GRASS EFFICACY WITH THIENCARBAZONE METHYL AND COMBINATIONS WITH TEMBOTRIONE AS INFLUENCED BY APPLICATION TIMING. 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.

Thiencarbazone-methyl (TCM) is an ALS-inhibiting herbicide for foliar and residual control of grasses and broadleaf weeds in corn. Currently, TCM is sold commercially exclusively as a premix with other herbicide active ingredients and is not available alone. However, a basic understanding of the efficacy that TCM provides in these herbicide combinations would be beneficial in efforts to optimize foliar adjuvant systems or as a foundation for building best management practices for deterring the development of herbicide-resistant weeds. Therefore, field experiments were conducted in field corn in 2008 and 2009 to: 1) assess the grass efficacy from TCM and tembotrione independently and as a formulated premix of TCM:tembotrione and 2) compare TCM with competitive standards for postemergence grass control including topramezone, nicosulfuron, and glyphosate.

The field experiment was a factorial of herbicide treatment (6) and application timing (3) arranged in randomized complete block with three replications. The herbicide treatments were TCM (15 g ai/ha), tembotrione (75 g ai/ha), the premix of TCM:tembotrione (15:75 g/ha), topramezone (17 g ai/ha), nicosulfuron (35 g ai/ha), and glyphosate (860 g ae/ha) applied at an early postemergence (EPOST), mid-postemergence (MPOST), and a late postemergence (LPOST) timing. The height of grass weeds ranged from 0 to 7.5, 8 to 15, and 16 to 22.5 cm for the EPOST, MPOST, and LPOST application timings, respectively.

All treatments containing TCM resulted in an initial corn response of 5 to 13% in the form of shortened internodes at 7 days after treatment (DAT). Corn injury dissipated and was no longer visible by 14 DAT. Control of fall panicum and giant foxtail at 28 DAT ranged from 88 to 98% for the EPOST and MPOST applications of TCM, TCM:tembotrione, nicosulfuron, topramezone, and glyphosate with no difference in control between the timings. Delaying the application of these herbicides to the LPOST timing reduced control of fall panicum and giant foxtail by up to 43 and 32%, respectively, with the least reduction in control observed for glyphosate. Fall panicum control was 30% or less for any application timing of tembotrione alone. Furthermore, the addition of tembotrione to TCM did not enhance control of fall panicum for in any instance. Control of giant foxtail with tembotrione alone was equivalent to TCM applied alone at the EPOST and MPOST timing. However, giant foxtail control with tembotrione applied alone at the LPOST timing was greater than either TCM applied alone or the premix of TCM:tembotrione.

2009 North Central Weed Science Society Proceedings 64:114.