Abstract

Creating diversity through the use of multi-ship systems is considered as one of the solutions to increasing the stability and fertility of agricultural production systems and reducing pollution of water and soil. This study was carried out aimed to investigate the effect of irrigation interval on the quantitative and qualitative yield of barley and rapeseed in row and replacement intercropping at agricultural research institute in Zabol University located in Zahak city as split plot in a randomized complete block design with three replications. The studied factors included three levels of irrigation interval (5, 10 and 15 days) was considered as the main factor and five planting pattern (100% pure culture on barley), (100% pure culture on rapeseed), (barley and rapeseed mixture: 50% barley + 50 % rapeseed), (mixture of barley and rapeseed: 25% barley + 75% rapeseed) and (mixture of barley and rapeseed: 75% barley + 25% rapeseed) were considered as a subfactor. In this experiment, seed of barley and rapeseed were simultaneously cultured with respect to the desired mixing ratios. Features reviewed such as plant height, number of grains per spike, 100 seed weight, biological yield, economic performance, harvest index, photosynthetic pigment (chlorophylls a, b and carotenoid), proline content and percentage of Indices such as height, number of pods, number of seeds per pod, 100 seed weight, biological yield, economic performance, harvest index, photosynthetic index (chlorophylls a, b and carotenoids) , Proline content, oil percentage and protein percentage were measured in pure culture and mixture and also Land Equivalent Ratio. According to the results, in rapeseed, features such as economic and biological yield, number of pods, number of seeds in pods and chlorophylls b, a were influenced by culturing type and diurnal irrigation. The highest plant height for rapeseed was obtained in pure crop and 5 days irrigation interval. In barley chlorophylls b, am and culturing type were significant and culturing and irrigation type had a significant impact on economic performance, proline percentage and carotenoids percentage. The highest plant height was obtained in 5 days irrigation interval .

Key Words: Drought, Multiplexes, Oil Seeds, Cereals, Land Equivalent Ratio.

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Gradeute School

Faculty of Agriculture

Department of Agronomy

The thesis Submitted for the Degree of Master of Agriculture

Effect of interval irrigation on quantative and qualitative properties of rapeseed (*Brassica napus*) and barly (*Hordeum vulgare*) row intercropping

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2018