PERFORMANCE OF REFLEX (FOMESAFEN) IN MISSOURI COTTON

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Abstract

Reflex was considered for potential use in cotton during its early development. However, in recent years Zeneca has expressed new interest in developing a cotton registration, and additional cotton research has been conducted since 1997. Reflex was tested in several typical small-plot weed science trials on a typical sandy loam cotton soil (Tiptonville fine sandy loam, 56% sand, 36% silt and 8% clay) and on a "watermelon type" sandy soil (Broseley sandy loam 72% sand, 10% silt and 8% clay). Soil applications have included pre plant incorporated (PPI) and preemergence surface (PRE) treatments at rates including 0.25, 0.375 and 0.5 lb ai/A. Control of ivy, entireleaf and pitted morningglory (*Ipomoea hederacea* and *Ipomoea lacunosa*) from projected use rates (0.25 to 0.375 lb ai/A) has ranged from 33 to 85% (mean of 49%) from PPI applications and 75 to 90% (mean of 82%) from PRE applications. Common cocklebur (*Xanthium strumarium*) control from projected use rates has ranged from 20 to 29% (mean of 29%) PPI and from 75 to 94% (mean of 85%) PRE. Control of Palmer amaranth (*Amarantus palmeri*) and Smooth pigweed (*Amaranthus hybridus*) has generally been 90% or greater. Specifically, projected use rates provided 88 to 100% (mean of 94%) pigweed control PPI and 98 to 100% (mean of 100%) control PRE.

Projected use rates of Reflex caused 0 to 30% cotton injury (mean of 16%) PPI and 0 to 30% (mean of 11%) PRE. The high, 0.5 lb ai/A rate caused 0 and 13% (mean of 7%) injury PPI and 9 to 40% (mean of 19%) PRE. The highest injury was observed in 1997 on the Tiptonville fine sandy loam where 0.42 in. rainfall occurred two days after planting. However, in 1999 on the Broseley sandy loam a 0.32 in. rainfall occurred four days after planting and no Reflex-type symptoms were observed.

Reflex at 0.375 lb ai/A plus 2 lb ai/A of a surfactant-containing MSMA has been evaluated in post-directed trials. Roundup Ready cotton was planted with no preemergence herbicide. Two early over-the-top Roundup applications were used to kill early emerging weeds, and to allow later weed emergence with an adequate cotton-weed height differential. Cyanazine at 1 lb ai/A, Cobra (lactofen) at 0.2 lb ai/A and Goal (oxyfluorfen) at 0.25 lb ai/A (all mixed with 2 lb ai/A of surfactant-containing MSMA) were used as standard comparisons. Reflex plus MSMA controlled crabgrass, Palmer amaranth, smooth pigweed, common cocklebur and ivy/entireleaf morningglory similar to control from the standards. Injury was less than 4% for all directed treatments.

Incorporated Reflex provided inadequate control of cocklebur and morningglory species while preemergence Reflex provided greater than 80% control of these weeds. Pigweed control was generally excellent. Commercially unacceptable injury occurred in one of four studies and tended to be higher from PRE applications; however, a high use rate on an extremely sandy soil with a 0.32 in. activating rain caused no noticeable symptoms. Post-directed Reflex applications performed similarly to cyanazine and to other diphenyl ether herbicides registered for post directed use in cotton.

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