



## Water utilization efficiency as affected by soil moisture regimes, grains and rice varieties

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**Abstract:** A field experiment was conducted to study the effect of soil moisture regimes on varieties and grain yield on water utilization efficiency.

The important results can be summarized in the following :

The highest values of grain yields were obtained under the higher soil moisture regime of M1 followed by M2 and M3 in decreasing order.

The highest utilization efficiency (WUE) values of irrigation water was obtained under the low soil moisture regime of M3 followed by M2 and M1 in decreasing order.

The amounts of irrigation water were 5800, 4800 and 4340 m<sup>3</sup>/fed. at M<sub>1</sub>, M<sub>2</sub> and M<sub>3</sub>, respectively for Sakha 102 variety, while they were 7600, 6240 and 5600 m<sup>3</sup>/fed. at M<sub>1</sub>, M<sub>2</sub> and M<sub>3</sub> for Giza 176 variety, respectively.

Using Sakha 102 variety and M2 will save 40.32 % of irrigation water. Generally, data revealed that water utilization efficiency were 0.70, 0.82 and 0.85 for Sakha 102 variety and 0.51, 0.60 and 0.62 for Giza 176 variety at M1, M2 and M3, respectively.

From the obtained results of the experiment, it could be established the superiority of variety Sakha 102 in growth, yield and nutrients uptake over the variety Giza 176 under the identical conditions.

**Keywords:** Water utilization efficiency, Grains, Soil Moisture, Fertilizer, Variety.