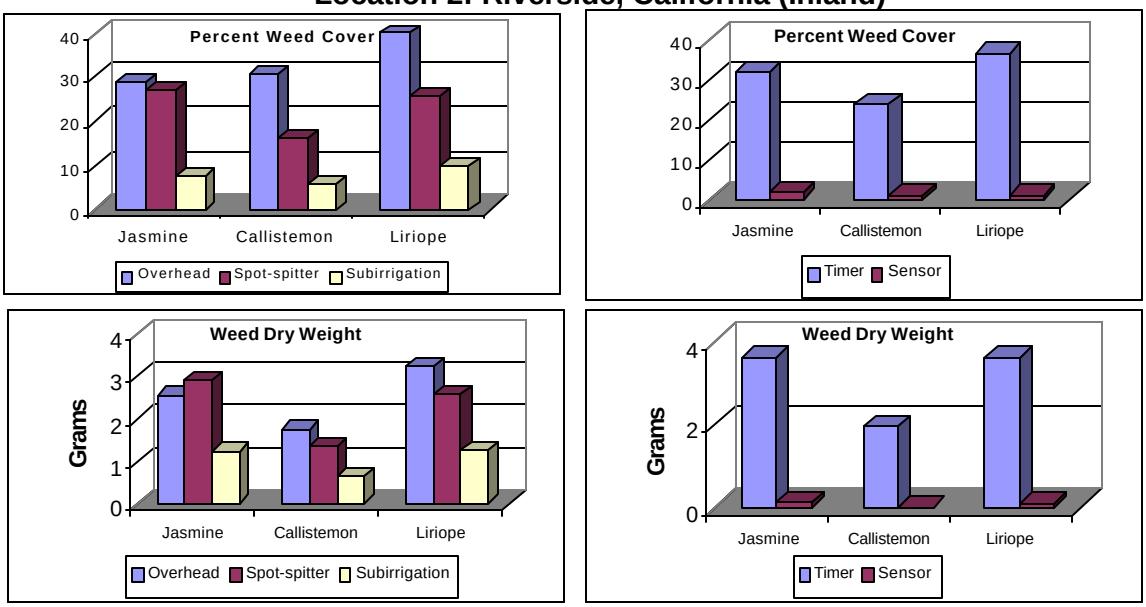






*For each group of bars, different letters above the bar indicate significant differences at the $P \leq 0.05$ level by SNK multiple range test; "ns" is "no significant differences."

Location 2: Riverside, California (Inland)



*For each group of bars, different letters above the bar indicate significant differences at the $P \leq 0.05$ level by SNK multiple range test; "ns" is "no significant differences."