Abstract
To Study of the effect of peanut (*Arachis hypogaea* L.) and millet (*Pennisetum americanum* L.) intercropping on yield, yield components and weed control, an experiment was conducted. Using planting system in four levels as first factor inclusive (sole millet, sole peanut, 50% millet + 50% peanut, 100% millet + 100% peanut) and weeding as second factor in three levels inclusive (non weeding, once weeding, twice weeding) and planting design as third factor in two levels (40 and 50 Cm) at factorial experiment in the form of RCBD with three replications at the Research Farm of Agriculture Center of Zabol University (Iran) in 2012. The results showed that the intercropping system was significant on No. of pod. Plants^{-1}, Biological yield, Economical yield and Harvest index. The effect of Planting design on No. of pod. Plants^{-1}, No. of kernel.pod^{-1}, Economical yield and Harvest index were significant. weeding of grass weeds on No. of pod.plant^{-1}, No. of kernel.pod^{-1}, Biological yield, Economical yield was significant. The highest Economical yield (5/10 t.ha^{-1}) was obtained from sole peanut, twice weeding and planting design of 50 cm. based on these results, system of sowing on plant height, stem diameter, seed of 1000 weight, spike length, seed yield, biological yield and harvest index were significantly millet effect. The effect of weed control on all the above factors other than stem diameter and number of leaves showed no significant effect. The effect of planting design on plant height, stem diameter, seed of 1000 weight, spike length, biological yield and harvest index were significant millet means. The highest Economical yield (261/61 kg.ha^{-1}) was obtained from sole millet, twice weeding and planting design of 40 cm. The results of this experiment showed that the highest LER (1/65) was obtained from 100% millet + 100% peanut that have sign of advantage of intercropping system compared to sole millet and sole peanut.

Keywords: Millet, Peanut, Intercropping, LER.

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Thesis Submitted in Partial Fulfillment of the Requirement for the degree of Master of Science (M. Sc) in Agronomy

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October 2013