Herbicide Interactions between Glufosinate and Three Fomesafen-Containing Herbicide Products as Affected by Weed Size and Spray Droplet Size

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Abstract

Two effective herbicides with different sites of action (SOA) are recommended for control of problematic weeds such as Palmer amaranth. When a LibertyLink® soybean variety is planted in the Midsouth, USA, glufosinate is often mixed with fomesafen to control Palmer amaranth and other common weed species. However, mixtures of glufosinate and fomesafen could be antagonistic, specifically when applied to grass species. A two-factor factorial experiment (herbicide treatment by weed size) was conducted at the Northeast Research and Extension Center in

Liberty+Prefix	Glufosinate+fomesafen +S-metolachlor	595+266+1189	10	100	0	100	0	100	0
			30	100	0	100	0	100	0
Liberty+Dual Magnum	Glufosinate+S-metolachlor	451+1389	10	99	1	88	10	95	4
			30	93	2	93	8	98	2

[a]Data did not meet the assumptions of ANOVA and are reported as means followed by the standard error (SE) of the mean. [b]Height and density reduction is expressed as a percent of the nontreated control.

Liberty+Flexstar	Glufosinate+Fomesafen	451+264	10	92	NS	98	*	86	NS	88	NS	93	NS	98	NS
			30	92	NS	90	NS	73	NS	78	NS	83	NS	86	NS
Liberty+Flexstar	Glufosinate+fomesafen	595+264	10	98	NS	99	NS	95	NS	91	NS	97	NS	99	NS
			30	94	NS	93	NS	87	NS	90	NS	84	NS	86	NS
Liberty+Reflex	Glufosinate +fomesafen	451+280	10	93	NS	97	*	85	NS	79	NS	94	NS	97	NS
			30	95	NS	89	NS	74	NS	76	NS	87	NS	85	NS
Liberty+Reflex	Glufosinate+fomesafen	595+280	10	93	NS	99	*	95	NS	90	NS	88	NS	98	*
			30	94	NS	92	NS	86	NS	88	NS	84	NS	87	NS
Liberty+Prefix	Glufosinate+fomesafen+S-metolachlor	451+266+1189	10	98	NS	98	NS	94	^	84	NS	92	NS	97	NS
			30	90	NS	90	NS	71	NS	81	NS	87	NS	88	NS
Liberty+Prefix	Glufosinate+fomesafen+S-metolachlor	81	NS	8											

Prefix	Fomesafen+S-metolachlor	266+1189	10	41	--	--	--	18	--	--	--	53	--	--	--
			30	46	--	--	--	16	--	--	--	39	--	--	--
Liberty +Flexstar	Glufosinate +fomesafen	451+264	10	95	NS	97	NS	84	^	83	NS	95	NS	98	NS
			30	85	NS	91	NS	69	NS	77	*	87	NS	94	NS
Liberty +Flexstar	Glufosinate +fomesafen	595+264	10	98	NS	97	NS	94	NS	91	NS	97	NS	97	NS
			30	90	^	92	NS	69	NS	76	NS	87	NS	95	NS
Liberty +Reflex	Glufosinate +fomesafen	-ǒ	u	NS	97	97	N	84	^	83	NS	95	S	69	NS

Liberty+Prefix Glufosinate+fomesafen+S-

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Liberty+Dual Magnum	Glufosinate+S-metolachlor	451+1389	121[d]	238[g]	374[c]	1.06[e]	17.5[a]

[a]Means followed by the same letter within a column are not statistically different according to Fisher's protected LSD with a Tukey adjustment (α=0.05), [b]Relative span is a unitless index of the uniformity of droplet size distribution. Smaller values represent more uniformity in droplet size distribution.

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E f cacy aci fuorfen

e f cacy in fuenced

Porter feld

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Re fex

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Tri fudimoxazin

E fect

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In fuence

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