SENSITIVITY OF PALMER AMARANTH TO DICAMBA AND GLUFOSINATE

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Abstract

Palmer amaranth (*Amaranthus palmeri*) is one of the most troublesome weeds in cotton in southern U.S. Dicamba and glufosinate alone was observed to provide over 90% of Palmer amaranth control of plants that were less than 4-inch in size. A greenhouse experiment was conducted at Milo J. Shult Agricultural Research & Extension Center, Fayetteville, AR in fall of 2019 to evaluate the response of Palmer amaranth accessions to dicamba and glufosinate. A total of 102 accessions of Palmer amaranth were collected from Arkansas, Illinois, Missouri, Mississippi, and Tennessee. Palmer amaranth seeds were planted into 50-cell trays and a minimum of 100 plants were screened for each accession to dicamba and glufosinate at 0.5x (280 and 297 g ai/ha) and 1x (560 and 594 g ai/ha) rate of both herbicides, respectively. Arkansas had 4 of 4 and 3 of 4 accessions that displayed a higher survival percentage following a 1x rate ranging from 20 to 40% and 18 to 49%, for dicamba and glufosinate, respectively. Missouri had 3 of 9 and 4 of 9 accessions that had greater than 10% survival to dicamba and glufosinate applications at a 1x rate. Mississippi and Tennessee had a fewer percentage of accessions with failure to dicamba and glufosinate, albeit some were present in both states. Dicamba- and glufosinate-resistant Palmer amaranth could already be present in the southern U.S. and should be of growing concern for sustainability of chemical weed control program. Further research is underway with some of the accessions to better understand the sensitivity of each to dicamba and glufosinate relative to a susceptible standard.