

[14] JOINTED GOATGRASS BEST MANAGEMENT PRACTICES AND CLEARFIELD WHEAT RISK ASSESSMENT. Phillip W. Stahlman*, Patrick W. Geier, John C. Frihauf, Kansas State University Agricultural Research Center-Hays; and Anthony D. White, Monsanto Co., Hannibal, MO.

Long-term field studies were conducted at Hays, KS from 1997 to 2003 and at St. John, KS from 2001 to 2007 to assess the integration of multiple practices for the management of jointed goatgrass in dryland winter wheat-based cropping systems. The St. John study also assessed the risk of moving imidazolinone herbicide tolerance from Clearfield wheat into the local jointed goatgrass population. The timing and amount of fall precipitation greatly influenced jointed goatgrass density in both studies. At Hays, extending a 2-year wheat-fallow crop rotation to include grain sorghum (3-year rotation) or grain sorghum and sunflower (4-year rotation) had a greater effect on jointed goatgrass populations than method of fallow weed control (tillage vs. herbicide) or wheat cultivar. However, no one combination of practices proved consistently better than other combinations in all years. The St. John study demonstrated that integrating several cultural practices (increased seeding rate, narrow row spacing, large-sized seed, and in-furrow starter fertilizer) along with the Clearfield wheat system dramatically reduced jointed goatgrass populations compared to a conventional wheat production system. To monitor for possible movement of the trait conferring herbicide tolerance from wheat to jointed goatgrass, more than 104,000 plants from jointed goatgrass spikelets collected from within the experimental area were screened for tolerance to imazamox. Seven plants survived a 3X rate of imazamox; however, none produced a reproductive spikelet following vernalization. Nearly 1,300 winter wheat-jointed goatgrass hybrids were collected in four of six years. The percentage of hybrid spikelets producing viable seed ranged from 0.1 to 1.1% with an average of 0.6%. Several plants from those seed survived spraying with high rates of imazamox, but none produced viable seed.