

[4] INTEGRATED JOINTED GOATGRASS MANAGEMENT SYSTEMS IN THE CENTRAL AND SOUTHERN GREAT PLAINS . Phillip W. Stahlman - Presenter

Weed scientists from five central and southern Great Plains states (CO, KS, NE, OK, WY) have completed several cooperative, regional studies that were funded in part by the National Jointed Goatgrass Research Program. Some studies investigated the impact of single practices on jointed goatgrass growth and competitiveness as a component of more complex systems that integrate various cultural and chemical practices into conventional and imazamox-tolerant (Clearfield) winter wheat production systems. Several studies from Wyoming to Oklahoma assessed the effectiveness of multi-practice integrated systems. Generally, extended crop rotations that included one or more summer crops and lengthened the interval between winter wheat crops were more effective in reducing jointed goatgrass populations than most other practices. When crop rotations are not feasible, use of imazamox-tolerant wheat has proven an effective alternative, especially when coupled with other practices known to enhance crop competitiveness. Jointed goatgrass densities in wheat the year following spraying with imazamox typically remained low, indicating the benefits of using Clearfield technology extend beyond the year of use. Infrequent deep plowing of fields with low risk of erosion was effective in reducing dense infestations as long as complete soil inversion was achieved. Reduced row spacing, increased wheat seeding rates, and placement of nitrogen fertilizer in the soil below or adjacent to wheat rows were found to reduce jointed goatgrass competitiveness, reproductive capacity, and dockage in harvested grain. Broadcasting nitrogen fertilizer benefited jointed goatgrass as much or more than wheat. Competitive winter wheat cultivars are an important component of integrated weed management systems. Wheat cultivars with characteristics of rapid emergence and growth, early canopy closure, and tall stature generally are more competitive with jointed goatgrass than cultivars without many of those characteristics. Although several studies demonstrated the benefits of using multiple practices to manage jointed goatgrass compared to one or two practices, no one combination of practices proved consistently better than other combinations in all years.