

S-metolachlor & fomesafen evaluation on PPO-resistant waterhemp - study 1. Young, Bryan, G. and Sean D. Nettleton. This study was designed to evaluate crop response and control of PPO-resistant waterhemp with s-metolachlor & fomesafen applied postemergence. The study was conducted near Pierron, IL. Soybean was planted 1.0 inch deep at 75 lb/A into a reduced-till seedbed. Plots consisted of eight 15 inch rows, 25 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 15 GPA water. Weed population per 0.25m² in the nontreated plots, mid-season, was 3 common waterhemp and 5 giant foxtail. Applications were made preemergence (PRE), postemergence at 4 to 6 inch waterhemp (4-6"W-1), postemergence at 4 to 6 inch waterhemp following a preemergence application (4-6"W-2), and postemergence at 2 to 4 inch waterhemp regrowth (2-4"RG). Application information is listed below.

Date	May-07-05	Jun-06-05	Jun-16-05	Jul-01-05
Treatment	PRE	4-6"W-1	4-6"W-2	2-4"RG
Air temperature (F)			77	85
soybeans				
leaf no.		V3	V5	R1
height (inch)		5	10	13
common waterhemp				
leaf no.		5-7	6-10	4-7
height (inch)		2-5	5-8	2-4
giant foxtail				
leaf no.		5-6	3-7	
height (inch)		4-6	4-7	

No soybean injury was observed from PRE applications of s-metolachlor & fomesafen. Soybean injury 42 days after emergence (DAE) was 5 and 13%, respectively, from glyphosate & s-metolachlor and fomesafen applied POST. Fomesafen and imazamox applied POST controlled less than 45% of the common waterhemp at this site compared with 99% control of common waterhemp from glyphosate. Control of common waterhemp with s-metolachlor & fomesafen applied PRE was 90 to 99% at 42 DAE. Following the PRE applications of s-metolachlor & fomesafen with glyphosate POST only increased common waterhemp control with the lowest rate of s-metolachlor & fomesafen evaluated. Common waterhemp control was at least 95% by 42 DAE from metribuzin and flufenacet & metribuzin applied PRE and s-metolachlor & glyphosate applied POST. (Dept. of Plant, Soil and Agricultural Systems, Southern Illinois University, Carbondale).

Table. S-metolachlor & fomesafen evaluation on PPO-resistant waterhemp - study 1. (Young and Nettleton)

Treatment ^a	Application		Soybean injury ^c				AMATA control				SETFA control		
			DAE		DAPO		DAE		DAPO		42	DAPO	
	Rate (lb/A)	Time ^b	28	42	14	28	28	42	14	28	42	14	28
			%	%	%	%	%	%	%	%	%	%	%
Nontreated			0	0	0	0	0	0	0	0	0	0	0
S-metolachlor & fomesafen	0.536 & 0.124	PRE	0	0	0	0	94	90	90	90	90	90	96
S-metolachlor & fomesafen	0.8 & 0.186	PRE	0	0	0	0	98	98	98	99	95	95	95
S-metolachlor & fomesafen	1.08 & 0.25	PRE	0	0	0	0	99	99	99	99	95	95	98
S-metolachlor & fomesafen	1.35 & 0.312	PRE	0	0	0	0	96	94	94	91	98	98	96
S-metolachlor & fomesafen	1.62 & 0.374	PRE	0	0	0	0	99	99	99	99	99	99	99
S-metolachlor & metribuzin	1.0 & 0.234	PRE	0	0	0	0	99	99	99	99	97	97	96
S-metolachlor & metribuzin	1.18 & 0.28	PRE	0	0	0	0	98	98	98	99	99	99	98
Flufenacet & metribuzin	0.15 & 0.225	PRE	0	0	0	0	93	95	95	92	88	88	96
S-metolachlor & fomesafen / glyphosate	0.536 & 0.124 / 0.78	PRE / 4-6"W-2	0	0	0	0	96	99	99	99	98	99	99
S-metolachlor & fomesafen / glyphosate	0.8 & 0.186 / 0.78	PRE / 4-6"W-2	0	0	0	0	98	99	99	99	99	99	99
S-metolachlor & fomesafen / glyphosate	1.08 & 0.25 / 0.78	PRE / 4-6"W-2	0	0	0	0	97	99	99	99	99	99	99
S-metolachlor & fomesafen / glyphosate	1.35 & 0.312 / 0.78	PRE / 4-6"W-2	0	0	0	0	99	99	99	99	99	99	99
S-metolachlor & fomesafen / glyphosate	1.62 & 0.374 / 0.78	PRE / 4-6"W-2	0	0	0	0	98	99	99	99	99	99	99
S-metolachlor & metribuzin / glyphosate	1.0 & 0.234 / 0.78	PRE / 4-6"W-2	0	0	0	0	99	99	99	99	99	99	99
S-metolachlor & metribuzin / glyphosate	1.18 & 0.28 / 0.78	PRE / 4-6"W-2	0	0	0	0	99	99	99	99	99	99	99
Glyphosate	0.78	4-6"W-1		0	0	0		99	99	99	99	99	99
Glyphosate / glyphosate	0.78 / 0.78	4-6"W-1 / 2-4"RG		0	0	0		99	99	99	99	99	99
Fomesafen + COC + 28%N	0.352 +1.0% +2.5%	4-6"W-1		13	13	0		42	42	37	7	7	17
Imazamox + COC + 28%N	0.039 +1.0% +2.5%	4-6"W-1		0	0	0		33	33	33	87	87	95
Metribuzin	0.234	PRE	0	0	0	0	99	99	99	99	33	33	77
Glyphosate & s-metolachlor	0.845 & 1.12	4-6"W-1		5	0	0		99	99	99	99	99	99
LSD			0	2.1	1	0	3.5	6.6	6.6	9.3	9.1	9.1	9.4
P			1.0	0.01	0.01	1.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01

^aS-metolachlor & fomesafen was A14972A from Syngenta.

COC = Prime Oil crop oil concentrate, a petroleum based additive with 17% emulsifier from Agrilience LLC.

28%N = 28% urea ammonium nitrate.

^b4-6"W-1 = 4 to 6 inch common waterhemp height in plots without a preemergence application.

4-6"W-2 = 4 to 6 inch common waterhemp height in plots following a preemergence application.

2-4"RG = 2 to 4 inch common waterhemp regrowth.

^cDAE = Days after crop emergence. DAPO = Days after postemergence application.

Ratings for PRE only treatments at 14 and 28 DAPO were rated at the same time that the first postemergence application was rated.