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Application of Magnetic Water Technology in Agriculture: Do Laid to a Second Green Revelation?

MAHMOUD HOZAYN

Natioanl Resaerch Centre, Field Crops Research Dept., Agricultural and Biological Research Divi.,, Egypt

Abstract

Despite widespread of applications magnetic technologies in many fields (Industry, Medicine, Environment, etc. However, its applications in agricultural filed, meet with skepticism by the public and even specialist researchers. In this article, we will summarise the results of many published and unpublished experiments highlighting the role of magnetic technology applications for improving germination, growth, metabolism plant processes, which is reflected in increasing productivity of tested crops, whether under normal or salinity stress conditions.

During 2010-present, Many field trials using some field crops i.e., braly, wheat, Zea maze, sorghum, faba bean, chick-pea, lentil, mung bean, sunflower, canola, flax, sugar beet, Egyptian clover, alfalfa, onion and potato were conducted under normal and salinity stress (soil and/or irrigation water) conditions in three locations in Egypt. The experimental sites are Research Station of National Research Centre in Nubaria region (it have a sandy soil, pH soil (8.22), EC Soil (0.22 ds m^{-1}), pH Irrigation water (7.25) and EC Irrigation water (0.51 ds m^{-1})), Agricultural Research Station of Desert Research Centre in Ras Sider region (it have a sandy loam soil, pH soil (7.66), EC Soil (8.65 ds m^{-1}), pH Irrigation water (8.60) and EC Irrigation water (9.68 ds m^{-1})) and Research Station of Osma green Company in Ismailia region (it have a sandy loam soil, pH soil (8.52), EC Soil (1.60 ds m^{-1}), pH Irrigation water (7.89) and EC Irrigation water (11.72 ds m^{-1})).

The results showed a significant positive effect of magnetic treatment (ether for seeds and/or water) on all studied parameters (i.e., germination, growth, yield and yield components, yielded seeds quality. The percent of increases in economic yield (ton ha^{-1}) in response to sowing with primo-magnetic seeds and irrigation with magnetized water application ranged from 8.25 to 80 % according to tested crops as compared with control. As well as water use efficiency was improved at all crops.

Regarding the above acceded results and indisputable we are expected wider implementation in the agricultural production especially under salinity stress conditions.

Keywords: Field crops, magnetic water, primo-magnetic, salinity stress, WUE