

Comparison of fall applied herbicides in corn. Young, Bryan G., Ronald F. Krausz, and Joseph L. Matthews. This study was designed to evaluate the performance of various fall applied herbicide programs in corn. The study was conducted on a Weir silt loam with 1.9% organic matter and pH 6.1 at the Belleville Research Center. Fertilizer applied was 150, 50 and 150 lb/A N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O, respectively, to an area that had been cropped to soybean in 2001. Pioneer brand '33P69LL' glufosinate-resistant field corn was planted 1.5 inch deep at 28 000 seed/A into a no-till seedbed on May 27. A blanket preemergence application of glyphosate + s-metolachlor & atrazine & CGA-154281 at 0.75 lbae/A + 1.26 & 1.63 lb/A was applied to all plots on May 29. Plots consisted of four rows with 30 inch row spacing, 27 ft long arranged in a randomized complete block design with 3 replications. The herbicides were broadcast applied with a CO<sub>2</sub> pressurized sprayer using 8002 flat fan tips at 40 PSI in 20 GPA water. Application timings were fall following harvest of previous crop (FALL) and early preplant 30 days prior to planned planting date (EPP30). Monthly rainfall in inches was 2.7, 3.9, 3.5, 3.5, 2.0, 1.2, 3.9, 4.9, 6.6, 1.7, 3.7 and 3.6 in September, October, November, December, January, February, March, April, May, June, July and August, respectively. Weed population per 0.25 m<sup>2</sup> in the nontreated plots, on May 1, was 3 dandelion, 1 wild garlic, 1 henbit, 3 common chickweed, 5 little barley, 3 Carolina foxtail, 5 giant foxtail and 6 common ragweed.

Application information is listed below.

Date	Nov-14-01	Apr-11-02
Treatment	FALL	30EPP
Air temperature (F)	65	72
Relative humidity (%)	60	38
Soil moisture	normal	wet
dandelion		
leaf no.	10+	10+
height (inch)	2-4	4-6
wild garlic		
leaf no.	3-4	3-4
height (inch)	4-8	6-10
henbit		
leaf no.	10+	10+
height (inch)	0-2	4-6
common chickweed		
leaf no.	10+	10+
height (inch)	0-2	3-4
little barley		
leaf no.	5-10	5-10
height (inch)	1-4	3-6

Due to excessive rainfall in May, corn planting was delayed until May 27. This delay in planting most likely reduced control of summer annual weeds by the fall herbicide treatments. All of the fall applied herbicide treatments provided complete control of common chickweed and henbit and at least 87% control of dandelion by 148 days after treatment (DAT). Treatments that included rimsulfuron & thifensulfuron, tribenuron, or glyphosate (UM) controlled at least 90% of wild garlic at 148 DAT. Little barley control at planting was highly variable but tended to be greatest from treatments that included glyphosate (UM) or paraquat. There was no difference in little barley control between fall and spring applications of simazine + paraquat. Control of summer annual weeds (giant foxtail, Pennsylvania smartweed, and common ragweed) at planting was also highly variable. Overall, the spring application of simazine plus paraquat provided the greatest control of summer annual weeds. Winter annual weed control had little effect on corn yield as most herbicide treated plots yielded similar to the nontreated plots. (Dept. of Plant, Soil and General Agriculture, Southern Illinois University, Carbondale).

Table. Comparison of fall applied herbicides in corn. (Young, Krausz and Matthews)

Treatment <sup>a</sup>	Application		Corn yield bu/A	Control, days after FALL application <sup>b</sup>									Control at planting <sup>c</sup>				
				TAROF		ALLVI		LAMAM		STEME		HORPU 148	HORPU	ALOCA	SETFA	POLPY	AMBEL
	Rate (lb/A)	Time		28	148	28	148	28	148	28	148						
Nontreated			165	0	0	0	0	0	0	0	0	0	0	0	88	63	63
Glyphosate(TD)	0.75	FALL	169	0	100	0	87	100	100	100	100	100	97	93	68	8	53
Glyphosate(UM)	0.75	FALL	157	0	100	0	90	100	100	97	100	100	98	93	65	23	23
Glyphosate(UM)+2,4-De	0.58+0.5	FALL	152	50	100	50	97	100	100	100	100	100	98	98	72	56	43
Simazine	1.0	FALL	184	0	93	0	57	0	100	0	100	78	60	89	50	69	80
Paraquat+NIS	0.312+0.25%	FALL	160	8	87	83	83	93	100	100	100	97	73	81	33	67	53
Simazine+paraquat+NIS	1.0+0.312+0.25%	FALL	163	100	93	93	92	100	100	100	100	100	98	99	42	96	63
Metribuzin+2,4-De+COC	0.25+0.5+1.0%	FALL	178	50	93	50	80	100	100	100	100	48	17	54	61	97	62
Atrazine&2,4-De+COC	0.8442&0.3758+2.0pt	FALL	174	67	93	50	88	100	100	90	100	92	96	97	45	88	60
Rimsulfuron&thifensulfuron +atrazine&2,4-De+COC	0.0156&0.0078 +0.8442&0.3758+2.0pt	FALL	173	0	100	50	98	100	100	93	100	100	98	99	33	68	57
Rimsulfuron&thifensulfuron +2,4-De+COC	0.0156&0.0078 +0.39+2.0pt	FALL	164	100	100	50	90	100	100	93	100	82	55	97	48	94	40
Metribuzin+simazine +2,4-De+COC	0.1875+1.0 +0.39+2.0pt	FALL	174	0	93	50	53	100	100	87	100	55	49	92	52	95	78
Flumetsulam+2,4-De+COC	0.05+0.39+2.0pt	FALL	165	0	100	50	17	87	100	87	100	33	15	61	75	45	75
Rimsulfuron&thifensulfuron +2,4-De+COC	0.0156&0.0078 +0.5+1.0%	FALL	161	67	100	67	93	93	100	93	100	81	57	98	63	99	32
Rimsulfuron&thifensulfuron +simazine+2,4-De+COC	0.0103&0.0052 +1.0+0.5+1.0%	FALL	160	0	100	50	90	100	100	100	100	93	86	99	23	51	45
Rimsulfuron&thifensulfuron +simazine+2,4-De+COC	0.0103&0.0052 +0.45+0.5+1.0%	FALL	164	100	100	50	85	100	100	100	100	93	87	99	49	69	47
Tribenuron+simazine +2,4-De+COC	0.0155+1.0 +0.5+1.0%	FALL	173	50	100	50	90	87	100	87	100	57	54	86	33	71	68
Flumioxazin+2,4-De+COC	0.063+0.5+1.0%	FALL	199	100	100	50	28	87	100	100	100	32	33	42	82	73	86
Flumioxazin+2,4-De+COC	0.078+0.5+1.0%	FALL	182	50	97	50	80	90	100	100	100	42	65	40	77	81	80
Flumioxazin+simazine +2,4-De+COC	0.063+1.0 +0.5+1.0%	FALL	188	100	100	50	88	87	100	100	100	93	86	74	65	93	93
Simazine+paraquat+NIS	1.0+0.312+0.25%	30EPP	166										85	98	81	99	92
LSD			23	15	9	11	32	10	0	11	0	45	41	23	28	43	31
P			0.03	0.01	0.01	0.01	0.01	0.01	1.0	0.01	1.0	0.01	0.01	0.01	0.01	0.01	0.01

<sup>a</sup>Glyphosate(TD) was Touchdown from Syngenta.

Glyphosate(UM) was Roundup UltraMax from Monsanto.

NIS = Activator 90, a nonionic surfactant from Loveland Industries, Inc.

COC = Herbimax crop oil concentrate, a petroleum based additive with 17% emulsifier from Loveland Industries, Inc.

A blanket preemergence application of glyphosate + s- metolachlor & atrazine & CGA-154281 at 0.75 lb/ae/A + 1.26 & 1.63 lb/A was applied to all plots on May 29.

<sup>b</sup>Rating timings and dates:

Ratings at 148 days after FALL application are at 30EPP application.

Ratings at 28 and 148 days after FALL application and at planting were made on Dec-12-01, Apr-11-02, and May-27-02, respectively.

<sup>c</sup>Weed control in the nontreated plots at plantings was due to competition from HORPU and ALOCA.