

2012 End-of-Year Report for Weed Control Programs in Arkansas Grain Sorghum

Jason Norsworthy and Ken Smith

Weed Control Programs in Grain Sorghum

Zidua was injurious to grain sorghum when applied at planting in 2011 at Rohwer and Fayetteville; however, the grain sorghum recovered by the end of the season, with an average yield comparable to other treatments. In 2012, no injury was observed from preemergence applications of Zidua at Rohwer or Keiser. Zidua provided effective control of Palmer amaranth, pitted morningglory, prickly sida, broadleaf signalgrass, and barnyardgrass throughout the growing season. No POST-only program provided yield equivalent to the standard program of Dual II Magnum followed by AAtrex. Preemergence applications of Lumax EZ, Bicep II Magnum, Dual II Magnum, Lexar EZ, Zidua, and Warrant followed by atrazine postemergence provided excellent control of barnyardgrass, Palmer amaranth, and morningglories at 31 days after treatment. Of the postemergence-applied herbicides evaluated, none alone or in combination with AAtrex provided yields higher than a single application of AAtrex applied at the V2 stage of sorghum. These data show the importance of at-planting, effective residual herbicides in protecting yield potential of grain sorghum. When grain sorghum was planted and allowed to reach the two-leaf stage prior to herbicide treatment, no herbicide provided greater than 65% barnyardgrass control. This emphasizes the importance of utilizing an effective residual product at planting for early season grass and broadleaf weed control. However, single pass PRE-only programs failed to control barnyardgrass and Palmer amaranth that germinated late in the growing season, which could lead to increases in the soil seed bank and increased weed control difficulties in subsequent crops.

Crop Tolerance and Efficacy of Callisto and Laudis in Grain Sorghum

The Group 27 HPPD-inhibiting herbicides Callisto and Laudis were evaluated preemergence and early postemergence (V2 to V3) to assess crop tolerance and weed control efficacy. The most injurious treatments were early postemergence applications of Callisto at 3 oz/A (28% bleaching) followed by Laudis at 3 oz/A (13% bleaching). No bleaching was observed from either herbicide applied preemergence. The preemergence application of Callisto at 3 oz/A was more effective than Laudis at 3 oz/A in controlling Palmer amaranth and morningglories at 50 days after treatment. Postemergence control with both herbicides was greater than that achieved with the preemergence applications.

Crop Tolerance and Weed Control in ALS-Resistant Grain Sorghum

DuPont is in the process of commercializing grain sorghum containing the Inzen Z trait (resistance to ALS-inhibiting herbicides). Three trials were conducted to evaluate the tolerance of ALS-resistant grain sorghum to Accent (nicosulfuron) and Resolve (rimsulfuron) alone and combinations of these two herbicides applied at several growth stages. No injury was observed in any of these trials, indicating a high level of tolerance to Accent and Resolve across use rates, application timings, and tank-mix options. Combinations of Accent and Resolve were effective in providing postemergence control of goosegrass, broadleaf signalgrass, and barnyardgrass. These grasses can be challenging to control postemergence in grain sorghum with the herbicides that are currently labeled. The addition of Accent and Resolve to herbicides currently labeled in grain sorghum resulted in robust weed control programs that provided a high level of extended control of broadleaf signalgrass and yellow nutsedge.