

Evaluation of pendimethalin CS and EC. Young, Bryan G. and Ronald F. Krausz. This study was designed to evaluate new formulation of pendimethalin for extended soil residual activity in fall and spring applications. The study was conducted on a Weir silt loam with 1.5% organic matter and pH 6.4 at the Belleville Research Center. Fertilizer applied was 50 and 150 lb/A P_2O_5 and K_2O , respectively, to an area that had been cropped to corn in 2001. Asgrow brand 'AG 4602 RR' glyphosate-resistant soybean was planted 1.0 inch deep at 75 lb/A on May 30. Plots consisted of four rows with 30 inch row spacing, 34 ft long arranged in a split-plot design with 3 replications. The main plot was either no-till, fall-till or spring-till, and the sub-plot was herbicide treatment. The herbicides were broadcast applied with a CO_2 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, 14 days prior to planned planting (EPP14). 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 m² in the nontreated, fall-tilled plots, on May 1, was 2 wild garlic, 7 little barley, 1 barnyardgrass, 1 giant ragweed, 4 common ragweed and <1 Pennsylvania smartweed. Weed population per 0.25 m² in the nontreated, spring-tilled plots, prior to tillage, on May 1, was 2 henbit, 2 wild garlic, 7 little barley, 1 barnyardgrass, 1 giant ragweed, 1 common ragweed and <1 Pennsylvania smartweed.

Application information is listed below.

Date	Nov-14-01	Apr-30-02
Treatment	FALL	EPP14
Air temperature (F)	54	74
Relative humidity (%)	60	40
Soil moisture	normal	wet

henbit

leaf no.	10+
height (inch)	0-2

wild garlic

leaf no.	3-4	3-4
height (inch)	4-6	6-12

little barley

leaf no.	5-10	5-6
height (inch)	1-4	4-6

giant ragweed

leaf no.	4-5
height (inch)	3-4

common ragweed

leaf no.	3-4
height (inch)	1-3

In no-till, fall applications of pendimethalin CS plus glyphosate and pendimethalin EC plus glyphosate controlled 52 and 75% of barnyardgrass at planting, respectively. However, due to highly variable barnyardgrass control, there was no significant difference between the two treatments. Similarly, when fall disking was used, pendimethalin CS (57%) provided numerically less barnyardgrass control than pendimethalin EC (87%) but this difference was not statistically significant. Barnyardgrass control was 98 to 99% from 14 day early preplant applications of pendimethalin CS or EC plus glyphosate in no-till. Fall panicum control 28 days after planting in no-till was significantly greater from pendimethalin EC compared to pendimethalin CS, regardless of application timing. In general, spring applications of pendimethalin CS and pendimethalin EC provided greater weed control than fall applications. (Dept. of Plant, Soil and General Agriculture, Southern Illinois University, Carbondale).

Table. Evaluation of pendimethalin CS and EC. (Young and Krausz)

Treatment ^a	Application		Control ^b				Control, days after planting								
			145 days after FALL			At plant	ECHCG	AMBTR			AMBEL		POLPY		PANDI
	Rate	Time	LAMAM	ALLVI	HORPU	HORPU		0	28	0	28	0	28		
	(lb/A)		%	%	%	%	%	%	%	%	%	%	%		
No-till, no herbicides after burndown, glyphosate+AMS	0.75+2.0%	FALL	100	92	100	90	0	7	0	23	0	17	0	0	
Fall disc, nontreated			100	90	93	0	3	0	0	0	0	0	0	0	
Spring disc, nontreated			0	0	0				82		80		91	68	
No-till, pendimethalin(CS)+glyphosate+AMS	1.47+0.75+2.0%	FALL	100	92	100	95	52	25	23	30	0	50	10	62	
Fall disc, pendimethalin(CS)	1.47	FALL	100	93	95	60	57	27	17	3	0	23	0	75	
Spring disc, pendimethalin(CS)	1.47	14EPP							86		77		93	70	
No-till, pendimethalin(CS)+glyphosate+AMS	1.47+0.75+2.0%	14EPP				99	98	96	70	93	35	99	93	55	
No-till, pendimethalin(EC)+glyphosate+AMS	1.47+0.75+2.0%	FALL	100	92	100	99	75	0	0	40	0	72	0	78	
Fall disc, pendimethalin(EC)	1.47	FALL	100	90	93	82	87	0	10	0	0	7	0	83	
Spring disc, pendimethalin(EC)	1.47	14EPP							90		83		99	68	
No-till, pendimethalin(EC)+glyphosate+AMS	1.47+0.75+2.0%	14EPP				99	99	98	73	95	68	99	88	80	
LSD			0	7	6	33	36	38	28	32	17	39	11	11	
P			1.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	

^aAll glyphosate was Roundup UltraMax from Monsanto; pendimethalin(CS) and (EC) are Prowl H2O and Prowl, respectively.^b145 days after FALL application, 0 and 28 days after planting was on Apr-8-02, May-30-02, and Jun-27-02, respectively.