



Effect of three drip irrigation management strategies on chufa (*Cyperus esculentus* L. var. *sativus* Boeck.) crop.

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Chufa, also known as tigernut, is a typical crop in Valencia, Spain, where it is cultivated in ridges with furrow irrigation. It uses large volumes of water, so different studies have been undertaken in order to maximize the irrigation water use efficiency, getting important water savings. Particularly, different refill points, based on the volumetric soil water content, were analyzed in drip irrigation. It was stated that starting each irrigation event when the volumetric soil water content dropped to 85% of field capacity led to the best results in terms of yield and irrigation water use efficiency. However, these results may be improved by defining the best strategy in the irrigation stop, which is the aim of the herein presented research. This investigation, conducted in 2015 and 2016, comprises the productive response of the chufa crop with drip irrigation, calculating the yield and the irrigation water use efficiency. The volumetric soil water content was monitored using multi-depth capacitance probes, with sensors at 0.10, 0.20 and 0.30 m below the top of the ridge. Each irrigation event started when the volumetric soil water content at 0.10 m dropped to 85% of field capacity. Three irrigation strategies were considered, T1: each event being stopped when the average of the volumetric soil water content values at 0.10, 0.20 and 0.30 m reached the corresponding field capacity value. T2: each event being stopped when the volumetric soil water content values at 0.20 m reached the corresponding field capacity value. T3 each irrigation event lasted 30 min (7.33 mm). The T2 strategy led to the largest yield and to the lowest irrigation water use efficiency, since it used the largest volume of irrigation water applied. The average tuber weight, size and shape showed no differences between the strategies.