RESPONSE OF CLEARFIELD CORN HYBRIDS TO POSTEMERGENCE IMAZETHAPYR + IMAZAPYR APPLICATIONS. James R. Martin, J. D. Green, James Herbek, William W. Witt, and Michael Marshall, Extension Professor, Extension Professor, Extension Professor, Professor, and Research Specialist, Department of Agronomy, University of Kentucky, Lexington, KY 40564.

Since the introduction of corn hybrids tolerant to imidazolinone herbicides (designated as Clearfield™ hybrids) in 1997, approximately 30% of the corn acres in Kentucky are now planted using the Clearfield corn technology. The primary herbicide product used on imidazolinone tolerant hybrids is a premix of imazethapyr + imazpyr (Lightning). The Clearfield corn technology has benefited corn producers with the potential to control or suppress growth of troublesome weeds such as common pokeweed, honeyvine milkweed, johnsongrass , and broadleaf signalgrass in Kentucky's no-till production system. Although Clearfield corn technology has offered good yield potential, there have been occasional problems observed with corn ear development from having poor kernel set and/or pollination failure resulting in significant corn yield losses. Field studies were conducted in 2001 and 2002 to evaluate timing of herbicide application on corn yield and ear development and to screen Clearfield hybrids for injury potential due to imazethypyr + imazapyr (Lightning) applications at 64 g/ha. Corn ear development and weight per ear for two of four hybrids evaluated in one study in 2001 were significantly impacted only when Lightning was applied at the 2x herbicide rate and V9 growth stage compared to the V3 and V6 growth stages. Whereas, at another location no corn ear development problems were observed with application timing or herbicide rate. In 2002 the effect of application timing with Lightning at 3, 4, 5, and 6 weeks after corn emergence (V5 through V12 growth stage) were evaluated on three Clearfield corn hybrids. No significant differences in corn yield or percent corn ear damage were observed at any of the application timings. In addition, 44 Clearfield corn hybrids were screened for the potential impact of a late-season Lightning application on corn yield. Corn yields overall were low due to extremely dry environmental conditions with only one hybrid yielding significantly lower when applied with Lightning herbicide compared to the same hybrid left untreated. Results from these studies did not explain the poor kernel set and ear development that is sometimes observed with the Clearfield corn technology.

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