

Effect of Cucurbita Rootstocks and Water Deficit on Growth Properties and Yield of Cucumber

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Abstract

Water supply in arid and semiarid regions of the world is a serious problem in crop production. Grafting may enhance water stress resistance and plants growth. In order to evaluate the effect of different cucurbit rootstocks (Flexifort, Shintoza and ungrafted cucumber) and water stress (40, 60, 90% of field capacity) on morphologic traits and yield of greenhouse cucumber (*Cucumis sativus* L. var. Nagen 792), an experiment was conducted as split plots design based on randomized complete blocks with three replications in 2016. Results showed that plant dry weight, leaf and stem fresh weight, number of nodes and root moisture content in Flexifort rootstock as compared to ungrafted plants was increased by 91, 53, 58, 28 and 7%, respectively. Root volume in the Shintoza and Flexifort rootstocks was almost twice as much as the ungrafted plants and its volume decreased with increasing water stress. Plant dry weight, leaf and stem fresh weight, number of nodes, root volume and leaf and root moisture content were decreased significantly with increasing water stress. Maximum leaf area and marketable yield were obtained in Flexifort rootstock irrigated with 90% of field capacity and minimum leaf area and marketable yield were obtained in ungrafted plants irrigated with 40% of field capacity. These results suggest that grafted plants on Flexifort and Shintoza have better growth and yield than ungrafted plants under water stress conditions.

Keywords: Grafting, Water stress, Morphological properties, Greenhouse cucumber.

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