

CROP TOLERANCE AND BROADLEAF WEED EFFICACY FOR COMBINATIONS OF THIENCARBAZONE METHYL AND TEMBOTRIONE APPLIED AT THREE CORN GROWTH STAGES. Daniel K. Tiedemann, Bryan G. Young, Ronald F. Krausz, and Joseph L. Matthews, Graduate Research Assistant, Professor, and Researchers, Department of Plant, Soil, and Agricultural Systems, Southern Illinois University, Carbondale, IL 62901.

The use of postemergence herbicide tank-mixtures and optimal herbicide application timings can foster more consistent weed control and contribute to an improvement in deterring the evolution of herbicide-resistant weed species. The premix of thiencazone-methyl (TCM) and tembotrione can be used for postemergence weed control in corn but may benefit from additional tank-mixed herbicides for the reasons cited previously. Therefore, a field study was conducted to determine the contribution of combining TCM:tembotrione with other tank-mixed herbicides and the effect of different application timings on corn response and weed control.

A field experiment was conducted at a total of three sites in 2008 and 2009 as an incomplete factorial of herbicide treatment and application timing (early-, mid-, and late-postemergence) arranged in randomized complete block with three replications. The herbicide treatments for the early postemergence (EPOST) timing were the premix of TCM:tembotrione (15:75 g ai/ha) alone and tank-mixed with atrazine (560 g ai/ha), glyphosate (860 g ae/ha), and glufosinate (450 g ai/ha) were compared with two rates of the premix TCM:isoxaflutole (20:50 g ai/ha) and (37:90 g ai/ha), and the premix of glyphosate:s-metolachlor:mesotrione (1,050 g ae/ha:1,050 g ai/ha:105 g ai/ha). At the mid-postemergence (MPOST) timing the premix of TCM:isoxaflutole was excluded due to label restrictions and likewise for atrazine at the late-postemergence (LPOST) timing. The EPOST, MPOST, and LPOST applications corresponded with targeted corn growth stages of V2, V4, and V6, respectively.

Corn response, primarily in the form of shortened corn internodes, was 5% or less at 7 days after treatment (DAT) for any treatment with no evidence of corn injury at 14 DAT. Near complete control of common waterhemp was observed for all herbicide combinations and application timings with the exception of the LPOST timing for TCM:tembotrione and glyphosate:s-metolachlor:mesotrione at one out of the three sites. The reduction in common waterhemp control for these treatments is attributed to weed heights that exceeded the herbicide limitations. The addition of glyphosate and glufosinate to TCM:tembotrione prevented any reduction in common waterhemp control at the LPOST timing. Similar to common waterhemp, control of annual morningglory was reduced when the application of TCM:tembotrione and glyphosate:s-metolachlor:mesotrione was delayed to the LPOST timing. However, only the addition of glufosinate, not glyphosate, to TCM:tembotrione increased control of annual morningglory at LPOST to the level observed for the earlier application timings. Control of giant ragweed was variable for the herbicide treatments over all three sites, but control was 82% or greater for any combination that included TCM:tembotrione and 90% or greater for the premix of TCM:isoxaflutole.