

## Weed Control in Corn

Sequential herbicide systems for weed control in corn. Urbana, Illinois, 2005. Maxwell, Douglas J., Aaron G. Hager, and James L. Moody. The objective of this research was to evaluate sequential herbicide systems for weed control in corn. The study was established at the Crop Sciences Research and Education Center, Urbana, IL. The soil was a Flanagan silt loam with a pH of 6.4 and 4.8% organic matter. Pioneer 3367 corn was planted 2 inches deep on April 28 in 30 inch rows. Treatments were arranged in randomized complete blocks with three replications of plots 7.5 by 36 feet. Herbicides were applied with a CO<sub>2</sub> backpack sprayer delivering 20 gpa and equipped with 80025 air induction nozzles. Application information is listed below:

Date	April 28	May 25	June 1
Application	pre	epost	post
Temperature (F)			
Air	52	72	80
Soil	52	69	75
Soil Moisture	moist	moist	dry
Wind (mph)	7-SW	6-N	4-E
Sky Cover (%)	100	0	0
Precip. after application			
Week 1 (inch)	0.05	0.00	0.03
Week 2 (inch)	0.07	0.03	1.67
Relative humidity (%)	40	33	30
Corn			
Leaf no.	-	2	5
Height (inch)	-	5	12
Giant Foxtail			
Leaf no.	-	2	3
Height (inch)	-	2	5
Common Lambsquarters			
Leaf no.	-	7	>9
Height (inch)	-	1.5	3.5
Common Ragweed			
Leaf no.	-	2	4
Height (inch)	-	2	3
Velvetleaf			
Leaf no.	-	1	4
Height (inch)	-	1	3
Tall Morningglory			
Leaf no.	-	1	5
Height (inch)	-	1	2

There was no crop injury observed with any of the treatments. Control of giant foxtail at the time of postemergence application was < 70% for all preemergence treatments, except acetochlor&atrazine (as Keystone) and S-metolachlor&atrazine (as Bicep II Magnum) treatments. Broadleaf weed control from preemergence treatments was fair to poor under the dry conditions and heavy weed pressure. Early postemergence treatments greatly improved broadleaf weed control (87-99%) but managed only 65-77% giant foxtail control 15 days after application (DAA). Broadleaf control remained excellent (87-99%) for early postemergence treatments 37 DAA. Giant foxtail control declined for early postemergence treatments by 37 DAA. Postemergence treatments showed a similar improvement in broadleaf weed control at 8 and 30 DAA. Giant foxtail control from postemergence applications did not greatly improve at 8 and 30 DAA, with the exception of treatments containing 0.016 lb/a topramezone (as Impact). Topramezone treatments maintained giant foxtail control at 83-88% 30 DAA. The highest yields were obtained from the 3 postemergence topramezone treatments and the early postemergence nicosulfuron&rimsulfuron-containing treatment. (Dept. of Crop Sciences, University of Illinois, Urbana).

Table 1. Sequential herbicide systems for weed control in corn. Urbana, Illinois, 2005. (Maxwell, Hager, and Moody).

Treatment	Appl Rate (lb/A)	Time	Zeamd	Setfa	Cheal	Ambel	Abuth	Phbpu
			5-26 % inj	5-26	5-26	5-26	5-26	5-26
Dimethenamid-p&atrazine	0.85+1.65	pre	0	50	88	57	73	72
+dicamba&atrazine+N-Pak AMS <sup>1</sup>	0.41+0.79+2.5%	epost						
Dimethenamid-p	0.98	pre	0	63	65	57	33	65
+dicamba&atrazine+N-Pak AMS	0.48+0.92+2.5%	epost						
Dimethenamid-p&atrazine	0.85+1.65	pre	0	60	88	68	65	67
+dicamba&diflufenopyr	0.125+0.05	epost						
+Activator 90 <sup>2</sup> +N-Pak AMS	0.25%+2.5%							
Dimethenamid-p&atrazine	0.43+0.82	pre	0	62	88	57	63	55
+pendimethalin+mesotrione	1.19+0.094	epost						
+atrazine+Herbimax <sup>3</sup> +28%N	1.0+1.0%+2.5%							
Dimethenamid-p&atrazine	0.43+0.82	pre	0	40	55	53	60	45
+pendimethalin+dica&difl	1.19+0.094+0.036	epost						
+atrazine+Activator 90	1.0+1.0%+2.5%							
+N-Pak AMS	2.5%							
S-metolachlor&atrazine&benoxacor <sup>4</sup>	0.45+0.58	pre	0	42	53	55	30	37
+nicosulfuron&rimsulfuron+meso	0.023+0.012+0.047	epost						
+atrazine+Herbimax+28%N	0.5+1.0%+2.5%							
Acetochlor&atrazine&dichlormid <sup>5</sup>	2.0+1.5	pre	0	75	82	67	75	70
+flumetsulam&clopyralid	0.034+0.094	post						
+mesotrione+atrazine	0.023+0.25							
+Herbimax+N-Pak AMS	1.0%+2.5%							
S-metolachlor&atrazine&benoxacor <sup>6</sup>	1.44+1.86	pre	0	70	78	72	75	58
+mesotrione+atrazine	0.094+0.50	post						
+Herbimax+N-Pak AMS	1.0%+2.5%							
Acetochlor&atrazine&dichlormid <sup>5</sup>	2.0+1.5	pre	0	77	90	80	70	50
+fluroxypyr	0.12	post						
Check	-	-	0	0	0	0	0	0
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	47	73	50	57	57
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	67	90	65	43	60
+topramezone <sup>8</sup> +atrazine	0.016+0.5	post						
+MSO <sup>9</sup> +28%N	1.0%+2.5%							
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	57	67	63	57	58
+mesotrione+atrazine	0.094+0.25	post						
+Herbimax+28%N	1.0%+2.5%							
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	58	72	73	43	60
+dicamba&diflufenopyr	0.125+0.05	post						
+Activator 90+28%N	0.25%+1.25%							
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	52	60	45	63	47
+topramezone <sup>8</sup> +atrazine	0.016+0.5	post						
+nicosulfuron+MSO+28%N	0.031+1.0%+2.5%							
KIH-485	0.19	pre	0	57	43	42	42	37
+topramezone <sup>8</sup> +atrazine	0.016+0.5	post						
+nicosulfuron+MSO+28%N	0.01631+1.0%+2.5%							
LSD (0.05)			0	18	18	21	17	22

<sup>1</sup> N-PaK AMS is an ammonium sulfate solution from Agrilience LLC; <sup>2</sup> Activator 90 is a non-ionic surfactant blend from Loveland Products, Inc; <sup>3</sup> Herbimax is an oil, emulsifier, and surfactant blend from Loveland Products, Inc; <sup>4</sup> Cinch ATZ<sup>2</sup> Keystone; <sup>5</sup> Bicep II Magnum; <sup>6</sup> Bicep Lite II Magnum; <sup>7</sup> Bicep Lite II Magnum; <sup>8</sup> Impact from AMVAC.

Table 2. Sequential herbicide systems for weed control in corn. Urbana, Illinois, 2005. (Maxwell, Hager, and Moody).

Treatment	Appl Rate (lb/A)	Time	Zeamd	Setfa	Cheal	Ambel	Abuth	Phbpu
			6-9 % inj	6-9	6-9	6-9	6-9	6-9
Dimethenamid-p&atrazine	0.85+1.65	pre	0	65	99	95	99	93
+dicamba&atrazine+N-Pak AMS <sup>1</sup>	0.41+0.79+2.5%	epost						
Dimethenamid-p	0.98	pre	0	72	98	87	99	92
+dicamba&atrazine+N-Pak AMS	0.48+0.92+2.5%	epost						
Dimethenamid-p&atrazine	0.85+1.65	pre	0	77	99	88	99	88
+dicamba&diflufenopyr	0.125+0.05	epost						
+Activator 90 <sup>2</sup> +N-Pak AMS	0.25%+2.5%							
Dimethenamid-p&atrazine	0.43+0.82	pre	0	70	99	95	99	93
+pendimethalin+mesotrione	1.19+0.094	epost						
+atrazine+Herbimax <sup>3</sup> +28%N	1.0+1.0%+2.5%							
Dimethenamid-p&atrazine	0.43+0.82	pre	0	70	99	90	99	92
+pendimethalin+dica&difl	1.19+0.094+0.036	epost						
+atrazine+Activator 90	1.0+1.0%+2.5%							
+N-Pak AMS	2.5%							
S-metolachlor&atrazine&benoxacor <sup>4</sup>	0.45+0.58	pre	0	70	99	95	94	93
+nicosulfuron&rimsulfuron+meso	0.023+0.012+0.047	epost						
+atrazine+Herbimax+28%N	0.5+1.0%+2.5%							
Acetochlor&atrazine&dichlormid <sup>5</sup>	2.0+1.5	pre	0	63	99	98	99	93
+flumetsulam&clopyralid	0.034+0.094	post						
+mesotrione+atrazine	0.023+0.25							
+Herbimax+N-Pak AMS	1.0%+2.5%							
S-metolachlor&atrazine&benoxacor <sup>6</sup>	1.44+1.86	pre	0	67	99	99	99	99
+mesotrione+atrazine	0.094+0.50	post						
+Herbimax+N-Pak AMS	1.0%+2.5%							
Acetochlor&atrazine&dichlormid <sup>5</sup>	2.0+1.5	pre	0	60	93	88	98	88
+fluroxypyr	0.12	post						
Check	-	-	0	0	0	0	0	0
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	23	30	20	0	0
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	90	99	93	98	93
+topramezone <sup>8</sup> +atrazine	0.016+0.5	post						
+MSO <sup>9</sup> +28%N	1.0%+2.5%							
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	53	99	95	99	95
+mesotrione+atrazine	0.094+0.25	post						
+Herbimax+28%N	1.0%+2.5%							
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	60	93	70	89	70
+dicamba&diflufenopyr	0.125+0.05	post						
+Activator 90+28%N	0.25%+1.25%							
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	87	98	93	98	90
+topramezone <sup>8</sup> +atrazine	0.016+0.5	post						
+nicosulfuron+MSO+28%N	0.031+1.0%+2.5%							
KIH-485	0.19	pre	0	85	99	96	96	87
+topramezone <sup>8</sup> +atrazine	0.016+0.5	post						
+nicosulfuron+MSO+28%N	0.01631+1.0%+2.5%							

LSD (0.05)

0 9 6 7 8 9

<sup>1</sup> N-Pak AMS is an ammonium sulfate solution from Agrilience LLC; <sup>2</sup> Activator 90 is a non-ionic surfactant blend from Loveland Products, Inc; <sup>3</sup> Herbimax is an oil, emulsifier, and surfactant blend from Loveland Products, Inc; <sup>4</sup> Cinch ATZ<sup>2</sup> Keystone; <sup>5</sup> Bicep II Magnum; <sup>6</sup> Bicep Lite II Magnum; <sup>7</sup> Bicep Lite II Magnum; <sup>8</sup> Impact from AMVAC.

Table 3. Sequential herbicide systems for weed control in corn. Urbana, Illinois, 2005. (Maxwell, Hager, and Moody).

Treatment	Appl Rate (lb/A)	Time	Zeamd	Setfa	Cheal	Ambel	Abuth	Phbpu	Yield 10-05 Bu/A
			7-1 % inj	7-1	7-1	7-1	7-1	7-1	
Dimethenamid-p&atrazine	0.85+1.65	pre	0	45	99	98	99	94	100.9
+dicamba&atrazine+N-Pak AMS <sup>1</sup>	0.41+0.79+2.5%	epost							
Dimethenamid-p	0.98	pre	0	52	99	96	99	95	92.4
+dicamba&atrazine+N-Pak AMS	0.48+0.92+2.5%	epost							
Dimethenamid-p&atrazine	0.85+1.65	pre	0	68	99	90	99	88	109.3
+dicamba&diflufenopyr	0.125+0.05	epost							
+Activator 90 <sup>2</sup> +N-Pak AMS	0.25%+2.5%								
Dimethenamid-p&atrazine	0.43+0.82	pre	0	45	99	98	99	93	110.0
+pendimethalin+mesotrione	1.19+0.094	epost							
+atrazine+Herbimax <sup>3</sup> +28%N	1.0+1.0%+2.5%								
Dimethenamid-p&atrazine	0.43+0.82	pre	0	62	99	87	99	87	96.8
+pendimethalin+dica&difl	1.19+0.094+0.036	epost							
+atrazine+Activator 90	1.0+1.0%+2.5%								
+N-Pak AMS	2.5%								
S-metolachlor&atrazine&benoxacor <sup>4</sup>	0.45+0.58	pre	0	63	99	87	99	88	127.2
+nicosulfuron&rimsulfuron+meso	0.023+0.012+0.047	epost							
+atrazine+Herbimax+28%N	0.5+1.0%+2.5%								
Acetochlor&atrazine&dichlormid <sup>5</sup>	2.0+1.5	pre	0	43	99	99	99	93	113.5
+flumetsulam&clopyralid	0.034+0.094	post							
+mesotrione+atrazine	0.023+0.25								
+Herbimax+N-Pak AMS	1.0%+2.5%								
S-metolachlor&atrazine&benoxacor <sup>6</sup>	1.44+1.86	pre	0	50	99	99	99	92	100.1
+mesotrione+atrazine	0.094+0.50	post							
+Herbimax+N-Pak AMS	1.0%+2.5%								
Acetochlor&atrazine&dichlormid <sup>5</sup>	2.0+1.5	pre	0	52	98	96	98	88	94.6
+fluroxypyr	0.12	post							
Check	-	-	0	0	0	0	0	0	5.8
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	20	30	20	0	0	28.3
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	88	99	95	98	91	131.7
+topramezone <sup>8</sup> +atrazine	0.016+0.5	post							
+MSO <sup>9</sup> +28%N	1.0%+2.5%								
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	32	99	99	99	92	94.8
+mesotrione+atrazine	0.094+0.25	post							
+Herbimax+28%N	1.0%+2.5%								
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	65	99	99	99	88	90.8
+dicamba&diflufenopyr	0.125+0.05	post							
+Activator 90+28%N	0.25%+1.25%								
S-metolachlor&atrazine&benoxacor <sup>7</sup>	1.25+1.0	pre	0	83	99	99	99	82	137.8
+topramezone <sup>8</sup> +atrazine	0.016+0.5	post							
+nicosulfuron+MSO+28%N	0.031+1.0%+2.5%								
KIH-485	0.19	pre	0	85	98	99	99	85	136.3
+topramezone <sup>8</sup> +atrazine	0.016+0.5	post							
+nicosulfuron+MSO+28%N	0.01631+1.0%+2.5%								

LSD (0.05)

0 9 4 4 1 7 20

<sup>1</sup> N-PaK AMS is an ammonium sulfate solution from Agrilience LLC; <sup>2</sup> Activator 90 is a non-ionic surfactant blend from Loveland Products, Inc; <sup>3</sup> Herbimax is an oil, emulsifier, and surfactant blend from Loveland Products, Inc; <sup>4</sup> Cinch ATZ<sup>2</sup> Keystone; <sup>5</sup> Bicep II Magnum; <sup>6</sup> Bicep Lite II Magnum; <sup>7</sup> Bicep Lite II Magnum; <sup>8</sup> Impact from AMVAC.