Autonomous Irrigation of lemon with the Tevatronic irrigation controller

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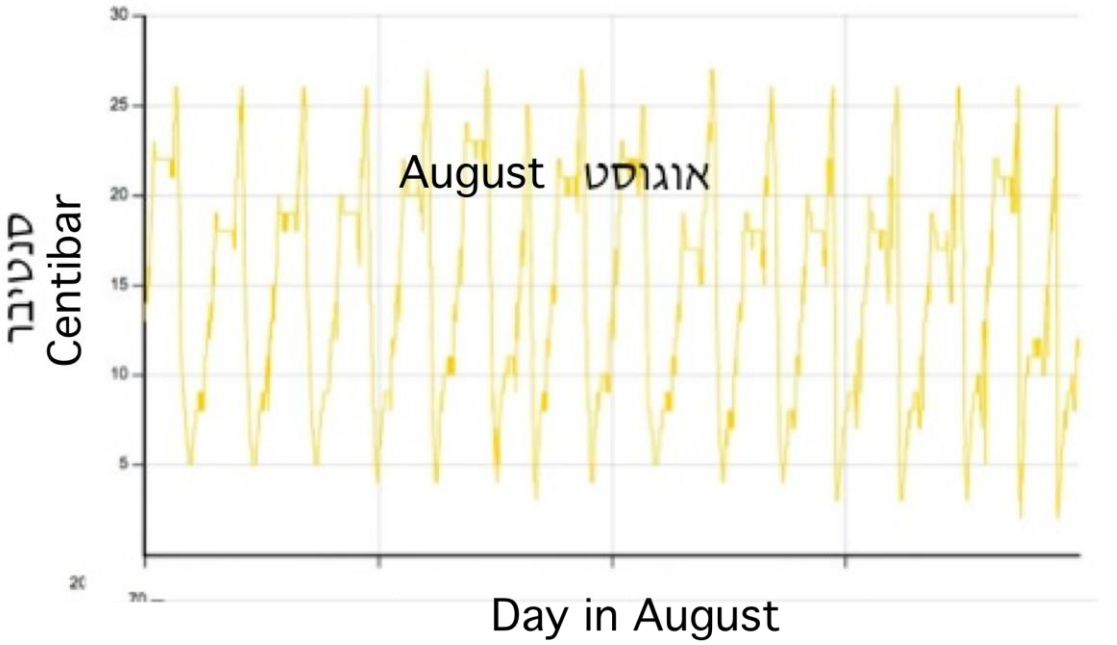
A lemon orchard was irrigated in the North Negev region of Israel with the TevaSens controller in 2012. The actual Pan A evaporation data (a standard reference measure used for irrigation recommendation) in the region in 1992, the irrigation coefficient, and the actual volume of water recommendation by the Israel Extension Service is presented in Table 1. :

	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Total
Pan A	7.5	8.8	9.8	9.8	9.5	7	5.3	3.2	2.1	
Irrigation coefficient	0.48	0.58	0.65	0.65	0.7	0.73	0.75	0.77	0.8	
Days	30	31	30	31	31	30	31	30	30	
m3/ha	1080	1582	1911	1975	2062	1533	1232	739	504	12618

The TevaSens controller records the soil water tension continuously and the irrigation time (from which the volume of water applied is calculated). A sample of the actual data for the month of August 2012, copied from the plot that the farmer saw when he monitored his irrigation is presented in Fg. 1:



The TevaSense was set to open the irrigation valve at 25 centibar and irrigate to a depth of 30 cm. The soil water tension was maintained accurately. The monthly irrigation compared to the recommendation (Table 1) is presented in Fig. 2:

Water consumption increase from April and reach a maximum in mid-Summer. The TevaSens controller irrigated less every month. On the average for 2012 it irrigate only 42% as compared to the recommendation. Furthermore, he TevaSens irrigation controller showed that the actual maximum consumption is in September, rather than in August as the recommendation.