

Weed control systems for weed control in glyphosate resistant corn. Urbana, Illinois, 2002. Wax, Loyd M., Douglas J. Maxwell, and Aaron G. Hager. The objective of this research was to evaluate various herbicides for weed control in glyphosate resistant corn. The study was established at the University of Illinois Crop Sciences Research and Education Center, Urbana. The soil was a Flanagan silt loam with a pH of 6.3 and 4.7% organic matter. Asgrow 738 corn was planted 2 inches deep on May 24 in 30 inch rows. Treatments were arranged in randomized complete blocks with three replications of plots 10 by 36 feet. Herbicides were applied with a CO<sub>2</sub> backpack sprayer delivering 20 gpa and equipped with 8003 flat fan nozzles. Application information is listed below:

Date	May 24	June 12	June 17	June 24
Application	pre	epost	post	lpost
Temperature (F)				
Air	66	84	82	92
Soil	62	78	74	83
Soil Moisture	Moist	Moist	Moist	Dry
Wind (mph)	6NE	2W	5W	2S
Sky Cover (%)	100	100	100	0
Precip. after application				
Week 1 (inch)	0.78	0.44	0.00	0.01
Week 2 (inch)	0.62	0.01	0.01	0.02
Relative humidity (%)	70	66	50	70
Corn				
Leaf no.	-	4	6	8
Height (inch)	-	8	14	16
Giant Foxtail				
Leaf no.	-	2	3	1
Height (inch)	-	2	4	2
Common Waterhemp				
Leaf no.	-	5	>8	>8
Height (inch)	-	1.5	4.5	6
Common Lambsquarters				
Leaf no.	-	2	>8	>8
Height (inch)	-	0.5	4	6
Velvetleaf				
Leaf no.	-	1	4	6
Height (inch)	-	0.5	4	5
Common Ragweed				
Leaf no.	-	2	5	6
Height (inch)	-	2	4	5
Common Cocklebur				
Leaf no.	-	1	5	6
Height (inch)	-	1	4	6
Ivyleaf Morningglory				
Leaf no.	-	2	6	>8
Height (inch)	-	1.5	2	4

Corn tolerance to a wide variety of treatments was very good. There was minor, temporary crop response to postemergence treatments of flumiclorac, V-10097, and carfentrazone. By the last rating time, no crop injury was observed with any of the treatments. The experiment was designed to compare a range of single and combination herbicide treatments on glyphosate resistant corn. A number of treatments that gave very good to excellent control of a range of troublesome weed species. Very good moisture during the early part of the season, followed by dry weather for mid-season, may have reduced the number of late emerging weeds, thus causing the single glyphosate treatments to be about as effective as the multiple and sequential applications. Many treatments were more effective and yielded better than the standard chloroacetamide and atrazine preemergence treatment. (Dept. of Crop Sciences, University of Illinois, and Invasive Weed Mgt. Res., USDA, Agric. Res. Serv., Urbana).

Table 1. Weed control systems for weed control in glyphosate resistant corn. Urbana, Illinois, 2002. (Wax, Maxwell, and Hager).

Treatment	Appl Rate (lb/A)	Time	Zeamd 6-24 % inj	Setfa 6-24	Amata 6-24	Cheal 6-24	Abuth 6-24	Ambel 6-24	Xanst 6-24	Ipohe 6-24
			-----% control-----							
Glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	94	87	90	87
Glyphosate <sup>2</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	93	87	93	85
Glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	99	85	88	82
Glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%	epost	0	99	99	99	95	95	90	87
+glyphosate <sup>1</sup> +NpakAMS	0.56+2.5%	lpost								
Glyphosate <sup>2</sup> +NpakAMS	0.75+2.5%	epost	0	99	99	93	99	98	92	87
+glyphosate <sup>2</sup> +NpakAMS	0.56+2.5%	lpost								
Glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	epost	0	99	99	99	96	96	92	87
+glyphosate <sup>3</sup> +NpakAMS	0.56+2.5%	lpost								
S-meto&atra&CGA-154281	1.26+1.63	pre	0	99	99	99	99	99	99	90
+glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%	post								
Acet&atrazine&Mon4660	1.09+0.54	pre	0	99	99	99	99	99	85	85
+glyphosate <sup>2</sup> +NpakAMS	0.75+2.5%	post								
Acetochlor&atrazine	1.2+0.8	pre	0	99	99	99	99	96	95	87
+glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	post								
S-meto&atra&CGA-154281	0.96+1.24	epost	0	99	99	99	99	99	99	96
+glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%									
Acet&atrazine&Mon4660	1.09+0.54	epost	0	99	99	99	99	96	95	93
+glyphosate <sup>2</sup> +NpakAMS	0.75+2.5%									
Glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	epost	0	99	99	99	99	99	98	89
+flumetsulam&clopypyrilid	0.035+0.093									
+Activator90	0.25%									
S-metolachlor&CGA-154281	1.59	pre	0	98	99	99	99	99	99	95
+dicamba&atrazine+Act90	0.48+0.92+0.125%	epost								
S-meto&atra&CGA-154281	1.26+1.63	pre	0	99	99	99	77	88	70	67
S-meto&atra&CGA-154281	1.26+1.63	pre	0	99	99	99	99	96	95	92
+prim&CGA-152005	0.027+0.009	post								
+Avtivator90+28%N	0.25%+2.5%									
S-meto&atra&CGA-154281	1.26+1.63	pre	0	99	99	99	98	98	98	92
+dicamba&San 1269H	0.125+0.05	post								
+Avtivator90+28%N	0.25%+1.25%									
S-meto&atra&CGA-154281	0.63+0.81	pre	0	99	99	99	99	93	92	90
+glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%	post								
Acetochlor&atrazine	1.0+0.67	pre	0	99	99	99	99	98	93	92
+glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	post								
S-meto&atra&CGA-154281	0.63+0.82	pre	0	99	99	99	99	99	92	92
+rimsulfuron&nico&atra	0.012+0.012+0.756	epost								
+Herbimax+28%N	1.0%+5.0%									
Dica&San 1269H&nico	0.124+0.048+0.028	epost	0	99	99	99	90	88	88	88
+Avtivator90+28%N	0.25%+5.0%									
S-meto&atra&CGA-154281	1.26+1.63	pre	0	99	99	99	99	99	99	99
+mesotrione+atrazine	0.094+0.25	post								
+Herbimax+28%N	1.0%+2.5%									
S-meto&atra&CGA-154281	0.63+0.82	pre	0	99	99	99	98	98	96	96
+nicosulfuron&rimsulfuron	0.023+0.012	epost								
+dicamba	0.125									
+Herbimax+28%N	1.0%+2.5%									
Flumiclorac+glyt <sup>2</sup> +NpakAMS	0.014+0.75+2.5%	post	10	99	99	99	98	90	85	87
Glyphosate&flumiclorac <sup>4</sup>	0.75+0.014	post	18	99	99	99	99	85	83	83
+Activator90+NpakAMS	0.25%+2.5%									
Carfentrazone+glyphosate <sup>2</sup>	0.004+0.75	post	22	99	99	99	99	93	95	95
+NpakAMS	2.5%									
Check	-	-	0	0	0	0	0	0	0	0
Glyphosate <sup>5</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	96	92	85	80
Glyphosate <sup>6</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	96	91	85	83
LSD (0.05)			3	1	0	2	4	8	9	8

<sup>1</sup> Touchdown <sup>2</sup> Roundup Ultra Max <sup>3</sup> Glyphomax Plus <sup>4</sup> V-10097 <sup>5</sup> WeatherMax <sup>6</sup> ClearOut41Plus

Table 2. Weed control systems for weed control in glyphosate resistant corn. Urbana, Illinois, 2002. (Wax, Maxwell, and Hager).

Treatment	Appl Rate (lb/A)	Time	Zeamd 7-5 % inj	Setfa 7-5	Amata 7-5	Cheal 7-5	Abuth 7-5	Ambel 7-5	Xanst 7-5	Ipohc 7-5	Yield 10-8 Bu/A
Glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	96	87	91	83	168.6
Glyphosate <sup>2</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	91	87	90	83	175.7
Glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	99	83	83	80	163.3
Glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%	epost	0	99	99	98	99	99	98	96	168.2
+glyphosate <sup>1</sup> +NpakAMS	0.56+2.5%	lpost									
Glyphosate <sup>2</sup> +NpakAMS	0.75+2.5%	epost	0	99	99	96	99	99	97	95	164.1
+glyphosate <sup>2</sup> +NpakAMS	0.56+2.5%	lpost									
Glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	epost	0	99	99	99	99	99	98	97	166.5
+glyphosate <sup>3</sup> +NpakAMS	0.56+2.5%	lpost									
S-meto&atra&CGA-154281	1.26+1.63	pre	0	99	99	99	99	99	99	87	169.4
+glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%	post									
Acet&atrazine&Mon4660	1.09+0.54	pre	0	99	99	99	99	99	87	82	164.2
+glyphosate <sup>2</sup> +NpakAMS	0.75+2.5%	post									
Acetochlor&atrazine	1.2+0.8	pre	0	99	99	99	99	96	90	85	171.1
+glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	post									
S-meto&atra&CGA-154281	0.96+1.24	epost	0	99	99	99	99	99	98	95	170.5
+glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%										
Acet&atrazine&Mon4660	1.09+0.54	epost	0	99	99	99	99	94	90	87	176.9
+glyphosate <sup>2</sup> +NpakAMS	0.75+2.5%										
Glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	epost	0	99	99	99	99	99	97	93	177.0
+flumetsulam&clopypalid	0.035+0.093										
+Activator90	0.25%										
S-metolachlor&CGA-154281	1.59	pre	0	99	99	99	99	99	99	94	167.8
+dicamba&atrazine+Act90	0.48+0.92+0.125%	epost									
S-meto&atra&CGA-154281	1.26+1.63	pre	0	99	99	99	82	87	77	70	145.9
S-meto&atra&CGA-154281	1.26+1.63	pre	0	99	99	99	99	96	89	88	158.5
+prim&CGA-152005	0.027+0.009	post									
+Avtivator90+28%N	0.25%+2.5%										
S-meto&atra&CGA-154281	1.26+1.63	pre	0	99	99	99	99	99	99	92	160.9
+dicamba&San 1269H	0.125+0.05	post									
+Avtivator90+28%N	0.25%+1.25%										
S-meto&atra&CGA-154281	0.63+0.81	pre	0	99	99	99	99	93	92	88	168.5
+glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%	post									
Acetochlor&atrazine	1.0+0.67	pre	0	99	99	99	99	99	92	88	173.8
+glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	post									
S-meto&atra&CGA-154281	0.63+0.82	pre	0	99	99	99	99	97	95	90	173.3
+rimsulfuron&nico&atra	0.012+0.012+0.756	epost									
+Herbimax+28%N	1.0%+5.0%										
Dica&San 1269H&nico	0.124+0.048+0.028	epost	0	99	99	99	88	87	90	87	164.1
+Avtivator90+28%N	0.25%+5.0%										
S-meto&atra&CGA-154281	1.26+1.63	pre	0	99	99	99	99	99	99	99	184.3
+mesotrione+atrazine	0.094+0.25	post									
+Herbimax+28%N	1.0%+2.5%										
S-meto&atra&CGA-154281	0.63+0.82	pre	0	99	99	99	99	99	97	92	182.5
+nicosulfuron&rimsulfuron	0.023+0.012	epost									
+dicamba	0.125										
+Herbimax+28%N	1.0%+2.5%										
Flumiclorac+glyt <sup>2</sup> +NpakAMS	0.014+0.75+2.5%	post	10	99	99	99	99	91	87	87	168.1
Glyphosate&flumiclorac <sup>4</sup>	0.75+0.014	post	13	99	99	99	99	88	84	82	165.5
+Activator90+NpakAMS	0.25%+2.5%										
Carfentrazone+glyphosate <sup>2</sup>	0.004+0.75	post	17	99	99	99	99	96	96	92	176.2
+NpakAMS	2.5%										
Check	-	-	0	0	0	0	0	0	0	0	59.7
Glyphosate <sup>5</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	94	90	87	82	165.5
Glyphosate <sup>6</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	94	94	83	82	159.3
LSD (0.05)			1	0	0	2	4	6	7	5	20

<sup>1</sup> Touchdown <sup>2</sup> Roundup Ultra Max <sup>3</sup> Glyphomax Plus <sup>4</sup> V-10097 <sup>5</sup> WeatherMax <sup>6</sup> ClearOut41Plus

Table 3. Weed control systems for weed control in glyphosate resistant corn. Urbana, Illinois, 2002. (Wax, Maxwell, and Hager).

Treatment	Appl Rate (lb/A)	Time	Zeamd 7-16 % inj	Setfa 7-16	Amata 7-16	Cheal 7-16	Abuth 7-16	Ambel 7-16	Xanst 7-16	Ipoh 7-16
				% control						
Glyphosate <sup>1</sup> +NpakAMS	0.75+2.5%	post	0	99	99	96	99	90	90	90
Glyphosate <sup>2</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	99	90	93	92
Glyphosate <sup>3</sup> +NpakAMS	0.75+2.5%	post	0	99	99	95	98	93	95	87
Glyphosate <sup>1</sup> +NpakAMS +glyphosate <sup>1</sup> +NpakAMS	0.75+2.5% 0.56+2.5%	epost lpost	0	99	99	96	99	99	95	93
Glyphosate <sup>2</sup> +NpakAMS +glyphosate <sup>2</sup> +NpakAMS	0.75+2.5% 0.56+2.5%	epost lpost	0	99	99	98	99	99	99	92
Glyphosate <sup>3</sup> +NpakAMS +glyphosate <sup>3</sup> +NpakAMS	0.75+2.5% 0.56+2.5%	epost lpost	0	99	99	99	99	99	99	96
S-meto&atra&CGA-154281 +glyphosate <sup>1</sup> +NpakAMS	1.26+1.63 0.75+2.5%	pre post	0	99	99	99	99	99	99	96
Acet&atrazine&Mon4660 +glyphosate <sup>2</sup> +NpakAMS	1.09+0.54 0.75+2.5%	pre post	0	99	99	99	99	96	93	85
Acetochlor&atrazine +glyphosate <sup>3</sup> +NpakAMS	1.2+0.8 0.75+2.5%	pre post	0	99	99	99	99	99	96	89
S-meto&atra&CGA-154281 +glyphosate <sup>1</sup> +NpakAMS	0.96+1.24 0.75+2.5%	epost	0	98	99	99	98	96	93	93
Acet&atrazine&Mon4660 +glyphosate <sup>2</sup> +NpakAMS	1.09+0.54 0.75+2.5%	epost	0	97	99	99	99	96	97	96
Glyphosate <sup>3</sup> +NpakAMS +flumetsulam&clopyralid +Activator90	0.75+2.5% 0.035+0.093 0.25%	epost	0	95	96	99	99	94	93	85
S-metolachlor&CGA-154281 +dicamba&atrazine+Act.90	1.59 0.48+0.92+0.125%	pre epost	0	92	99	99	99	99	95	93
S-meto&atra&CGA-154281	1.26+1.63	pre	0	96	99	99	78	82	70	67
S-meto&atra&CGA-154281 +prim&CGA-152005 +Avtivator90+28%N	1.26+1.63 0.027+0.009 0.25%+2.5%	pre post	0	99	99	99	98	99	96	87
S-meto&atra&CGA-154281 +dicamba&San 1269H +Avtivator90+28%N	1.26+1.63 0.125+0.05 0.25%+1.25%	pre post	0	98	99	99	99	99	98	96
S-meto&atra&CGA-154281 +glyphosate <sup>1</sup> +NpakAMS	0.63+0.81 0.75+2.5%	pre post	0	99	99	99	99	96	93	92
Acetochlor&atrazine +glyphosate <sup>3</sup> +NpakAMS	1.0+0.67 0.75+2.5%	pre post	0	99	99	99	99	99	96	96
S-meto&atra&CGA-154281 +rimsulfuron&nico&atra +Herbimax+28%N	0.63+0.82 0.012+0.012+0.756 1.0%+5.0%	pre epost	0	99	99	99	95	96	89	92
Dica&San 1269H&nico +Avtivator90+28%N	0.124+0.048+0.028 0.25%+5.0%	epost	0	99	99	99	97	96	95	90
S-meto&atra&CGA-154281 +mesotrione+atrazine +Herbimax+28%N	1.26+1.63 0.094+0.25 1.0%+2.5%	pre post	0	97	99	99	99	99	98	96
S-meto&atra&CGA-154281 +nicosulfuron&rimsulfuron +dicamba +Herbimax+28%N	0.63+0.82 0.023+0.012 0.125 1.0%+2.5%	pre epost	0	99	99	99	96	96	93	90
Flumiclorac+glyt <sup>2</sup> +NpakAMS	0.014+0.75+2.5%	post	0	99	99	99	99	90	96	92
Glyphosate&flumiclorac <sup>4</sup> +Activator90+NpakAMS	0.75+0.014 0.25%+2.5%	post	0	99	99	94	99	91	96	90
Carfentrazone+glyphosate <sup>2</sup> +NpakAMS	0.004+0.75 2.5%	post	0	99	99	99	99	92	93	95
Check	-	-	0	0	0	0	0	0	0	0
Glyphosate <sup>5</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	99	96	96	90
Glyphosate <sup>6</sup> +NpakAMS	0.75+2.5%	post	0	99	99	99	99	99	96	87
LSD (0.05)			0	3	2	3	3	6	5	7

<sup>1</sup> Touchdown <sup>2</sup> Roundup Ultra Max <sup>3</sup> Glyphomax Plus <sup>4</sup> V-10097 <sup>5</sup> WeatherMax <sup>6</sup> ClearOut41Plus