Evaluation of Pendimethalin CS and EC.

02-2B-ME70

OBJECTIVE: Evaluate new formulation of pendimethalin for extended soil residual activity in fall and spring applications.

SUMMARY: In no-till, fall applications of pendimethalin CS plus Roundup UltraMax and pendimethalin EC plus Roundup UltraMax 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 and EC plus Roundup UltraMax 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.

HERBICIDES/TILLAGES	WEEDS	CROP
PENDIMETHALIN CS 3.8 CS	barley, little	soybean
PENDIMETHALIN EC 3.3 EC	barnyardgrass	
ROUNDUP ULTRA MAX 3.7 SL	garlic, wild	
FALL DISC	henbit	
NO-TILL	panicum, fall	
SPRING DISC	ragweed, common	
	ragweed, giant	
	smartweed, Pennsylvania	

Bryan Young

PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Evaluation of Pendimethalin CS and EC.

Project Code: 02-2B-ME70 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Final **Updated:** 10-31-02

Objective:
Evaluate new formulation of pendimethalin for extended soil residual activity in fall and spring applications.

Weed Code	Common Name	Scientific Name
1. LAMAM	henbit	Lamium amplexicaule L.
2. ALLVI	garlic, wild	Allium vineale L.
3. HORPU	barley, little	Hordeum pusillum Nutt.
4. ECHCG	barnyardgrass	Echinochloa crus-galli (L.) Beauv.
5. AMBTR	ragweed, giant	Ambrosia trifida L.
6. AMBEL	ragweed, common	Ambrosia artemisiifolia L.
7. POLPY	smartweed, Pennsylvania	Polygonum pensylvanicum L.
8. PANDI	panicum, fall	Panicum dichotomiflorum Michx.

Crop 1: GLXMA soybean **Variety:** Asgrow 4602 RR
Planting Method: Seeded **Planting Date:** 5-30-02
Rate: 75 lb/A **Depth:** 1.0 IN
Row Spacing: 30 IN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 34 FT **Reps:** 3
Tillage Type: See trt list **Study Design:** Split-plot
Previous Crop, Year: ZEAMX, 2001

Field Prep./Maintenance: N 0 LB/A, P2O5 50 LB/A, K2O 150 LB/A

Soil Name: Weir **% OM:** 1.5 **pH:** 6.4 **CEC:** 9
Texture: Silt loam **Fert. Level:** P1: 87 LB/A, K: 259 LB/A

APPLICATION DESCRIPTION

	A	B
Application Date:	11-14-01	4-30-02
Time of Day:	9:00	11:00
Application Method:	Spray	Spray
Application Timing:	FALL	EPP14
Applic. Placement:	BROFOL	BROFOL
Air Temp., Unit:	54 F	74 F
% Relative Humidity:	60	40
Wind Velocity, Unit:	3 MPH	3 MPH
Soil Moisture:	NORMAL	ABONOR

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code, Stage:	GLXMA NA	GLXMA NA
Height, Unit:	NA NA	NA NA

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	LAMAM	
Stage(leaves):	10+	
Height(inches):	0-2	
Density:	Low	
Weed 2 Code:	ALLVI	ALLVI
Stage(leaves):	3-4	3-4
Height(inches):	4-6	6-12
Density:	Medium	Low
Weed 3 Code:	HORPU	HORPU
Stage(leaves):	5-10	5-6
Height(inches):	1-4	4-6
Density:	Low	Medium

Weed 5 Code:	AMBTR
Stage(leaves):	4-5
Height(inches):	3-4
Density:	Low
Weed 6 Code:	AMBEL
Stage(leaves):	3-4
Height(inches):	1-3
Density:	Low

APPLICATION EQUIPMENT

	A	**B**
Appl. Equipment:	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan
Nozzle Size:	8002	8002
Boom Length, Unit:	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA

NOTES:

Tillages are listed in treatment list.
This study was not harvested.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	LAMAM	ALLVI	HORPU	HORPU	ECHCG	AMBTR	AMBTR	AMBEL	AMBEL	POLPY	POLPY	PANDI
	Weed Code																				
	Crop Code																				
	Rating Data Type									Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
	Rating Unit									Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
	Rating Date									4-8-02	4-8-02	4-8-02	5-30-02	5-30-02	5-30-02	6-27-02	5-30-02	6-27-02	5-30-02	6-27-02	6-27-02
	Trt-Eval Interval									145 DA-A	145 DA-A	145 DA-A	0 DAP	0 DAP	0 DAP	28 DAP	0 DAP	28 DAP	0 DAP	28 DAP	28 DAP
1	NO-TILL									100	92	100	90	0	7	0	23	0	17	0	0
1	NO HERBS AFTER BURN DOWN																				
1	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	FALL	A												
1	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A												
2	FALL DISC									100	90	93	0	3	0	0	0	0	0	0	0
2	NONTREATED																				
3	SPRING DISC									0	0	0				82		80		91	68
3	NONTREATED																				
4	NO-TILL									100	92	100	95	52	25	23	30	0	50	10	62
4	PENDIMETHALIN CS	3.8	CS	1.473	LB A/A	3.1	PT/A	FALL	A												
4	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	FALL	A												
4	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A												
5	FALL DISC									100	93	95	60	57	27	17	3	0	23	0	75
5	PENDIMETHALIN CS	3.8	CS	1.473	LB A/A	3.1	PT/A	FALL	A												
6	SPRING DISC															86		77		93	70
6	PENDIMETHALIN CS	3.8	CS	1.473	LB A/A	3.1	PT/A	14EPP	B												
7	NO-TILL												99	98	96	70	93	35	99	93	55
7	PENDIMETHALIN CS	3.8	CS	1.473	LB A/A	3.1	PT/A	14EPP	B												
7	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	14EPP	B												
7	AMS	100	DRY	2.0	% W/W	2	%W/W	14EPP	B												
8	NO-TILL									100	92	100	99	75	0	0	40	0	72	0	78
8	PENDIMETHALIN EC	3.3	EC	1.473	LB A/A	3.57	PT/A	FALL	A												
8	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	FALL	A												
8	AMS	100	DRY	2.0	% W/W	2	%W/W	FALL	A												
9	FALL DISC									100	90	93	82	87	0	10	0	0	7	0	83
9	PENDIMETHALIN EC	3.3	EC	1.473	LB A/A	3.57	PT/A	FALL	A												
10	SPRING DISC															90		83		99	68
10	PENDIMETHALIN EC	3.3	EC	1.473	LB A/A	3.57	PT/A	14EPP	B												
11	NO-TILL												99	99	98	73	95	68	99	88	80
11	PENDIMETHALIN EC	3.3	EC	1.473	LB A/A	3.57	PT/A	14EPP	B												
11	ROUNDUP ULTRA MAX	3.7	SL	0.75	LB AE/A	26	OZ/A	14EPP	B												
11	AMS	100	DRY	2.0	% W/W	2	%W/W	14EPP	B												
LSD (P=.05)										0.0	7.1	5.5	33.0	35.8	37.8	28.3	32.2	17.1	38.9	10.5	11.4

Weed Code									LAMAM	ALLVI	HORPU	HORPU	ECHCG	AMBTR	AMBTR	AMBEL	AMBEL	POLPY	POLPY	PANDI
Crop Code																				
Rating Data Type									Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Rating Unit									Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date									4-8-02	4-8-02	4-8-02	5-30-02	5-30-02	5-30-02	6-27-02	5-30-02	6-27-02	5-30-02	6-27-02	6-27-02
Trt-Eval Interval									145 DA-A	145 DA-A	145 DA-A	0 DAP	0 DAP	0 DAP	28 DAP	0 DAP	28 DAP	0 DAP	28 DAP	28 DAP
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code											
Replicate F									0.000	11.630	0.857	0.874	0.432	1.906	0.792	1.854	1.354	2.027	3.336	0.378
Replicate Prob(F)									1.0000	0.0016	0.4488	0.4387	0.6578	0.1854	0.4665	0.1930	0.2809	0.1686	0.0562	0.6898
Treatment F									0.000	222.963	417.265	9.829	11.002	11.251	16.087	13.529	42.652	9.831	180.493	59.787
Treatment Prob(F)									1.0000	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001

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Trial Comments

1. Protocol: BASF.
2. DA-A = days after FALL application. DAP = days after planting. O DAP = at planting.