**Investigation of some agronomic traits of spinach with application of biological and organic fertilizers**

**Elham Azizi1\*, Sara Bakhshaie2, Ghorban-Ali Asadi3**

*1: Assistant Professor, Department of Agronomy, Payame Noor University, Iran*

*2: PhD. Student, Department of Agronomy, Ferdowsi University of Mashhad, Iran*

*4:* Associate *Professor, Department of Agronomy, Ferdowsi University of Mashhad, Iran*

**Corresponding author: Azizi40760@gmail.com**

**Abstract**

In the production of grain crops and vegetables to achieve higher yield, chemical fertilizers are used. However, in the past decades due to the use of chemical fertilizers, various environmental effects such as water and soil pollution and the health problems in humans and other living things have been created. Sustainable agricultural policy and sustainable development of agriculture caused that organic fertilizers are used instead of chemical fertilizers. In order to investigate some agronomic traits of spinach with application of biological and organic fertilizers, an experiment was conducted as factorial based on randomized complete block design with three replications at the agricultural research station, Ferdowsi University of Mashhad, Iran, during 2013. Treatments were 4 levels of vermicompost (0, 5, 10 and 15 ton.ha-1) and 3 levels of nitroxin (0, 2.5 and 5 lit.ha-1). The results indicated that the different levels of vermicompost and nitroxin affected fresh and dry weight of spinach, significantly. With increasing the amount of vermicompost, fresh and dry weight of spinach showed the upward trend, so that the highest and lowest values of these traits was obtained in 15 and 0 ton.ha-1 vermicompost, respectively. Also, with increasing the amount of vermicompost, dry weight and density of weeds decreased, significantly. By increasing the amount of nitroxin biofertilizer to 5 lit.ha-1, fresh and dry weight of spinach and weed density increased but weed dry weight decreased, significantly. In general, the highest fresh and dry weight of spinach was observed in 15 ton.ha-1 vermicompost and 5 lit.ha-1 nitroxin treatment. Also, the highest and lowest values of both dry weight and density of weeds was obtained in control and treatment of 10 ton. ha-1 vermicompost and lack of nitroxin, respectively.

**Key words:** dry weight, nitroxin, vermicompost, weeds density.