

The Impact of Glyphosate-Resistant Horseweed and Pigweed on Cotton Weed Management and Costs

Larry Steckel, Stanley Culpepper and Ken Smith

Glyphosate has become the backbone for weed control in cotton. There are many reasons for this including very effective weed control and convenience for producers.

Unfortunately, weeds are beginning to respond to this weed control system that almost exclusively relies on glyphosate. The first glyphosate-resistant (GR) weed to become a problem in cotton was horseweed identified in 2001 in Tennessee. This weed, with its wind blown seed, quickly spread to become a major pest in millions of acres of cotton across most of the Delta by 2006. GR horseweed has also been identified in other cotton growing states. In 2005 GR Palmer amaranth (about 8x resistant) was identified in a cotton field in Georgia. Later that same year Palmer pigweed was found to show about 2x resistance to glyphosate in two locations in Tennessee and one in Arkansas. Weeds developing resistance to herbicides is not new and producers of many crops have had to manage herbicide resistant weeds. The problem with cotton is that few good options exist for controlling GR Palmer pigweed. These few options consist of a program approach that utilize several different herbicides that on average cost a cotton producer more than \$40.00/acre to at least provide partial control of this weed. GR horseweed on the other hand does have some viable options for control prior to cotton planting. One of these options is tillage which some cotton producers have gone back to in order to control this weed. Unfortunately tillage is not a long term sustainable system on many of the highly erodible cotton fields in the Mid-South. In a no-till system several older herbicides can be used that will provide good control of GR horseweed prior to planting. Incorporating these established herbicides back in to the no-till cotton system on average will cost a grower an additional \$20.00 an acre. The impact of these two GR weeds on cotton production is dramatic. GR horseweed alone has dropped reduced-tillage practices in Tennessee cotton production by 40% in 2004 and increased producers herbicide cost by 30%. The impact of GR Palmer pigweed has the potential to be much more of a burden to cotton growers due to the lack of good control options. Cotton producers are urged to adapt weed control practices that do not rely completely on glyphosate but utilize other herbicides particularly when controlling Palmer pigweed.