

Study on Physiological Growth indices for Drought Tolerance in Chickpea Varieties Preceded by Korra Cropping Sequence under Rainfed Conditions

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ABSTRACT

A field trial was conducted for two years at Agricultural Research Station farm, Darsi to assess the physiological growth indices for drought tolerance in chickpea varieties preceded by Korra cropping sequence under rainfed conditions of Prakasam district of Andhra Pradesh during 2018-19 and 2019-20. On the scrutiny of the data it was noticed that there was significant difference among treatments for soil moisture content, 50% flowering, TDM, CGR, SCMR, yield and yield components but no significant difference was observed in plant height and number of branches per plant in chickpea. The reduction in soil moisture was more compared to the cropping sequence of korra-chickpea. It might be due to absorption of moisture by korra from deeper layers of the soil. In the present study, all the chickpea entries recorded lower relative leaf water content (RLWC) at 70 DAS (pod development stage) as compared to 50 DAS (pod formation stage). The chickpea variety KAK-2 is found promising in maintaining higher RWC (68.8) at pod formation stage. The physiological indices, Crop Growth Rate (CGR) and SPAD chlorophyll meter reading (SCMR) recorded more at pod development stage when compared to that of flowering stage indicating the tolerance to drought at pod development stage. Though sole crop of chickpea recorded higher seed yield (927.5 kg/ha) in the cropping sequence of korra-chickpea, less reduction in soil moisture content and higher RWC in leaves of chickpea indicating its ability to withstand drought, which is beneficial to the dryland farmer. Among the sub treatments KAK-2 recorded highest seed yield (942.7 kg/ha) followed by NBeG 119 (903.8 kg/ha) with higher physiological indices.

Keywords: *Chickpea (Cicer arietinum L.), Physiological indices, Drought tolerance, Korra-Chickpea Cropping system*