THE EFFICACY OF DIFFERENT IRRIGATION LEVELS ON THE YIELDS OF SOME SUMMER CROPS UNDER INTERCROPPING SYSTEMS

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Abstract

Field studies were performed between 2014 and 2019 on clay soil in a farmer's field in Al - Yadudeh area south of Amman - Jordan, to investigate the efficacy of different irrigation levels (0.40, 0.60 and 0.80 of field capacity) on the yields of bean, squash and okra as they are grown under sole cropping and intercropping systems, using 1:2 and 2:1 row arrangements. Results showed that the highest significant yields of bean (10.20 ton ha^{-1}) and squash (37.05 ton ha^{-1}) were obtained when minimum soil moisture level was maintained throughout the growing season at 0.60 of field capacity (FC) under 1:2 intercropping row arrangement, while the highest significant yield of okra (13.64 ton ha^{-1}) was registered when it was intercropped with bean in 1:2 row arrangement at minimum soil moisture level of 0.80FC. Additionally, okra intercropped with squash affected each other negatively and obtained the lowest significant yields specially, when they were grown under minimum soil moisture of 0.40 FC in 1:2 and 2:1 row arrangement respectively. Moreover, the highest significant yields of bean, squash and okra, as they are grown under sole cropping were obtained at minimum soil moisture level of 0.80FC, as compared to minimum soil moisture level of 0.40 and 0.60FC. It seems that squash was more beneficial to bean than okra and bean was more beneficial to okra and squash than squash to okra and okra to squash. Regarding the efficiency of intercropping as it was evaluated by land equivalent ratio (LER), the results showed that all the three combinations of intercropping with their row arrangements and under the three soil moisture levels gave LER values more than one, demonstrating the superiority of intercropping than sole cropping.

Key words: intercropping, soil moisture level, summer crop yields, efficiency