RESPONSE OF WHEAT TO PREPLANT AND POSTEMERGENCE APPLICASTIONS OF 2,4-D and DICAMBA. James R. Martin, Charles R. Tutt, and Dorothy Call, Extension Professor, Research Specialist, and Technician, Department of Plant & Soil Sciences, University of Kentucky, Princeton, KY 42445-0469.

Applying 2,4-D or dicamba at the wrong time can cause injury to wheat. Historically these herbicides have been applied to wheat in Feekes growth stage 5 or when plants are fully tillered but prior to jointing and approximately 4 to 8 inches in height. This usually occurs around March to early April in Kentucky and will vary depending on environment and location. Some wheat growers have expressed an interest in using growth regulator herbicides in the fall when certain problem weeds are more easily managed, but they are concerned with the risk of crop injury. The objective of this research was to evaluate wheat response to fall burndown and fall postemerence applications of 2,4-D and dicamba.

Field trials referenced as 2005, 2006, and 2008 were conducted during 2004-2005, 2005-2006, and 2007-2008 growing seasons, respectfully. A field study was also conducted during the 2006-2007 growing season; however, freezing temperatures in the spring of 2007 caused substantial damage to wheat.

Wheat was planted with a no-till planter into corn stalks in mid October. The ground cover occupied by corn residue ranged from 85 to 95%. Herbicides used in all three studies were 2,4-D ester at 0.475 or 0.95 lb ae/A and dicamba at 0.125 lb ae/A. Application timings for all three studies were designated as PRE (preemergence at planting) and FALL POST (fall postemergence to 1- to 2- tiller wheat). The first two studies also included 2-WK EPP (approximately 2 weeks ahead of planting). A tank mix of 2,4-D ester at 0.18 lb ae/A with the premix of thfensulfuron at 0.25 oz ai/A plus tribenuron at 0.125 oz ai/A was included as a fall postemergence treatment in the 2006 and 2008 studies.

Some of the measurements used to quantify injury included plant stands (for the 2-WK EPP and PRE treatments only), head counts, test weight, and abnormal seedheads. Abnormal seedheads were observed in every sample, including the non-treated checks. The percent abnormal heads in the checks was 19% in 2005, 14% in 2006 and 6% in 2008. The symptoms of abnormal heads were in the form of twisted or curled heads, short length, and/or green in color.

The use of 2,4-D ester or dicamba as burndown treatments at 2-WK EPP or PRE did not affect wheat stands. These treatments did not affect other plant growth or yield factors such as percent of abnormal seedheads, test weight, or grain yield relative to the non-treated checks in either study, with the exception of one treatment involving 2,4-D. Wheat yield in the 2005 study was reduced by approximately 20 bu/A where 2,4-D ester at 0.95 lb ae/A was applied PRE at the time of planting.

FALL POST of applications of 2,4-D alone at both rates tended to cause injury in most instances. Head counts were less than those of the non-treated check in 2006. The percent of abnormal seedheads was greater where 2,4-D ester was applied FALL POST at both rates compared with the non-treated checks for all three years. Test weight of wheat was reduced with both rates of 2,4-D ester in 2005 and the low rate in 2006. Wheat grain yield was reduced when 2,4-D was applied postemergence at both rates in all studies, except for the low rate in 2008. The FALL POST treatment of 2,4-D ester with thifensulfuron plus tribenuron premix increased the percent of abnormal seedheads relative to the non-treated check in 2006, yet it did not limit wheat yield.

FALL POST applications of dicamba did not injure wheat except for a higher percentage of abnormal seedheads than the non-treated check in 2008. Applying dicamba to 1- to 2- tiller plants did not affect wheat grain yield in any of the studies.

These results support why 2,4-D should not be applied in the fall to emerged wheat with 1 to 2 tillers. The high rate of 2,4-D ester at planting can occasionally reduce wheat yield. However applications at two weeks ahead of planting appeared to be safe. This research helps support the use of dicamba in fall sprays. However dicamba applied to 1- to 2- tillering wheat may occasionally increase number of abnormal seedheads.

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