

**Eight Article** (Considered Single - Shared with others outside the specialization – Published in International Journal).

<p><b>Raised beds modulate physiological responses, yield and water use efficiency of wheat (<i>Triticum aestivum</i> L) under deficit irrigation. (2020).</b>  <b>Agricultural Water Management: <a href="https://doi.org/10.1016/j.agwat.2020.106629">https://doi.org/10.1016/j.agwat.2020.106629</a></b></p>		
<p>Mohamed O.A. Rady <sup>a,*</sup>, Wael M. Semida <sup>b</sup>, Saad.M. Howladar <sup>c</sup>, Taia A. Abd El-Mageed <sup>d</sup></p> <p><sup>a</sup> Agronomy Department, Faculty of Agriculture, Fayoum University, 63514 Fayoum, Egypt</p> <p><sup>b</sup> Horticulture Department, Faculty of Agriculture, Fayoum University, Fayoum, Egypt</p> <p><sup>c</sup> University of Jeddah, College of Science, Department of Biology, Jeddah, Saudi Arabia</p>		
Article status	Considered Single - Shared with another outside the specialization – Published in International	Impact Factor: 4.021
<p style="text-align: center;"><b>Abstract</b></p> <p>Irrigation water scarcity has now become one of the main constraints that influence global crop production. The potential reduction in Egypt's Nile share and the current degree of deterioration of surface and ground water will certainly increase the severity of the water shortage problem in Egypt. Raised bed planting systems under deficit irrigation could be a partial solution to compensate for the negative effect of water stress on wheat plants. Two field experiments were managed successively in 2016/17 and 2017/18 to study the influence of irrigation water levels at 100% (DI<sub>0</sub>), 80% (DI<sub>20</sub>), and 60% (DI<sub>40</sub>) crop evapotranspiration (ET<sub>c</sub>) and three different plantation systems (flat planting (PS<sub>1</sub>), 60 cm raised beds (PS<sub>2</sub>), and 120 cm raised beds (PS<sub>3</sub>) on growth, photosynthetic efficiency, yield, and irrigation crop water productivity (I-WP) of wheat plants. The results revealed that yield reduction caused by deficit irrigation can be remunerated by the raised-bed planting method. When averaged over both seasons, the highest grain and straw yield of wheat plants was recorded under PS<sub>2</sub> and PS<sub>3</sub> compared with PS<sub>1</sub>, while there were no significant differences between PS<sub>2</sub> and PS<sub>3</sub>. Raised beds (PS<sub>2</sub> and PS<sub>3</sub>) combined with DI<sub>0</sub> followed by DI<sub>20</sub> significantly increased growth characteristics, leaf chlorophyll contents and their efficiency, stomatal conductance, yield and its components compared with PS<sub>1</sub> combined with DI<sub>40</sub>. The highest value of I-WP (1.61 and 1.54 kg m<sup>-3</sup>) was obtained under DI<sub>20</sub> combined with PS<sub>2</sub> and PS<sub>3</sub>, respectively. Therefore, under both land- and water-limiting conditions, such as in the current Egyptian situation, raised beds could be considered a potential planting technique for improving the growth and</p>		

productivity of wheat under deficit irrigation ( $DI_{20}$ ) by conserving 20% ( $1050 \text{ m}^3 \text{ ha}^{-1}$ ) of the water needed for wheat production.