

Effects of nitrogen fertilization on the competitiveness of *Parthenium hysterophorus* L. with bell pepper (*Capsicum annuum* L.)

REPUBLICA DOMINICANA

Ludger Jean-Simon¹
Jose Pablo Morales-Payan²

Abstract

Bitter weed (*Parthenium hysterophorus*) is a weed difficult to control in vegetable crops, due to its abundance and resilience to a number of chemical herbicides. Nitrogen (N) availability plays a major role in the competitive ability of a number of weeds with vegetables. There is no documented information on the effects of N on the bitter weed/pepper competitive relationship. Container studies were performed in San Cristóbal, Dominican Republic, to determine the influence of N fertilization rates on the competitive ability of bitter weed with 'California Wonder' bell pepper (*Capsicum annuum*). A replacement series of 4:0, 2:2 and 0:4 plants of bitter weed:pepper per container (30 cm in diameter and 30 cm in height) was utilized. The same day, bitter weed was established from seed and pepper from was established from transplants. Plants were allowed to interfere for 50 days. Each replacement series at was replicated four times with N fertilization rates of 0, 50, 150, 200, 250, and 300 kg/ha. For both species, plant height, dry weight and leaf area were determined at harvest. Analysis of variance and regression were performed on the resulting data. Competitive ability was assessed calculating the relative crowding coefficient of the weed at each N rate. Results indicate that up to the N rate of 150 kg/ha, the crop and the weed were equally competitive. However, as N rates increased between 150 and 300 kg/ha, the weed became increasingly more aggressive than the crop. The results of this study indicate that bitter weed is a weed capable of drastically reduce dry matter accumulation in pepper, and that increasing N availability increasing the aggressiveness of the weed.

Key words: nutrients and weed interference, vegetable crops and weed interference, competitive ability

¹ Universidad Nacional Pedro Henriquez Ureña. Santo Domingo, Dominican Republic.

² Post-Doctoral Research Associate. pmorales@mail.ifas.ufl.edu ; josepablomorales@hotmail.com