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## Management of Annual Grasses and *Amaranthus* spp. in Glufosinate-resistant Cotton

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Glufosinate may not adequately control annual grasses and *Amaranthus* spp. in glufosinate-resistant (GR) cotton (*Gossypium hirsutum* L.). A field experiment at six sites determined effects of residual herbicides and timing of initial glufosinate application on control of annual grasses, *Amaranthus* spp., *Ipomoea* spp., and common lambsquarters (*Chenopodium album* L.) in GR cotton. Glufosinate was initially applied early postemergence (EPOST) to 1- to 2-leaf cotton or mid-postemergence (MPOST) to 3- to 4-leaf cotton. Residual herbicides included fluometuron, fomesafen, pendimethalin, and pyriithiobac applied preemergence (PRE) and pyriithiobac mixed with glufosinate applied postemergence. All treatments included glufosinate late postemergence (6- to 7-leaf cotton) followed by prometryn plus MSMA postemergence-directed. Weed control and cotton yield were generally greater with glufosinate applied EPOST compared with MPOST. Greater early season control of annual grasses and *Amaranthus* spp. was noted at all sites when PRE herbicides preceded glufosinate. Greater late-season annual grass and *Amaranthus* spp. control was noted at four and two sites, respectively, with systems that included PRE herbicides. Differences among PRE herbicides were minor, except pyriithiobac was less effective on annual grasses. Pyriithiobac applied postemergence (POST) was less effective than PRE herbicides. *Ipomoea* spp. and common lambsquarters were controlled well by all herbicide systems. The PRE herbicides increased cotton yield at four of six sites, while pyriithiobac POST increased yield at one site. Good control of annual grasses, *Amaranthus* spp., *Ipomoea* spp., and common lambsquarters can be obtained in GR cotton with production systems that include PRE herbicides and well-timed glufosinate applications.