

Modification of the Greened House Rye Grass Macro- and Micro Nutrients Uptake using Magnetically Treated Water

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Abstract

Two surface soils were selected (one saline and the other non-saline soil); in each soil five treatments of irrigation water were applied, of which the treatment with tap water served as the control, and a magnetic field was created by clamping a static magnet of 1.2 Tesla (12000 Gauss) outside the irrigation pipe. Each treatment was replicated 4 times. Analyses were performed on the different parameters, and results showed that, relative to the control, there was an increase of 105.7% in the biomass yield only in the stage of plant stress, an increase in the uptake of N and P (79.5% and 141.1%, respectively), and an increase in the uptake of Zn, Cu and B (101.8%, 87.7% and 83.6%, respectively) by the use of the magnetic treatment. As for the total biomass and the total uptake of nutrients, no effect was noticed by the use of the magnetic treatment except for the total uptake of P (an increase of 70.3%). When using high salinity irrigation water with 2000 mg/L NaCl, the only effect observed with the use of the magnetic treatment was on the uptake of N in the second cut (increase of 45.6 %). Soil properties were also examined and results showed that with the use of the magnetic treatment there was a decrease of 13% in soil EC and a decrease in soil-available Cu and Fe (15.8% and 45.2%, respectively).

Keywords: Biomass Yield; Magnetically Treated Water; Nutrient Uptake; Rye Grass.