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IRRIGATION INTERVALS BY IMPERICAL EQUATIONS USING LYSIMETERS

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ABSTRACT

A lysimeters experiment was designed to study how to manage irrigation scheduling using different empirical equations compared to traditional irrigation method. Design of experiment was random block with three replicates. The experiment was repeated in two successive seasons 2016 and 2017 as well as 2017/2018 for Maize and sugar beet crops. Four irrigation treatments were used as T₁ for traditional, T₂ by Belany - Criddle equation, T₃ by Radiation equation and T₄ by penman equation. All irrigation treatments were inserted by 70% of soil water depletion. The results showed that T₃ had the highest values of water productivity (0.89 kg/m³) and productivity of irrigation (0.63 kg/m³) as an overall average of the two seasons. Data revealed also that T₁ had the highest overall mean values applied water and water consumptive use (3862.47 m³/fed & 2826.02 m³/fed). The results indicated that the highest values for grain yield was recorded by irrigation treatment T₃ with values of 2013.90 and 1925.53 kg/fed for maize crop, while sugar beet crop the results showed that T₃ had the highest values of water productivity (14.1 kg/m³) and productivity of irrigation (9.60 kg/m³) as an overall average of the two seasons. Data revealed also that T₁ had the highest overall mean values applied water and water consumptive use (2678.38 m³/fed & 1822.99 m³/fed). The results indicated that the highest values for root yield was recorded by irrigation treatment T₃ with values (25.17 and 24.81 ton/fed)