Performance evaluation of Okra (Abelmoschus esculentus) under drip irrigation system

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Abstract

The aim of the study was to evaluate the yield response of okra under drip irrigation system by measuring the growth, root growth, yield and water use efficiency in red yellow latosol soil. The drip system performance and irrigation scheduling parameters were tested. Three irrigation treatments, different in irrigation duration of 15, 30 min on daily basis and basin irrigation with three days irrigation interval as control were applied with randomized complete block design and with six replicates. The growth performance parameters such as plant height, number of leaves, flowering index, yield, weed count, water use efficiency and root measurements were made. The results revealed that plant height, flowering index, yield, weed population, water use efficiency, root length and fresh weight were significantly recorded in drip irrigation than the plants under basin irrigation. There was a significant yield different between the plant under drip system and control but there were no any significant different in yield between treatments 15 and 30 min irrigation. The yield obtained for the duration of 15 and 30 min and basin irrigation was 1516,1514 and 1084 kg/1000 m2, respectively. The maximum water use efficiency of okra for 15 min drip irrigation duration was 705.2 kg/ha/cm. The water saving was 60% by adopting drip irrigation compared to control. Therefore, drip irrigation system with 15 min daily irrigation with the discharge rate of 3.25 Lh^{-1} for okra could be introduced with the intention of increasing the yield of the crop with saving groundwater resource.

Author keywords

Drip irrigation; Growth performance; Okra; Water use efficiency; Weed control; Yield response

Indexed keywords

Species Index: Abelmoschus; Abelmoschus esculentus