Effect of decreasing nitrogen level in nutrient solution on butterhead lettuce growth, yield and leaf nutrient content in floating system

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Abstract

In order to assess reduced nitrogen level impacts on butterhead lettuce (*Lacttuca sativa* L.) growth and yield, an experiment was done from May to August 2015 in research greenhouse of Shahrekord University. The experiment was conducted through randomized completed design with three replications and four treatments. The lettuce plants were grown in floating system using 60, 80, 100 and 120 mg/l nitrogen in nutrient solution. In every plot, ten plants were grown in wooden pool with 100 ×50 ×15 cm dimensions and plants were spaced 20×25 cm apart on polyester sheet. There was no significant difference among treatments in the leaf number, head weight, root fresh weight and leaf elements nitrogen, phosphor, potassium, magnesium and zinc, but significant differences were observed among treatments in leaf and root dry weight percent, stem length and diameter and leaf calcium, iron and manganese concentration. The largest fresh head mass were obtained from 60mg/l nitrogen (326 g/plant), but it had not significant difference with other treatments. The highest leaf and root dry weight percent, stem length and diameter was observed in 100 mg/l nitrogen concentration. Deceasing of nitrogen concentration until 60 ppm, did not reduce the weight of lettuce head.

Keywords: Dry weight, Leaf nitrogen content, Lettuce head weight, Nitrogen fertilizer, Soilless culture.

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