

Abstract

In order to investigate the effect of different kinds of green manure on the soil physical characteristics and the yield performance of the sesame (*seamun Indcum L.*), an experiment was performed in the form of randomized complete block design in 2012 at Agricultural and Natural Resource Center of Zahak, located at 25km from Zabol. Experimental treatments were consisted of four plant species including (barely, colza, clover, and turnip) as green manures, and a fallow status. After return periods, the effects of these plants on the sesame were evaluated. The results of variance analysis showed that green manure had a significant effect on some morphological characteristics of the sesame such as plant height and stem diameter. From the yield and yield performance some traits including the number of pods per plant, the number of seeds per pot, grain weight, grain yield, and biological yield; and of phenological traits of the sesame only maturity period were affected by green manures. In this experiment using barely as green manure increased grain yield by 25/6% in comparison with fallow. The highest amount of yield with an average of 637.6kg/ha was gained from barely fertilizer treatment and the least amount of it by the average of 474.1kg/ha obtained from fallow treatment. This treatment and using turnip as green manure were in the same statistical class. The results of this research indicated that green manure treatment had a significant effect with the probability of 1%, on the soil physical characteristics and the sesame dry weight. So that using barely as green manure in comparison with fallow increased soil moisture content and soil surface temperature 35.7% and 11.6%, respectively. At the same time this treatment compared with turnip green manure increased plant dry weight 48.4%. Using colza as green manure in comparison with clover treatment increased plant fresh weight 28.3%. Based on the results on this experiment, barely and colza because of their high biomass and due to increasing nutrients for using the next plant can be introduced as the best green manures among the plants studied in this experiment.

Key words: *Sesame, Green manure, Soil physics, yield*



University of Zabol
Graduate School
Faculty of Agriculture
Department of Agronomy

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Supervisor

Dr. A. Ghanbai

Advisors

Dr. M. R. Asghari Pour

By

Mehrdad Mir

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