

EFFECT OF ATRAZINE AND ADJUVANTS ON WEED CONTROL WITH TEMBOTRIONE IN CORN. George Simkins, David Lamore, Dan Miller, and Jayla Allen, Bayer CropScience, Research Triangle Park, NC 27709.

Studies were conducted at 10 locations (Strawberry Point IA, Mason City IA, Tecumseh NE, Indianola IA, Charles City IA, Bryan OH, Junction City KS, Pawnee IL, Easton IL and Le Sueur, MN) to determine the effect of atrazine and adjuvants on the herbicidal activity of postemergence applied tembotrione in field corn. All treatments consisted of tembotrione (92 g ai./ha), 28% nitrogen (3.5 L/HA) with either crop oil concentrate (1% v/v) or methylated seed oil (0.25, 0.5, 0.75, 1.0 or 1.25% v/v) with or without atrazine (560 g ai/ha). Applications were made when the grass weeds were 2.5 to 5 cm. tall (early post) or when they were 7.6 to 10 cm. tall (mid post). Crop injury measurements were recorded 7 and 14 days after application, and weed control efficacy was recorded approximately 21 and 40 days after application. Crop injury was only observed at one test site (Junction City, KS). The only treatments in this trial exhibiting significant injury were those applied early postemergence, which consisted of tembotrione tank-mixed with atrazine, and methylated seed oil at rates of 0.75% v/v or greater. Injury symptoms were transient. Tembotrione treatments provided 95 to 100 % control of the broadleaf weeds present (Common lambsquarter, Eastern black nightshade, Smooth pigweed, Redroot pigweed, Common waterhemp, Ladysthumb, Giant ragweed, Palmer amaranth, Common ragweed, Velvetleaf and Venice mallow). Control of broadleaf weeds evaluated in this study with tembotrione did not require the addition of atrazine. Either crop oil concentrate or methylated seed oil could be used for the additive system for control of broadleaf weeds. Effective control ($\geq 95\%$) of Giant and Yellow foxtail, Barnyardgrass, Woolly cupgrass and Downy brome was obtained with all tembotrione treatments. Control of small (< 5 cm.) Field sandbur or Crabgrass sp. with tembotrione treatments 14 days after application was effective, but long term control (> 30 days) of larger (≥ 7.6 cm.) Field sandbur and Crabgrass sp. was poor. Green foxtail and Fall panicum control was fair to poor depending on additive system or whether atrazine was used in the tank-mix. Generally the methylated seed oil additive system was more effective for the control of grass weeds than crop oil concentrate. Consistent control of grass weeds required the use of 0.75% v/v or more of methylated seed oil. The addition of atrazine to tembotrione treatments results in superior control of grass weeds.