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Effect of water stress at different periods on seed yield and water use efficiency of guar under Shambat conditions

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ABSTRACT

Water stress effects on seed yield and water use efficiency of three indeterminate guar (*Cyamopsis tetragonoloba* L. Taub.) lines (L₁₂, L₁₈ and L₃₃) were investigated in the experimental farm of the Faculty of Agriculture, University of Khartoum for two seasons (2005 and 2006). The guar lines were subjected to water stress induced by withholding irrigation for three weeks. Three water stress treatments were imposed 35, 50 and 65 days after sowing (DAS), and a control treatment irrigated every two weeks. The treatments were arranged in a split-plot design with three replications; with water regime treatments assigned to the main plots and guar lines to the subplots. Data were recorded on seed yield (t.ha⁻¹), number of pods per plant, 1000- seed weight (g), harvest index (HI) and water use efficiency at harvest. The results indicated that exposure of several cultivars of guar to water stress at the three stages of growth didn't induce any significant effect on number of pods per plant, 1000-seed weight, seed yield and water use efficiency (WUE). On the other hand there was significant reduction in harvest index as a result of imposition of water stress at 35 and 50 DAS. It was also evident that plants re-watered after the stress recovered and had the same values as the control treatment.

KEYWORDS

Guar; Water Stress; Water Use Efficiency; Harvest Index

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