



Applications of magnetic technology in agriculture, a novel tool for improving water use efficiency and crop productivity: 2. wheat

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Abstract: Today, produce more food from less water is considered the main target for agriculture scientist, particularly in arid and semi-arid regions like Egypt which suffer from water scarcity. So, they tested common and un-common factors i.e., magnetic water treatment. Utilization of magnetic water technology is considered as a promising technique to improve water use efficiency and crop productivity. Two field trials using wheat (var. Sakha-93) were conducted at Research and Production Station, National Research Centre, Alemam Malek Village, Al Nubaria district, Al Behaira Governorate, Egypt (newly reclaimed sandy soil arid or semi- arid region) in 2011/12 and 2012/13 winter seasons to study and evaluate the effects of magnetizing irrigation water on growth, chemical constituent and wheat yield and its components. Control treatment was irrigated with normal water, while the other treatment (magnetized water) was irrigated with water after magnetization through a two inch Magnetron [A-200-DSM, 2 inch, Magnetic Technologies LLC PO Box 27559, Dubai, UAE].The results showed significant positive effects of magnetic treatment of water on some morphological criteria, some biochemical parameters and grain yield quantity and quality of wheat plant. In general, all growth parameters increased by magnetized water treatment (plant height, tiller fresh & dry weight and water contents) and concomitantly with an increase in the levels of photosynthetic pigments, yield components and nutritional values (N, P, Ca, Mg, Fe) and total amino acids and essential amino acids of the yielded grains. Moreover, Water-Use Efficiency (WUE) increased as a result of irrigation by 13 % compared to control treatment. Thus, the present results have shown that irrigation with MTW can be considered as one of the most valuable modern technologies that can assist in saving irrigation water.

Keywords: Magnetic water, Wheat, Growth, Yield, Quality, Water Use Efficiency, Sandy soil.