

Glyphosate & s-metolachlor in no-till soybean. Young, Bryan, G. and Julie M. Young. This study was designed to evaluate crop tolerance and weed control for preemergence and postemergence applications of glyphosate & s-metolachlor in no-till soybean. The study was conducted on a Weir silt loam with 1.6% organic matter and pH 6.4 at the Belleville Research Center. Fertilizer applied was 50 and 150 lb/A of P₂O₅ and K₂O, respectively, to an area that had been cropped to soybean in 2004. Asgrow 4403 RR soybean was planted 1.0 inch deep at 75 lb/A into a no-till seedbed on May 11, 2005. Plots consisted of eight 15 inch rows, 28 ft long arranged in a randomized complete block design with 3 replications. The herbicides were broadcast applied with a CO₂ pressurized sprayer using 8003 flat fan tips at 40 PSI in 20 GPA water. Monthly rainfall in inches was 2.9, 0.8, 1.6, 4.8 and 3.2 in April, May, June, July and August, respectively. Rainfall in May was sparse; 0.07 inches on the 9th, 0.4 inches on the 14th, and 0.32 inches on the 20th. Weed population per 0.25m² in the nontreated plots, mid-season, was 17 Pennsylvania smartweed, 5 common ragweed, 3 common lambsquarters, and <1 each of fall panicum and ivyleaf morningglory. Applications were made preemergence (PRE), at soybean growth stage V2 to V3 (V2-V3), and at soybean growth stage V5 to V7 (V5-V7). Application information is listed below.

Date	May-12-05	Jun-10-05	Jun-30-05
Treatment	PRE	V2-V3	V5-V7
Air temperature (F)	64	74	76
Relative humidity (%)	96	90	47
Soil moisture	BELNOR	BELNOR	BELNOR

soybean			
leaf no.		V2-V3	V5-V6
height (inch)		4-6	10-12

Pennsylvania smartweed			
leaf no.	10+	10+	10+
height (inch)	4-6	6-12	13-24

common ragweed			
leaf no.			10+
height (inch)			12-28

common lambsquarters			
leaf no.	10+	10+	10+
height (inch)	4-6	6-12	11-23

fall panicum			
leaf no.		5-6	10+
height (inch)		4-6	12-17

Soybean injury was 5% at 7 DAT from glyphosate applied alone at the V2 to V3 soybean stage. Tank mixing s-metolachlor & benoxacor with glyphosate increased soybean injury to 8%. The greatest soybean injury 7 DAT (10 to 11%) was observed from the premix of glyphosate & s-metolachlor applied at the V2 to V3 soybean stage. Soybean injury from V2 to V3 herbicide applications was no longer visible by 35 DAT. Less than 3% soybean injury was observed from glyphosate & s-metolachlor applied PRE and glyphosate applied at the V5 to V7 soybean stage.

All herbicide treatments that included glyphosate or s-metolachlor & glyphosate applied POST controlled at least 90% of Pennsylvania smartweed, common ragweed, common lambsquarters, and fall panicum with few significant differences between treatments. (Dept. of Plant, Soil and Agricultural Systems, Southern Illinois University, Carbondale).

Table. Glyphosate & s-metolachlor in no-till soybean. (Young and Young)

Treatment ^a	Application		Soybean				Control, days after V2-V3 ^b																
			Yield	Injury, days after V2-V3 ^b				POLPY				AMBEL				CHEAL				PANDI			IPOHE
	Rate	Time		bu/A	7	14	21	35	0	14	21	35	0	14	21	35	0	14	21	35	14	21	35
	(lb/A)			%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Nontreated			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paraquat / glyt & s-meto	0.75 / 0.7 & 0.94	PRE / V2-V3	46	10	1	3	0	25	99	99	98	98	99	99	99	86	99	99	99	99	99	99	80
Paraquat / glyt & s-meto	0.75 / 0.85 & 1.12	PRE / V2-V3	56	10	2	3	0	33	99	99	99	95	99	99	99	93	99	99	99	99	99	99	78
Paraquat / glyt & s-meto	0.75 / 1.0 & 1.31	PRE / V2-V3	58	11	2	5	0	23	99	99	99	97	99	99	99	94	99	99	99	99	99	99	85
Paraquat / glyt & s-meto	0.75 / 1.13 & 1.5	PRE / V2-V3	56	11	2	5	0	27	99	99	99	83	99	99	99	91	99	99	99	99	99	99	90
Paraquat / glyt(TT)	0.75 / 0.78	PRE / V2-V3	55	5	1	3	0	27	99	99	99	91	99	99	99	92	99	99	99	99	99	99	90
Paraquat / glyt(TT) / glyt(TT)	0.75 / 0.78 / 0.78	PRE / V2-V3 / V5-V7	60	5	2	7	0	32	99	99	99	93	99	99	99	91	99	99	99	99	99	99	92
glyt & s-meto / glyt(TT)	0.7 & 0.94 / 0.78	PRE / V5-V7	60	0	1	0	0	98	92	88	99	98	96	90	99	99	98	92	99	62	53	96	93
glyt & s-meto / glyt(TT)	0.85 & 1.12 / 0.78	PRE / V5-V7	61	2	0	0	0	98	93	96	99	98	97	91	99	98	75	85	98	53	50	96	95
glyt & s-meto / glyt(TT)	1.0 & 1.31 / 0.78	PRE / V5-V7	61	0	0	2	0	98	91	89	99	98	89	80	99	99	70	95	99	48	52	98	92
glyt & s-meto / glyt(TT)	1.13 & 1.5 / 0.78	PRE / V5-V7	59	0	0	2	0	99	95	99	99	99	96	90	98	99	93	93	99	75	65	96	92
Paraquat / glyt(TT)	0.75 / 0.78	PRE / V5-V7	49	0	0	0	0	27	3	10	78	97	90	83	94	98	34	52	94	20	38	93	90
S-meto & metribuzin + paraquat	1.0 & 0.234 + 0.75	PRE	0	0	1	0	0	80	48	43	28	97	96	88	63	98	62	70	63	78	70	23	92
S-meto & metribuzin + paraquat / glyt(TT)	1.0 & 0.234 + 0.75 / 0.78	PRE / V5-V7	59	1	0	0	0	82	80	70	94	98	98	96	99	96	68	79	96	80	90	98	87
S-meto & fomesafen + paraquat	1.07 & 0.248 +0.75	PRE	0	0	0	0	0	37	10	35	7	95	97	85	89	98	68	86	43	52	47	47	87

(continued)

Table. Glyphosate & s-metolachlor in no-till soybean. (Young and Young)
(continued)

Treatment ^a	Application		Soybean					Control, days after V2-V3 ^b															
			Yield	Injury, days after V2-V3 ^b				POLPY				AMBEL				CHEAL				PANDI			IPOHE
	Rate	Time		bu/A	7	14	21	35	0	14	21	35	0	14	21	35	0	14	21	35	14	21	
	(lb/A)			%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
S-meto & fomesafen + paraquat / glyt(TT)	1.07 & 0.248 +0.75 /0.78	PRE / V5-V7	61	0	0	0	0	62	48	47	90	97	97	88	96	93	62	78	91	77	75	99	90
glyt & s-meto / fomesafen + fluazifop-P & fenoxaprop + MSO + 28%N	0.7 & 0.94 / 0.352 + 0.15 & 0.05 + 1.0% + 2.0%	PRE / V5-V7	40	0	1	0	0	98	89	83	93	97	89	83	99	98	15	70	37	58	55	63	80
Paraquat glyt(TT)	.75 0.78	PRE PRE	0 61	0 0	0 0	0 0	0 0	47 98	10 83	20 85	13 99	95 98	97 96	83 80	90 96	95 98	12 12	43 67	28 96	32 48	23 57	17 88	90 85
+ s-meto & bcor / glyt(TT)	+ 0.89 / 0.78	/ V5-V7																					
Paraquat / s-meto & bcor + glyt(TT)	0.75 / 0.89 + 0.78	PRE / V2-V3	66	8	1	3	0	30	99	99	99	95	99	99	99	95	99	99	99	99	99	99	90
LSD			13.1	3.2	1.3	3.7	0	23	16	13	11	6.9	6.9	10	11	8	44	28	20	38	32	23	18
P			0.01	0.01	0.01	0.01	1.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

^aAll paraquat was Gramoxone Inteon from Syngenta and included NIS at 0.25% v/v. NIS = Activator 90, a nonionic surfactant from Loveland Industries, Inc.

glyt & s-meto = glyphosate & s-metolachlor as Sequence from Syngenta. glyt(TT) = glyphosate as Touchdown Total from Syngenta.

S-meto & fomesafen as A14972A from Syngenta.

All glyphosate applications included AMS at 1.0% w/w. AMS = spray grade ammonium sulfate.

MSO = Destiny, a methylated soybean oil plus emulsifiers from Agrilance LLC. 28%N = 28% urea ammonium nitrate.

^bRatings at 21 days after V2-V3 application were also 1 day after V5-V7 application.

Ratings at 35 days after V2-V3 application were also 16 days after V5-V7 application.