

RESPONSE OF ONE AND TWO GENE IMIDAZOLINONE-TOLERANT WINTER WHEAT TO IMAZAMOX&MCPA AND IMAZAMOX ALONE. Phillip W. Stahlman and Patrick W. Geier, Professor and Assistant Scientist, Kansas State University Agricultural Research Center, Hays, KS 67601.

Field experiments were conducted near Hays, KS in 2005-06 to evaluate the response of two winter cultivars possessing one or two genes conferring tolerance to imidazolinone herbicides. The same herbicide treatments were applied to each cultivar in separate experiments on different dates. Both experiments were repeated for a total of four experiments. The one-gene cultivar was 'KS03HW6-1' hard white winter wheat and the two-gene cultivar was 'P112-282' soft red wheat. A premixture of imazamox&MCPA (BAS 77703H) and imazamox were applied at three rates at two growth stages in fall. Imazamox&MCPA rates were 0.047&0.35 lb/A, 0.062&0.5 lb/A, and 0.94&0.75 lb/A; equivalent to 1.5X, 2X, and 3X the minimum imazamox use rate. Imazamox rates were 0.062, 0.094, and 0.14 lb/A representing 2X, 3X, and 4.5X the minimum recommended use rate. All herbicide treatments included 0.25% (v/v) non-ionic surfactant and 2.5% (v/v) urea-ammonium nitrate (UAN). Analysis of data with experiments as random effects indicated the two-gene cultivar exhibited considerably greater herbicide tolerance than the one-gene cultivar. The data were reanalyzed with experiments as fixed effects to make comparisons among experiments. Crop response increased with increasing imazamox rate, especially when premixed with MCPA. In the one-gene cultivar, imazamox&MCPA caused four to six times greater stand loss and biomass reduction than equal rates of imazamox in the absence of MCPA. Visible crop response was slightly greater when treatments were applied at the earlier growth stage in 3 of 4 experiments; the opposite growth stage response occurred in the remaining experiment.