The effect of plant density and shoot pruning on growth and yield of two greenhouse bell pepper cultivars

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Abstract

In order to investigate the effects of plant density and pruning on yield characteristics and growth of two bell pepper cultivars, a 2×3×2 factorial experiment was conducted in a complete randomized block design with three replications and three factors of plant density (2.5, 3 and 3.5 plants per m^2), shoot pruning at two levels (without pruning and training plants with 3 main stems) and two bell pepper cultivars (Tomson and Maratos), in greenhouse of Ferdowsi University of Mashhad, Iran. The results showed that the effect of shoot pruning on yield per m^2, yield per plant, fruit weight, number of fruits per plant and plant weight was significant ($P<0.01$). The effect of cultivar on plant height, shoot diameter and plant weight was significant ($P<0.01$), and also the amount of these parameters for Tomson cultivar was higher than Maratos cultivar. Plant density had a significant effect on total yield, average fruit weight, plant height, shoot diameter and plant weight. Plant density of 3.5 plants per m^2 produced the highest yield (10.80 kg/m^2) and 2.5 plants per m^2 showed the lowest yield (6.95 kg/m^2). Average fruit weight decreased with increasing plant density, such that 2.5 plants per m^2 produced the highest fruit weight (109.8 g). Plant weight and shoot diameter decreased with increasing plant density, while plant height increased with higher plant density. Pruning decreased total yield, yield per plant, plant weight and number of fruits per plant, but it increased fruit weight. The results of this experiment showed that pruning of bell pepper plants caused an increase in fruit weight and improved fruit quality.

Keywords: Shoot pruning, Fruit quality, Tomson, Maratos.

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