

Evaluation of the Effect of Drought on Germination, Growth, and Fruit Yield of Okra (*Abelmoschus esculentus*)

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Abstract

This research was carried out to evaluate the effect of drought on germination, growth, and fruit yield of okra in laboratory and field. Laboratory experiment was conducted as a two-factor factorial in agricultural laboratory of Khuzestan Payame Noor University based on completely randomized design in three replications. The first factor was seed priming (including control and seed priming with water and KNO₃) and the second factor was drought stress (matric potentials of -0.3, -0.6, -0.9 and -1.2 MPa). Results indicated that the highest germination percentage was observed under no-stress and hydro priming conditions. Seed germination was decreased with increase in stress, where in control treatment i.e. without hydro priming, increasing drought stress from the first to third level resulted in 72.3 percent reduction in germination percentage. Hydro priming improved seed germination under drought stress and no-stress conditions. The field experiment was carried out during 2015-16 growing season based on RCBD in three replications. The irrigation intervals treatment was based on 70, 100, 130 and 160 mm evaporation from pan. Increasing irrigation intervals reduced dry matter accumulation, leaf area index, plant height, fruit number per plant, and biological and fruit yield of okra. Increasing irrigation interval from the first level to the second, third, and fourth levels decreased fruit yield up to 9%, 26%, and 31 percent, respectively. Therefore, for optimum yield, okra should experience no drought stress during growth and fruit formation. Thus, irrigation after 70 mm evaporation from evaporation pan can be advisable as an irrigation interval for okra. However, since fruit yield reduction in the second level of irrigation interval was not considerable and considering economic issues, it may be possible to suggest this irrigation interval, but it requires more research work.

Keywords: Dry matter accumulation, Evaporation pan, Limited irrigation, Seed priming, Irrigation interval.

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