



## One-Pass and Two-Pass Herbicide Program Comparisons for Weed Control in Dicamba and Glufosinate Tolerant Soybean

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The purpose of this study was to evaluate crop injury and weed control for one-pass and two-pass herbicide programs that include residual weed control in both timings.

### Materials and Methods

The study was established using a randomized complete block design with three replications. The crop rotation was soybean following corn. The pre-plant seedbed was prepared with a chisel plow in the fall and field cultivator prior to planting in the spring. XtendFlex Soybean, Asgrow AG22XF1, was planted at 154,000 seeds/acre in 30-in. rows June 3. Preemergence (PRE) herbicide treatments were applied June 4, delivering 15 gal/acre with 110015TTI tips at 35 psi. Postemergence (POST) treatments were applied June 23 to V3 soybean, delivering 15 gal./acre with 110015TT and 110015TTI tips at 35 psi. Weed species in the study included giant foxtail, velvetleaf, common waterhemp, and ivyleaf morningglory. Giant foxtail density at POST application was 1 plant/ft.<sup>2</sup>, and the broadleaf weeds each averaged about eight plants/plot. Weeds were generally 4-6 in. tall. Visual estimates of percent corn injury and weed control during the growing season were compared with an untreated control; 0% = no injury or control, and 99% = complete crop kill or control.

### Summary

Summarized in Tables 1 and 2 are the results of the study. Rainfall was very limited after planting, causing reduced weed emergence. Pre-herbicide treatments were not incorporated with significant rainfall for at least two weeks after application. None of the PRE treatments caused significant injury to soybean, and weed control was generally unacceptable because of very dry conditions. PRE herbicide treatments provided 63-75%, 47-50%, 60-67% and 0% control of giant foxtail, velvetleaf, common waterhemp, and ivyleaf morningglory, respectively (data not shown).

Treatments containing POST Roundup PowerMAX + Xtendimax wVGT + Perpetuo + Select Max and POST Scout + Perpetuo + Select Max caused 30-32% soybean injury on June 26, three days after POST (DAA), while POST Zidua + Liberty treatments caused 15% injury. Injury caused by the same treatments was still significant at 24 DAA with 20–22% and 13% injury, respectively, for the groups of treatments (data not shown).

Significant rainfall June 20 caused heavy weed emergence following the POST application. Table 1 shows burndown and residual weed control on July 10 (17 DAA). All treatments provided excellent giant foxtail control (96-99%) at 17 DAA. One-pass Zidua + Liberty gave significantly less giant foxtail control than the two-pass treatments at 37 DAA POST, though still at 93% (Table2).

Velvetleaf and ivyleaf morningglory control, each, were similar among all two-pass treatments at 17 DAA with 88-95% and 57-73% control, respectively. However, control of these two weeds by the POST Scout treatments broke to a greater degree, providing significantly less control of velvetleaf than the POST Roundup PowerMAX + Xtendimax wVGT when observed at 37 DAA. The one-pass Zidua + Liberty treatments generally gave significantly less control of these two weeds at both evaluation dates.

Common waterhemp control was similar for all treatments at 17 and 37 DAA, with the exception of POST Zidua + Liberty + Poly Tex giving significantly less control than all other treatments at 17 DAA and less control than the two-pass treatments at 37 DAA (Tables 1 and 2) .

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**Table 1. One-Pass and Two-Pass Herbicide Program Comparisons for Weed Control in Dicamba and Glufosinate Tolerant Soybean, 2022.**

Treatment	Rate	Appln timing	Setfa <sup>d</sup> July 10	Abuth July 10	AMata July 10	Ipohe July 10
	product/acre		% weed control			
Untreated			0	0	0	0
Fierce EZ + (Roundup PowerMAX + Xtendimax wVGT <sup>a</sup> + Perpetuo + Select Max + Vaporgrip Xtra Agent + Intact + Induce)	6.0 fl. oz. + (32.0 fl. oz. + 22.0 fl. oz. + 6.0 fl. oz. + 9.0 fl. oz. + 20.0 fl. oz. + 0.5% v/v <sup>b</sup> + 0.25% v/v)	PRE + (POST)	96	95	99	70
Fierce MTZ SC + (Roundup PowerMAX + Xtendimax wVGT + Perpetuo + Select Max + Vaporgrip Xtra Agent + Intact + Induce)	16.0 fl. oz. + (32.0 fl. oz. + 22.0 fl. oz. + 6.0 fl. oz. + 9.0 fl. oz. + 20.0 fl. oz. + 0.5% v/v + 0.25% v/v)	PRE + (POST)	99	93	99	73
Fierce EZ (Scout + Perpetuo + Select Max + Induce + N-Pak AMS Liquid <sup>c</sup> )	6.0 fl. oz. + (32.0 fl. oz. + 6 fl. oz. + 9.0 fl. oz. + 0.25% v/v + 3.53 qt.)	PRE + (POST)	99	88	99	57
Fierce MTZ SC + (Scout + Perpetuo + Select Max + Induce + N-Pak AMS Liquid)	16.0 fl. oz. + (32.0 fl. oz. + 6 fl. oz. + 9.0 fl. oz. + 0.25% v/v + 3.53 qt.)	PRE + (POST)	99	92	99	67
Zidua SC + Liberty 280 SL + N-Pak AMS Liquid	3.0 fl. oz. + 32.0 fl. oz. + 3.53 qt.	POST	96	67	99	40
Zidua SC + Liberty 280 SL + N-Pak AMS Liquid + Poly Tex	3.0 fl. oz. + 32.0 fl. oz. + 3.53 qt. + 1.0% v/v	POST	98	70	93	40
LSD (P=0.05)			3	9	4	22

<sup>a</sup>Xtendimax wVGT = Xtendimax With Vaporgrip Technology.

<sup>b</sup>v/v = Volume of product per volume tank mix.

<sup>c</sup>N-Pak AMS liquid = ammonium sulfate.

<sup>d</sup>Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp, Ipohe = ivyleaf morningglory

**Table 2. One-Pass and Two-Pass Herbicide Program Comparisons for Weed Control in Dicamba and Glufosinate Tolerant Soybean, 2022.**

Treatment	Rate	Appln timing	Setfa <sup>d</sup> July 30	Abuth July 30	Amata July 30	Ipohe July 30
	product/acre		% weed control			
Untreated			0	0	0	0
Fierce EZ + (Roundup PowerMAX + Xtendimax wVGT <sup>a</sup> + Perpetuo + Select Max + Vaporgrip Xtra Agent + Intact + Induce)	6.0 fl. oz. + (32.0 fl. oz. + 22.0 fl. oz. + 6.0 fl. oz. + 9.0 fl. oz. + 20.0 fl. oz. + 0.5% v/vb + 0.25% v/v)	PRE + (POST)	96	91	99	67
Fierce MTZ SC + (Roundup PowerMAX + Xtendimax wVGT Perpetuo + Select Max + Vaporgrip Xtra Agent + Intact + Induce)	16.0 fl. oz. + (32.0 fl. oz. + 22.0 fl. oz. + 6.0 fl. oz. + 9.0 fl. oz. + 20.0 fl. oz. + 0.5% v/v + 0.25% v/v)	PRE + (POST)	98	90	98	63
Fierce EZ (Scout + Perpetuo + Select Max + Induce + N-Pak AMS Liquid <sup>c</sup> )	6.0 fl. oz. + (32.0 fl. oz. + 6 fl. oz. + 9.0 fl. oz. + 0.25% v/v + 3.53 qt.)	PRE + (POST)	98	78	98	38
Fierce MTZ SC + (Scout + Perpetuo + Select Max + Induce + N-Pak AMS Liquid)	16.0 fl. oz. + (32.0 fl. oz. + 6 fl. oz. + 9.0 fl. oz. + 0.25% v/v + 3.53 qt.)	PRE + (POST)	98	80	99	57
Zidua SC + Liberty 280 SL + N-Pak AMS Liquid	3.0 fl. oz. + 32.0 fl. oz. + 3.53 qt.	POST	93	50	95	27
Zidua SC + Liberty 280 SL + N-Pak AMS Liquid + Poly Tex	3.0 f.l oz. + 32.0 fl. oz. + 3.53 qt. + 1.0% v/v	POST	93	40	88	23
LSD (P=0.05)			3	9	9	29

<sup>a</sup>Xtendimax wVGT = Xtendimax With Vaporgrip Technology.

<sup>b</sup>v/v = Volume of product per volume tank mix.

<sup>c</sup>N-Pak AMS liquid = ammonium sulfate.

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