

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

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Season-long Weed Control Programs in Corn With and Without Atrazine

Several herbicide programs were developed and tested for use in Arkansas corn at Rohwer, Keiser, and Fayetteville. These programs include single and multiple application programs. Season-long control of Palmer amaranth, barnyardgrass, and morningglories was achieved using either approach; however, the multiple application approach is recommended because early-season competition is eliminated and weeds escaping the preemergence application can be controlled with subsequent postemergence application. Furthermore, use of residual herbicides lessens the selection pressure on postemergence herbicides, reducing the risk of weeds developing resistance. Although atrazine is still the basis of Arkansas corn herbicide programs, our research has shown that programs without atrazine are effective for season-long weed control, but atrazine-containing programs still remain effective and more cost efficient.

Post-harvest Palmer Amaranth Control Options

Glyphosate-resistant Palmer amaranth emergence as corn begins to mature (dry down) or following corn harvest can lead to significant seed production and increases in the soil seed bank, resulting in a greater number of resistant plants that will need to be controlled the following year. Averaged over trials conducted at Fayetteville and Keiser, the decision to take no action towards controlling Palmer amaranth following corn harvest led to almost 16 million seed/acre being produced postharvest. Gramoxone (paraquat) immediately following corn harvest controlled plants that emerged late in the season prior to harvest; however, some plants still emerged after the paraquat application and were able to produce viable seed prior to a killing frost. The addition of residual herbicides (Valor, Dual Magnum, Direx, Metribuzin, Reflex, Prefix) resulted in further reduction in seed production by Palmer amaranth due to the extended control provided by these herbicides. The choice of residual herbicide applied in combination with paraquat could influence rotational options. The use of Valor following corn harvest would allow wheat to be planted the same growing year whereas all other evaluated herbicides would not. In addition to Valor, an application of Dual Magnum (*S*-metolachlor) immediately behind corn would allow growers the option of planting soybean, corn, or cotton the following growing season but not rice. No differences were noted among residual herbicides in their effectiveness to control Palmer amaranth postharvest and reduce seed production. Tillage at monthly intervals from corn harvest until the first frost prevented Palmer amaranth from producing seed.

Comparison of Herbicides for Length of Residual Weed Control in Corn

Several chloroacetamide herbicides were compared at multiple rates for length of residual control. Labeled rates of Dual II Magnum, Warrant, Harness, and Degree all provided similar control of barnyardgrass, Palmer amaranth, and morningglories. The registration of Zidua (pyroxasulfone) and Anthem (pyroxasulfone + flufenacet) provides Arkansas corn producers a new residual herbicide for 2013 for the management of glyphosate-resistant Palmer amaranth. Weed control with Zidua and Anthem (pyroxasulfone + flufenacet) compared to other standard products are shown below. Registration of Anthem ATZ (contains atrazine) is anticipated before the end of this year.