

**Morsi, M. E. (2009):Effect of flood and drip irrigation systems on growth and productivity of Picual and Arbequina olive cvs. grown in new reclaimed lands. Fayoum J. Agric. Res. & Dev., Vol.23, No.(1): 172-179.**

**ABSTRACT**

Water use (WU), water use efficiency (WUE), growth, productivity of Picual and Arbequina olive cultivars were studied under two irrigation systems (flood and drip) during 2007 and 2008 seasons.

Results showed that, seasonal water use of olive trees grown under flood and drip irrigation was 704.04 and 446.95 mm/feddan/year, respectively (average of the two seasons). Olive trees subjected to drip irrigation produced the highest yield/tree 16.6 Kg (average of the two seasons). Yield decreased by about 23.67% when trees were exposed to flood irrigation system. Yield efficiency and water use efficiency of olive trees had the same trend. The maximum values, in this respect, were obtained by olive trees grown under drip irrigation followed in a descending order by flood irrigation, respectively.

On the contrary, olive trees grown under flood irrigation system gave higher values of vegetative growth parameters and percent of fruit dry weight. However, it gave less fruit yield as well as percent of oil in flesh dry weight. Olive trees grown under drip irrigation system gave the highest value of oil% per flesh dry weight (43.99% average of the two seasons). Meanwhile, this percent decreased by about 8.54% when trees were irrigated by flood irrigation.

Moreover, from the obtained data, it is clear that Picual cv. had that bigger tree canopy, fruit yield, fruit weight, fruit dry matter and fruit oil content more than Arbequina cv.

Consequently, it could be recommended cultivate trees of Picual cv. in the new reclaimed land as it was more suitable than Arbequina cv.

**Key words:** Olive trees, Irrigation system, Water use, Water use efficiency, Yield efficiency, Growth parameters, Yield and fruit quality.