IMIDAZOLINONE-RESISTANT SPRING WHEAT AND SUBSEQUENT CROP EVALUATIONS

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The objective of the study was to evaluate the crop tolerance of imidazolinone resistant spring wheat and the subsequent crop (canola, flax, and sunflower) response to imazamox. The study was conducted at the NDSU Carrington Research Extension Center on a loam soil with a 7.5 pH and 3.4% organic matter. Imidazolinone-resistant spring wheat 'Teal 15A' was seeded May 15, 2002 in 7-inch rows at 1.6 million pure live seeds/A. Individual plots were 45 ft by 40 ft and arranged in a randomized complete block design with three replications. Imazamox was applied at 0.0312 and 0.0625 lb/A with a CO_2 pressurized hand-held plot sprayer delivering 10 gal/A at 20 psi through XR80015 flat fan nozzles on June 17, 2002 with 73º F, 58% RH, 90% cloud cover, 11 mph wind, and 77º F soil temperature to 4-leaf spring wheat. A nonionic surfactant 'Preference' and 28% UAN liquid fertilizer were applied with each herbicide treatment at 0.25% v/v and 1% v/v, respectively. To evaluate the subsequent crop response to imazamox, each main plot was split into 15 ft by 40 ft subplots and planted to canola 'DKL 223', flax 'Cathay', or sunflower '8377 NS' in the spring of 2003. The canola and flax were seeded on April 23 in 6-inch rows at 600,000 PLS/A and 40 lbs./A, respectively. Sunflowers were planted on May 21 in 30-inch rows at 20,000 seeds/A. The canola was swathed on August 4 and harvested on August 12. The flax was also harvested on August 12. The sunflowers were not harvested due to severe deer predation.

Imazamox did not visually injure the spring wheat when evaluated for overall crop injury, chlorosis, and height reduction 30 days after application (data not shown). Individual plots were not harvested due to poor quality and low yield potentials, which were caused by a high incidence of rust and tan spot. Imazamox did not cause any noticeable crop injury to the canola, flax or sunflowers planted the subsequent year (data not shown). The imazamox treatments did not cause a reduction in plant height or seed yield for the canola or flax. Mean plant height and seed yield was 30.5 inches and 1313 lb/A for the canola and 23.6 inches and 19 bu/A for the flax.