Abstract

An experiment was conducted as split-plot in the form of randomized complete block with three replications in the field of agricultural research center of Zabol University (Chah-nimeh) in 2013 in order to evaluate the ecophysiological aspects of Guar and Sunflower intercropping under the different levels of the Nitrogen fertilizer. The main plots included the Nitrogen fertilizer at three levels (0,100 and 150kg/hac) and the subplots had the intercropping ratios of: A (sunflower sole cropping), B (guar sole cropping), C (75% guar + 25% sunflower), D (50% guar+ 50% sunflower) and E (25% guar + 75% sunflower). The intercropping was conducted as replacement series. The results of ANOVA demonstrate that Nitrogen fertilizer's different levels, intercropping ratios and the interactions between them had a significant effect on biological function of the Sunflower and Guar ($p<0.01$). The highest seed function for the Sunflower included 75% Guar+ 25% Sunflower intercropping with the consumption of 100kg/hac and for the Guar included 75% Guar + 25% Sunflower with the consumption of 150kg/hac Nitrogen fertilizer respectively. The intercropping ratios and different levels of Nitrogen fertilizer had a significant effect on leaf chlorophyll of Sunflower and Guar. The maximum and minimum amounts of soil Nitrogen belonged to the Guar and Sunflower sole cropping respectively. Land equivalent ratio (LER) was bigger than 1 which demonstrates the advantage of intercropping in comparison to sole cropping. Intercropping worked more efficiently than the sole cropping regarding the weed control matter.

Keywords : intercropping, guar, sunflower, nitrogen fertilizer, ecophysiologic.

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Evaluation of ecophysiological aspects of Cyamopsis and Sunflower intercropping under different levels of nitrogen fertilizer.

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