

AMINOLEVULINIC ACID EFFECTS ON THE YIELD OF WEED-FREE AND PIGWEED-INFESTED SALAD AMARANTH (*AMARANTHUS TRICOLOR*)

J. Pablo Morales-Payan¹ and William M. Stall².

ABSTRACT

Greenhouse and field experiments were conducted to determine the effect of the exogenous biostimulant aminolevulinic acid (ALA) on the biomass accumulation of salad amaranth (*Amaranthus tricolor*) grown weed-free and infested by smooth pigweed (*Amaranthus hybridus*). Salad amaranth density was eight plants/m². Pigweed density was 0 to four plants/m². Pigweed and salad amaranth emerged the same day and grew alongside season-long (40 d). Aqueous solutions of ALA (0, 15, and 30 mg/L) were sprayed on the crop and crop/weed stands 14 d after emergence, mimicking the application of ALA on weed-free and weed-infested salad amaranth. Increasing ALA rates from 0 to 30 mg/L resulted in increased salad amaranth yield in weed-free stands. In pigweed-infested salad amaranth without ALA application, crop yield decreased as weed density increased. ALA application to the pigweed-infested crop favored pigweed, and the crop yield enhancement observed in weed-free salad amaranth was impaired by pigweed interference.

¹Department of Horticulture, University of Puerto Rico-Mayagüez. PO Box 9030. Mayagüez, Puerto Rico 00681-9030.

²Horticultural Sciences Department, University of Florida-Gainesville. Florida 32611.