

GLUFOSINATE HERBICIDE: EFFICACY AGAINST THE MOST TROUBLESOME WEEDS IN U.S. COTTON-GROWING REGIONS

Alan Hopkins
Bayer CropScience
Greenbrier, AR
Keith Vodrazka
Lakeland, TN
Russ Perkins
Idalou, TX
Jim Collins
RTP, NC

Abstract

Glufosinate ammonium is the active ingredient in a new non-selective herbicide recently registered by Bayer CropScience and will be sold under the trade name IGNITE®. The product will be used for postemergence application in LibertyLink® Cotton. LibertyLink is the transgenic technology that confers resistance to cotton and will initially be available in select FiberMax® cotton varieties. IGNITE may also be used as a pre-plant burndown and with hooded spray equipment in non-LibertyLink varieties.

Because IGNITE is a non-selective herbicide thorough spray coverage is essential for maximum performance. Applications should be timed to appropriate weed size and may be made up to 70 days prior to cotton harvest. IGNITE is recommended for control of 67 broadleaf weed species and 24 grass species. IGNITE also provides suppression of 25 biennial and perennial weed species.

The focus of this paper is to identify the most troublesome weeds in U.S. cotton-growing regions and the level of performance expected from properly-timed IGNITE applications. Each year the Southern Weed Science Society publishes a survey listing the top 10 most troublesome weeds in various crops or crop groups. The top 10 most troublesome weeds in cotton from 10 cotton-growing states is published in the 2001 Proceedings of the Southern Weed Science Society. Each contributing state ranked their top 10 most troublesome weeds from 1 to 10. An average ranking and frequency of occurrence of these weed species across all states yielded an over-all ranking of the following 6 species from most to least troublesome: morningglory species, pigweed species, nutsedge species, bermudagrass, sicklepod and cocklebur. Another source for most troublesome weeds in cotton was obtained from Doane AgroTrak®, a market research survey with information on the expenditures for controlling specific weeds in cotton-growing states. Sixteen states were represented in the Doane AgroTrak survey and indicated the most troublesome weeds were (from most to least troublesome): pigweed species, morningglory species, johnsongrass, cocklebur, crabgrass species and sicklepod. The most troublesome weed species from each of these sources were combined to develop the following most troublesome eight weed species in cotton (from most to least troublesome): pigweed species, morningglory species, nutsedge species, bermudagrass, sicklepod, cocklebur, johnsongrass and crabgrass species. IGNITE is labeled for control of most of these weed species with the exception of nutsedge. The IGNITE label requires at least two applications for control of perennial species such as bermudagrass and rhizome johnsongrass. The IGNITE label recommends application to maximum weed size of 3 inches for pigweed species, 6 inches for morningglory species, 4 inches for sicklepod, 12 inches for cocklebur and 3 inches for crabgrass species. IGNITE (glufosinate ammonium) performance for most of these weed species was summarized and presented at the Belt-wide Cotton Conferences in 2003. Weed control data from multiple locations collected 14 days after IGNITE application indicate good to excellent control of all 8 of the most troublesome weeds in cotton except nutsedge species. IGNITE also provides excellent control of many other troublesome weeds not listed among the top eight. Therefore, the IGNITE/LibertyLink Cotton System has excellent potential for broad-spectrum weed control in U.S. cotton production.