

Alternate Furrow Irrigation and Potassium Fertilizer on Seed Yield, Water Use Efficiency and Fatty Acids of Rapeseed

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Abstract : In order to study the effect of restricted irrigation systems and different potassium fertilizer on water use efficiency and yield of rapeseed (*Brassica napus* L.), an experiment was conducted in an arid area in Khuzestan, Iran in 2013. The main plots consisted of three irrigation methods: FI (full irrigation), alternate furrow irrigation (AFI) and fixed furrow irrigation (FFI). Each subplot received three rates of K fertiliser application: 0, 150 or 300 kg ha⁻¹. The results showed that the plots receiving the full irrigation resulted in significantly higher grain yields, 1000-kernel weight and grain number per pod than both alternate treatments. However, the highest WUE were obtained in alternate furrow irrigation and 300 kg K ha⁻¹ and the lowest one was found in the FI treatment and 0 kg K ha⁻¹. Potassium application increased RWC in alternate furrow irrigation and fixed furrow irrigation than FI treatment. Maximum oil content was observed in those treatments where full irrigation was applied while minimum oil content was produced in FFI irrigated treatments. Potassium fertilizer also increased grain oil by 15 % than control. Deficit irrigation reduced oleic acid and erucic acid. However, oleic acid and linoleic acid increased with increasing of potassium.

Keywords : erucic acid, irrigation methods, linoleic acid, oil percent, oleic acid

Conference Title : ICAEE 2015 : International Conference on Agricultural and Environmental Engineering

Conference Location : Penang, Malaysia

Conference Dates : December 03-04, 2015