## DEFINING THE RESIDUAL ACTIVITY OF DICAMBA M.S. McCown L.T. Barber J.K. Norsworthy J.S. Rose Dept. of Crop, Soil, and Environmental Sciences, University of Arkansas Fayetteville, AR R.C. Doherty Z.T. Hill University of Arkansas at Monticello Monticello, AR

## <u>Abstract</u>

Although dicamba does provide short-lived residual control, additional residual herbicides are needed with pre-plant burndown programs to prevent subsequent emergence of weed species. In 2014, two trials were conducted at the Southeast Research and Extension Center in Rowher, AR to evaluate the potential of increased residual weed control when dicamba is tank-mixed with residual cotton herbicides. Both experiments were organized as a randomized complete block design, and treatments were applied to bareground. The first trial was comprised of 11 treatments consisting of commonly applied preemergence (PRE) cotton herbicides applied alone and in combination with dicamba. The herbicides evaluated included flumeturon at 1.0 lb ai/A, diuron at 0.5 lb ai/A, fomesafen at 0.187 and 0.25 lb ai/A, pyrithiobac at 0.065 lb ai/A, and dicamba at 0.5 lb ae/A. At 14 days after treatment (DAT), significantly greater weed control was observed when dicamba was tank-mixed with a residual herbicide compared to it being applied alone. However, other than diuron, no differences in residual activity were observed with the addition of dicamba at 28 DAT. There was a 15 percent increase in Palmer amaranth control when diuron was tank mixed with dicamba compared to being applied alone. The objective of the second trial was to determine the overall residual activity of dicamba when included in different herbicide programs. This trial consisted of 6 treatments including a combination of PRE and postemergence (POST) applications of dicamba at 0.5 lb ae/A, flumioxazin+pyroxasulfone at 0.143 lb ai/A, lactofen at 0.195 lb ai/A, and fomesafen at 0.25 lb ai/A. All applications, PRE and POST, were tank-mixed with glyphosate at 1.13 lb ae/A. At 8 weeks after the initial application, >90% control of Palmer amaranth was observed with dicamba + flumioxazin + pyroxasulfone + glyphosate followed by glyphosate + dicamba 28 days later. From this trial we can conclude that greater residual control can be achieved by incorporating a PRE and POST residual herbicide into dicamba-based weed control programs.