PERFORMANCE OF GLUFOSINATE PLUS 2,4-D OR DICAMBA AS INFLUENCED BY CARRIER VOLUME AND NOZZLE SELECTION

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Abstract

Glufosinate, 2,4-D, and dicamba are critical components of two new weed management systems that can effectively control a wide range of problem weeds, including glyphosate resistant Palmer amaranth (*Amaranthus palmeri* S. Wats.). These new systems and associated herbicide labels will require specific nozzle types and carrier volume to reduce off target movement. Herbicide performance can also be greatly influenced by both potential and likely tank-mix combinations. To examine herbicide efficacy of glufosinate, 2,4-D amine, and dicamba applied alone and in tank-mix combinations when using different carrier volumes and nozzle selections, two studies were conducted near Lubbock, TX in 2015. Herbicide treatments were applied at 10, 15, and 20 gallons per acre (GPA) using TTI 11002 nozzles to evaluate carrier volume. To evaluate nozzle selection, three different nozzles at 15 GPA were used. Nozzles were selected based on droplet size: medium = 236-340 microns (TT11002 at 27 psi), very-coarse = 404-502 microns (AIXR 11002 at 27 psi), and ultra-coarse = >665 (TTI 110015 at 37 psi). Herbicide rates included glufosinate at 29 fl oz. /A, dicamba at 16 fl oz. /A, and 2,4-D at 32 fl oz. /A. In the nozzle selection study, glufosinate tank-mixed with 2,4-D or dicamba improved Palmer amaranth control over these herbicides when applied alone. When glufosinate was mixed with 2,4-D or dicamba, Palmer amaranth control using the ultra-coarse nozzle was as effective as current nozzles that produce medium to very coarse droplets. In the carrier volume study, improved Palmer amaranth control was observed with increased carrier volume following glufosinate or 2,4-D alone or glufosinate + 2,4-D. However, carrier volume did not affect control following dicamba alone or glufosinate + dicamba in tank-mix.