The effects of nitrogen and boron on yield and concentrations of macronutrients in broccoli head in a calcareous soil

F. Rakhsh* and A. Golchin [1]

(Received: November 8-2011 ; Accepted: February 23-2012)

Abstract

Appropriate plant nutrition has a great impact on yield and yield quality of crops. To optimize nutrition of broccoli in calcareous soils, poor in organic matter content, a pot experiment was conducted in greenhouse of Zanjan University in 2010. With respect to nitrogen (N) and boron (B) deficiency in calcareous soils and great impact of these elements on yield and quality of broccoli, the effects of different rates of these elements on head yield and head quality of broccoli were assessed. The experiment was factorial, with completely randomized design, and had 15 treatments and three replications. Treatments were factorial combinations of five rates of N (0, 100, 200, 300 and 400 kg/ha from ammonium sulfate source) and three rates of B (0, 1.7 and 3.5 kg/ha from boric acid source) that were applied to Sakura cultivar of broccoli. The results showed that application of N and B up to a specific rate increased head yield and quality of broccoli. Application of 300 kg N/ha + 1.7 kg B/ha resulted in the highest yield of broccoli head, but higher N and B rates decreased head yield due to enhancement of head rot and plant toxicity. The highest concentration of N, potassium and magnesium in broccoli head was measured in treatment with 400 kg N/ha + 1.7 kg B/ha.

Keywords: Ammonium sulfate, Boric acid, Calcareous Soil, Quality.

1.Dept. of Soil Sci., College of Agric., Zanja Univ., Zanjan, Iran.
*: Corresponding Author, Email: f.rakhsh@ymail.com