

Abstract

To evaluate the intercropping of millet (*Pennisetum Americanum* L.) and peanut (*Arachis hypogea* L.) a field experiment was performed (2012-2013) in Research station (Chah nimeh) of agriculture University of Zabol. Factorial experiment performed in a randomized complete block design with three replications. Planting pattern as the first factor with 4 levels (millet, 50 % millet + 50% peanuts, 100% millet + 100% peanut and peanut), control weeds as the second factor (no weeding, once weeding and twice weeding) and the distance between rows in the two levels (40 cm and 50 cm) were considered. Results showed that in all treatments, mixed land equivalent ratio greater than unity which indicates priority of mixed culture than mono culture of millet and peanut (replacement 18% and additive 65%). The highest land equivalent ratio of was achieved in 100 % millet + 100 % peanut treatment, the millet were obtained more economic performance, competitive and aggressive capability than the peanut by measuring other competitive indicators (A, RCC, CR). In the statistical view the effect of planting system, control weeds and the density of crude protein in two plans grains, nutrient rate of soil, soil temperature, volumetric moisture content and photosynthetic active radiation absorption percent was significant. The mixed treatments had more observed radiation rate and volumetric moisture than mono culture of millets while they had less temperature than mono culture of millets. The means comparison showed that weeding of weeds and increasing of the density cause to increase absorption of light, moisture, the amount of protein in the seeds of two plants, soil nutrient and it reduces soil temperature. The measurements of millet protein showed that the maximum increase of protein mixtures obtained from increased mixed millet (about. twice Compared to the monoculture of millet). In all studied the properties showed that the intercropping had a greater effect on the millet in compare with peanut because of positive effect of Legume on Grass. The results showed that using of legumes in the mixture improve soil nutrients (C, N, Ca, Mg) after harvesting and thus maintaining soil fertility. Generally, this study showed the importance of Intercropping of legumes and grasses which results in optimal use of environmental resources, increasing of soil fertility and more profitability of intercropping than monoculture of millet and peanut.

Keywords: Competitive indexes, Land equivalent ratio (LER), Photosynthetic active radiation, soil temperature.



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**Evaluation of ecological aspects and beneficiary
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peanuts (*Arachis hypoge* L.) intercropping in
additive and replacement series systems**

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