RESPONSE OF CANOLA TO WATER STRESS AND POTASSIUM FERTILIZATION UNDER SEMI-ARID REGION CONDITIONS

By

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ABSTRACT

In order to investigate the effect of water stress by holding irrigation numbers and potassium fertilizer rates on seeds and oil yield of canola ***(Brassica napus* cv. Serw4)**, a field experiment was conducted at North Sinai Governorate in 2010 and 2011 winter seasons. The experimental was evaluated at split-plot with four water stress levels (irrigation every: I1=5, I2=7, I3=9, I_4=11 days) and four potassium fertilizer rates (K_1=30, K_2= 40, K_3= 50, K_4=60 kg K_2O fed.$^{-1}$). Results indicated that water stress exerted a significant impact on yield parameters of canola plants. Irrigation canola plants every 5 days gave the highest mean values of plant height, number of racemes and leaves per plant but 7-day treatment gave the maximum number of days to the 50% flowering, racemes/plant, siliqua/plant, yield/plant and weight of 1000-seed as well as seed yield. The highest seed oil content was obtained when canola plants exposed to water stress (I_4). Most of yield components and seed yield were enhanced with potassium fertilizer application up to 60 kg K_2O/fed. The highest seed oil content and lowest seed protein content were obtained when canola plants were fertilized with K_4 treatment.

Concerning to this investigation, maximizing canola seed yield under semi-arid region conditions can be obtained by irrigating canola plants every 5 days, but maximum oil yield can be achieved with irrigation every 7 days for saving irrigation water and wit potassium fertilizer rate of 60 kg K_2O fed^{-1}.

Keywords: Canola, Srew4 cv., water stress, potassium fertilization, seed and oil yield, days to 50% flowering, racemes/plant, siliqua/plant.