

Effect of increasing densities of purple nutsedge (*Cyperus rotundus* L.) on the yield of cabbage (*Brassica oleracea* var. *capitata*)

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Abstract

The quantification of the negative impact of weed densities on crops is vital in order to design sound management strategies. Purple nutsedge has been reported as a problem weed in cabbage, but a model of weed density/crop yield loss is lacking. Greenhouse experiments were performed twice in the Dominican Republic to determine the effect of purple nutsedge densities on the yield of cabbage. One cabbage transplant and 0, 1, 3, 5, 7, 9 or 11 viable purple nutsedge tubers were planted in plastic containers (4 liter capacity) filled with loamy clay soil. A randomized complete block design with 8 replications was utilized, where one container was a replication. Plants were allowed to interfere until the harvest of cabbage. The variables measured at harvest were purple nutsedge shoot number, height and dry weight, tuber number and dry weight, and cabbage weight and diameter. Analysis of variance and regression were performed on the resulting data. Increasing the number of purple nutsedge plants per cabbage plant resulted in increasing the biomass production of the weed and decreasing the diameter and weight of cabbage heads. A 10% cabbage yield loss was found to occur with 3 purple nutsedge plants per cabbage. Maximum yield loss was 62%, attained at 9-11 purple nutsedge plants per cabbage. A rectangular hyperbola model described the relationship between weed density and crop yield loss. A 50% yield loss was predicted for one cabbage plant surrounded by 6 purple nutsedges.

Key words: interference, yield loss, weed competition, vegetables and weeds.

Palabras clave: interferencia, pérdida de cosecha, competencia de malezas.

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