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Relationship between dry matter in different wheat plant parts and grain yield under water stress conditions

BY

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Abstract

Two field experiments were conducted at El-Gemmeiza Agric. Res. Station, ARC during 2015/16 and 2016/17 seasons to study the response of four tested wheat cultivars (Gemmeiza 12, Misr 1, Giza 168 and Sids 13) under four irrigation treatments (normal irrigation as control, withholding irrigation at tillering stage, withholding irrigation at heading stage and withholding irrigation at grain filling stage) in relation to vegetative and physiological growth traits, water relation traits, and yield and yield components.

The obtained results could be summarized as follows. Receiving wheat plants under normal irrigation, followed by withholding irrigation at grain filling stage resulted in increasing vegetative and physiological growth traits, water relation traits, yield and yield components in both seasons of this study. Withholding irrigation at tillering stage gave the lowest values of all the studied traits in both seasons.

Results detected significant varietal differences among the four tested wheat cultivars, whereas wheat Gemmeiza 12 cultivar surpassed significantly the other three tested wheat cultivars (Misr 1, Giza 168 and Sids 12) for all the studied

traits in both seasons. Meanwhile, Sids 13 cultivar gave the lowest values of all the studied traits in both seasons.

It is concluded that, Gemmeiza 12 cultivar with receiving its plants with full water irrigation resulted in increases growth analysis and growth attributes, saving water irrigation as well as increase yield and yield components of wheat crop for the abovementioned cultivar under such conditions.