

INFLUENCE OF FALL AND EARLY SPRING HERBICIDE APPLICATIONS ON SOIL CONDITIONS AND INSECT INJURY IN NO-TILL CORN. Nicholas H. Monnig, Travis R. Legleiter, and Kevin W. Bradley, Graduate Research Assistant, Graduate Research Assistant, and Assistant Professor, Division of Plant Sciences, University of Missouri, Columbia, MO 65211.

Field studies were established at two Missouri locations in 2004 and 2005 to evaluate the effects of fall and early spring herbicide applications on soil temperature, soil moisture content, and insect injury in no-till corn production systems. Both experiments received applications of simazine plus 2,4-D, rimsulfuron plus thifensulfuron plus 2,4-D, and glyphosate plus 2,4-D in the fall, 45 days prior to planting (45 days EPP), 30 days prior to planting (30 days EPP), and seven days prior to planting (7 days EPP). During a period from April 1 to April 14, simazine plus 2,4-D applied 45 days EPP did result in higher soil temperatures at a 5 cm depth compared to the untreated control. However, there were few differences in soil temperature present from April 15 to May 1. Soil moisture readings taken during this same time period corresponded with soil temperature readings. Measurements of soil moisture taken at one and three weeks after planting revealed significantly lower soil moisture readings in the untreated compared to herbicide treated plots. The lower soil moisture content of untreated plots possibly allowed them to warm up more rapidly, thereby eliminating any negative impacts that dense stands of winter annual weeds may have had on soil temperature. Evaluations of corn flea beetle (*Chaetocnema pulicaria* Melsheimer) and lepidopteran injury taken at the V2, V4, and V6 corn leaf stages revealed significant differences in injury as a result of these treatments. When dense stands of winter and summer annual weeds were left uncontrolled, corn flea beetle injury was significantly lower than in plots treated with a herbicide. However, when a postemergence herbicide application was made to remove all weed species prior to the V6 sampling date, differences in corn flea beetle injury between the untreated and herbicide treated plots were eliminated. Additionally, removal of all weed species led to higher lepidopteran injury in the untreated.