DINITROANILINE-RESISTANT PALMER AMARANTH IN GEORGIA

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Abstract

Greenhouse evaluations were made of field samples collected from Jefferson, Co., Georgia to determine the presence of resistance to the dinitroaniline herbicide pendimethalin. In addition, seedlings were tested to determine if multiple-resistance to ALS-inhibiting herbicides such as imazapic as well as the EPSP-inhibiting herbicide glyphosate were present. Soil collected from a field reported to have pendimethalin control issues was placed in a 1-cm layer over local soil and treated with five non-zero rates of pendimethalin preemergence. Emergence and visual injury were observed 7 and 14 days after the untreated cups began to germinate. Data were subjected to four-parameter log-logistic regression to calculate ED_{50} for known susceptible Palmer amaranth and from the collected population. The population expressed ten-fold resistance to pendimethalin. In addition, untreated germinated seedlings from the same field were exposed to a discriminatory dose of imazapic (138 g/ha) and glyphosate (4000 g/ha) to examine if multiple-resistance was present in the population. Emerged plants survived exposure to both herbicides indicating this population has multiple resistance to mitotic, ALS, and EPSP-inhibiting herbicides.