

S-metolachlor & fomesafen evaluation on PPO-resistant waterhemp - study 2. Young, Bryan, G. and Jennifer A. Hagerman. This study was designed to evaluate crop response and control of PPO-resistant waterhemp with s-metolachlor & fomesafen applied postemergence. The study was conducted on a Cisne silt loam with 1.7% organic matter and pH 6.2 near Carlyle, IL. Fertilizer applied was 120 lb/A K₂O to an area that had been cropped to corn in 2004. Northrup King S43-B1 RR soybean was planted 1.0 inch deep at 156000 seed/A into a reduced-till seedbed on May 15 2005. 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 40 common waterhemp. 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-16-05	Jun-09-05	Jun-09-05	Jul-01-05
Treatment	PRE	4-6"W-1	4-6"W-2	2-4"RG
Air temperature (F)	68			
Relative humidity (%)	35			
Soil moisture	NORMAL	NORMAL	NORMAL	
soybean				
leaf no.		V2	V2	V6
height (inch)		4-6	4-6	11
common waterhemp				
leaf no.		6-10	6-10	7-12
height (inch)		4-7	4-7	1-4

No soybean injury was observed from PRE applications of s-metolachlor & fomesafen. Soybean injury was 10% at 31 days after emergence (DAE) from fomesafen applied POST. Postemergence applications of fomesafen and imazamox controlled only 47 and 5%, respectively, of the common waterhemp at this site at 31 DAE. PRE herbicide treatments controlled less than 50% of common waterhemp, most likely due to limited rainfall following the PRE applications. Treatments that included a POST application of glyphosate controlled at least 93% of common waterhemp at 31 DAE. (Dept. of Plant, Soil and Agricultural Systems, Southern Illinois University, Carbondale).

Table. S-metolachlor & fomesafen evaluation on PPO-resistant waterhemp - study 2. (Young and Hagerman)

Treatment	Application		Soybean injury, days after emergence			AMATA control, days after emergence		
	Rate	Time ^b	21	31	45	21	31	45
	(lb/A)		%	%	%	%	%	%
Nontreated			0	0	0	0	0	0
S-metolachlor & fomesafen	0.536 & 0.124	PRE	0	0	0	12	10	12
S-metolachlor & fomesafen	0.8 & 0.186	PRE	0	0	0	15	10	10
S-metolachlor & fomesafen	1.08 & 0.25	PRE	0	0	0	30	25	30
S-metolachlor & fomesafen	1.35 & 0.312	PRE	0	0	0	45	22	22
S-metolachlor & fomesafen	1.62 & 0.374	PRE	0	0	0	35	13	17
S-metolachlor & metribuzin	1.0 & 0.234	PRE	0	0	0	38	15	18
S-metolachlor & metribuzin	1.18 & 0.28	PRE	0	0	0	40	20	17
Flufenacet & metribuzin	0.15 & 0.225	PRE	0	0	0	10	5	7
S-metolachlor & fomesafen / glyphosate	0.536 & 0.124 / 0.78	PRE / 4-6"W-2	0	0	0	12	97	96
S-metolachlor & fomesafen / glyphosate	0.8 & 0.186 / 0.78	PRE / 4-6"W-2	0	0	0	13	98	96
S-metolachlor & fomesafen / glyphosate	1.08 & 0.25 / 0.78	PRE / 4-6"W-2	0	0	0	23	99	97
S-metolachlor & fomesafen / glyphosate	1.35 & 0.312 / 0.78	PRE / 4-6"W-2	0	0	0	50	99	97
S-metolachlor & fomesafen / glyphosate	1.62 & 0.374 / 0.78	PRE / 4-6"W-2	0	0	0	30	99	99
S-metolachlor & metribuzin / glyphosate	1.0 & 0.234 / 0.78	PRE / 4-6"W-2	0	0	0	23	97	97
S-metolachlor & metribuzin / glyphosate	1.18 & 0.28 / 0.78	PRE / 4-6"W-2	0	0	0	33	97	97
Glyphosate	0.78	4-6"W-1		0	0		93	84
Glyphosate / glyphosate	0.78 / 0.78	4-6"W-1 / 2-4"RG		0	0		95	98
Fomesafen + COC + 28%N	0.352 +1.0% +2.5%	4-6"W-1		10	0		47	37
Imazamox + COC + 28%N	0.039 +1.0% +2.5%	4-6"W-1		0	0		5	12
Metribuzin	0.234	PRE	0	0	0	23	12	10
Glyphosate & s-metolachlor	0.845 & 1.12	4-6"W-1		0	0		98	92
LSD			0	0	0	20.9	14.6	13.9
P			1.0	1.0	1.0	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.

^cRatings at 45 days after emergence were also 28 days after the 4-6"W-1 and 4-6"W-2 applications and 6 days after the 2-4"RG application.