

## **Crop Water Productivity for Sunflower under Different Irrigation Regimes and Plant Spacing, at Gezira Clay Soil, Sudan**

**Authors :** R. A. Eman Elsheikh, Bart Schultz, Abraham Mehari Haile, Hussein S. Adam

**Abstract :** A field experiment was conducted at Gezira research station farm during the winter season in the third week of November 2012, in WadMedani, Sudan (Lat 14.23 W, Long 33.39 E and altitude 405 m above sea level, in deep cracking alkaline heavy clay Vertisols). The objective of this study was to determine the effect of three different irrigation for 10 days (W1), 15 days (W2) and 20 days (W3) and for two rows of 30 cm (S1) and 40 cm (S2), respectively. The experimental design was split plot with three replicates. The sunflower test variety was Hysun 33 cultivar. The seasonal water applied during the study was 6898, 6647, 5256, 5435, 5214, 5416 m<sup>3</sup>/ha for W1S1, W1S2, W2S1, W2S2, W3S1 and W3S2 respectively. The seed yield obtained for the above treatment in that sequence was 4208, 5542, 5167, 4579, 2931, 2936 kg/ha. The corresponding computed water productivity was 0.61, 0.82, 0.87, 0.95, 0.54, 0.56 kg/m<sup>3</sup>. The study clearly indicated that the highest seed yield was obtained when the crop was sown at 40 cm row spacing and was irrigated every 10 days (W1S2), followed by W2S1.

**Keywords :** water productivity, water deficit, sunflower, plant spacing

**Conference Title :** ICASTE 2014 : International Conference on Agricultural Science, Technology and Engineering

**Conference Location :** Istanbul, Türkiye

**Conference Dates :** April 22-23, 2014