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Effect of Water Intervals and Organic Fertilisation on Yield and Quality of the Muskmelon cultivar ‘Galia’

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Abstract

Muskmelon (*Cucumis melo* L.) a new export crop in Sudan, is expected to play a significant role in agriculture and farmers’ income. As Gezira soils are poor in organic matter (< 1 %) and have - as Vertisols - physical limitations, an experiment was conducted to test the effect of water intervals and organic fertilisation on quantity and quality of muskmelon. It was a split-plot design with 2 water regimes (irrigation all 7 or 14 days) occupying the main plots while organic fertilisation as farm yard manure (FYM) in 4 levels was assigned to the sub plots. Nitrogen as urea and phosphorus as TSP were added. The total yield represented by exportable yield, locally marketable yield and total yield was recorded. Quality tests represented by physical and chemical characteristics such as total soluble solids (T.S.S.) were determined.

The results showed that exportable, locally marketable and total yield were significantly affected by irrigation. The highest yields were obtained by 7 days watering. Application of FYM affected significantly the exportable, locally marketable and total yield with the highest values at 5.0, 7.5 and 7.5 t ha⁻¹ of applied manure, respectively. The increase in the exportable yield was highest compared to others, and was 29 % higher than the control. The exportable yield was significantly affected by interaction effects of manure and irrigation. The highest exportable yield of 1.2 t ha⁻¹ was recorded at 7 days irrigation intervals with combination of 5.0 t ha⁻¹ of manure. The quality test revealed by T.S.S. showed that the highest level was attained at 7.5 t ha⁻¹ of applied FYM and 14-days watering.

It can be concluded that frequent irrigation and organic fertilisation are highly needed and recommended for high yield production of muskmelon on Gezira Vertisols.

Keywords: Irrigation, muskmelon, organic fertiliser, Sudan, Vertisols