

Abstract

Considering the importance of and benefits of intercropping of experimental In order to investigate effect of chemical fertilizers and manure on yield And yield components of cumin mixed cultures and PP-R in split plot in the form of randomized complete block design with three replications in Research Farm, College of Agriculture, Zabol University in 1391-1392 was conducted. Fertilizers as a major factor in the two levels of chemicals And integrating livestock - half chemicals and Density at six level Included pure Cumin, pure Plantago Psyllium, Density of 25 percent, 50 percent, 75 percent and 100 percent of Plantago Psyllium in increase in fixed cultures Cumin were considered. Based on the results of the fertilizer factor in the number of seeds per umbel And number of umbels per plant of cumin and dry weight and And grain yield per unit area of Plantago Psyllium, a significant effect was observed . Density factor in dry weight, number of spike and grain weight per unit area For Plantago Psyllium and number of seeds per umbel, number of umbels per plant and Thousand grain weight , Yield Per unit area, Harvest index and essential oil percentage for Cumin in pure culture showed significant differences .Also, the interaction effect of fertilizer and density on grain yield per unit area and Essential oil and dry matter percentage and harvest index were significant in both plant. Cumin highest yield amounted to 461.43 kg per hectare And PP amounted to 577.56 kg per hectare of pure cultures with chemical fertilizer were obtained. The results showed that the highest land equivalent ratio 1.47 density mixed with 100% PP obtained Indicated the superiority of the mixed culture than in pure culture.

key words; Cumin, Plantago Psyllium, mixed culture, land equivalent ratio



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**Effect of manure and chemical fertilizers on the
qualitative and quantitative characteristics in
intercropping of cumin (*Cuminum cyminum*) and
isabgol (*Plantago ovata*)**

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