



## Effect of Different Nitrogen Fertilizer Levels, and Wheat Cultivars on Yield and its Components under Sprinkler Irrigation System Management in Sandy Soil

Mansour, H. A.<sup>1\*</sup>, Sabreen Kh. Pibars<sup>1</sup>, M.S. Gaballah<sup>1</sup>, and Kassem A. S. Mohammed<sup>2</sup>

<sup>1</sup>Water Relation and Field Irrigation Dept., National Research Centre, 33 El-Behouth St., El-Dokki, Cairo, Egypt. (\*Corresponding author)

<sup>2</sup>Plant Nutrition Dept., National Research Centre, 33 El-Behouth St., El-Dokki, Cairo, Egypt.

**Abstract:** The current research work was conducted at the Research and Production Station of National Research Center, El-Noubaria, El-Buhaira Governorate, during the two successive seasons under sprinkler irrigation system to study the response of four wheat varieties: Misr 1, Misr 2, and Sids 12 cultivars, two riser height sprinklers 1.00 and 0.75 m and different nitrogen fertilizer levels (75, 100, 125 kg/fed) on yield, yield components and water productivity with sandy soil conditions. It aimed to evaluate the effect of different nitrogen fertilizer levels and different varieties on yield, yield components of wheat as a flour source for human nutrition. The experiment design was factorial in complete randomized blocks with three replications. The results could be summarized as follows: according to the main effects under study, means values of data obtained could be ranked in the following ascending orders 75 < 100 < 125, 0.75 < 1.0 and Sids 12 < Misr 2 < Misr 1. Regarding sprinkler riser height, the increase percent by using 1.00 m were (2.7; 3.3) relative to 0.75 m in 1<sup>st</sup> and 2<sup>nd</sup> season. For Nitrogen levels, the increase percent under 125 kg/fed level were (2.3; 5.3) relative to 75 kg/fed level in 1<sup>st</sup> and 2<sup>nd</sup> season. According Egyptian wheat varieties, the increase percent with Misr 1 were (14.5; 16.3) relative to Sids 12 variety in 1<sup>st</sup> and 2<sup>nd</sup> season, respectively. All obtained data had significant differences at 5 % level exception little cases. It could be concluded that: although 125 kg N/fed treatment gave the highest values, using 100 or 75 kg N/fed with a variety of Misr 1 and Misr 2 for best water productivity, grain yield production and its component's purpose, while for better flour we can recommend that using nitrogen level 120 kg N/fed, sprinkler riser height 1.00 m and variety of Misr 1.

**Key words:** Sprinkler irrigation, Nitrogen, Egypt, Wheat varieties, Yield, Water, Sandy soil.