

Viability of Irrigation Water Conservation Practices in the Low Desert of California

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Abstract : California and the Colorado River Basin are facing increasing uncertainty concerning water supplies. The Colorado River is the main source of irrigation water in the low desert of California. Currently, due to an increasing water-use competition and long-term drought at the Colorado River Basin, efficient use of irrigation water is one of the highest conservation priorities in the region. This study aims to present some of current irrigation technologies and management approaches in the low desert and assess the viability and potential of these water management practices. The results of several field experiments are used to assess five water conservation practices of sub-surface drip irrigation, automated surface irrigation, sprinkler irrigation, tail-water recovery system, and deficit irrigation strategy. The preliminary results of several ongoing studies at commercial fields are presented, particularly researches in alfalfa, sugar beets, kliengrass, sunflower, and spinach fields. The findings indicate that all these practices have significant potential to conserve water (an average of 1 ac-ft/ac) and enhance the efficiency of water use (15-25%). Further work is needed to better understand the feasibility of each of these applications and to help maintain profitable and sustainable agricultural production system in the low desert as water and labor costs, and environmental issues increase.

Keywords : automated surface irrigation, deficit irrigation, low desert of California, sprinkler irrigation, sub-surface drip irrigation, tail-water recovery system

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