

EFFECT OF PREPLANT N SOURCE ON WEED MANAGEMENT IN CORN. Kelly A. Nelson, Associate Professor, Division of Plant Sciences, University of Missouri, Novelty, MO 63460.

Field research was conducted in 2006 and 2007 to determine the impact weed management systems and preplant N source selection on no-till corn grain yield and weed control. Variability in weed control with early postemergence treatments of residual herbicides may be expected depending on the N source due to early weed growth, soil disturbance, or aggressive weed growth that may result from readily available N sources. This research was arranged as a split-plot design with N source as the main plot and weed management system as the sub-plot. Preplant N sources included anhydrous ammonia, urea, polymer coated urea, and ammonium nitrate applied at 168 kg N/ha. Weed management systems included atrazine preemergence followed by glyphosate, early postemergence atrazine + dimethenamid, and postemergence applications of atrazine + dimethenamid + glyphosate, and glyphosate applied early and late post. Crop and weed growth rates were determined to help farmers predict herbicide application timings for N sources that may differ in crop or weed availability. There was no interaction between weed management systems and N sources on weed control or corn yield. Weed biomass was affected by N source and was greatest with anhydrous ammonia and polymer coated urea treatments. Tillage and slow release N sources may result in greater weed biomasses (giant foxtail, common lambsquarters, and common waterhemp) at harvest; however, limited effects on grain yield were observed. Grain yield was similar among polymer coated urea, ammonium nitrate, and anhydrous ammonia N sources. There was no difference in weed control among preemergence, early postemergence, and postemergence treatments in 2006, and slight yield differences were observed when compared to the weed-free control. Differences in weed control were observed in 2007, but yields were similar to the weed-free control. In a medium and high yield environment, recommendations for weed management systems should not vary based on the preplant N source selection.