Herbicide programs for control of a waterhemp population. Young, Bryan G. and Hank J. Mager. This study was designed to evaluate potential herbicide programs for control of waterhemp. The study was conducted at an off-station location in Pierron, IL. The previous crop was soybean in 2001. Glyphosate-resistant soybean was planted 1.0 inch deep at 75 lb/A into a reduced-till seedbed on June 7. Plots consisted of 8 rows with 15 inch row spacing, 26 ft long arranged in a randomized complete block design with 4 replications. The herbicides were broadcast applied with a CO_2 pressurized sprayer using 8003 flat fan tips at 40 PSI in 20 GPA water. Application timings were preemergence (PRE) and 4 to 6 inch weeds (4-6"W-1 when POST only or 4-6"W-2 when PRE/POST). Rainfall was adequate following soil herbicide application and weeds were actively growing at the time of the postemergence applications. Weed population per 1 m^2 in the nontreated plots, late-season, was 466 common waterhemp and 6 ivyleaf morningglory.

Application information is listed below.

Date	Jun-10-02	Jul-8-02	Jul-8-02
Treatment	PRE	4-6"W-1	4-6"W-2
Soil moisture	wet	dry	dry
soybean			
leaf no.		V2	V2
height (inch)		6	6
common waterhemp			
leaf no.		2-8	2-8
height (inch)		1-6	1-6
ivyleaf morningglory			
leaf no.		4-10	4-10
height (inch)		3-7	3-7

Common waterhemp control at the time of the POST applications was at least 96% from s-metolachlor, s-metolachlor & metribuzin, chlorimuron & sulfentrazone, alachlor, flufenacet & metribuzin, and sulfentrazone. Pendimethalin alone or with cloransulam controlled only 39 to 48% of common waterhemp. Common waterhemp control 56 days after treatment (DAT) was 92 to 99% from all treatments that included a POST application of glyphosate. S-metolachlor or s-metolachlor & metribuzin followed by fomesafen also provided 98% control of common waterhemp at 56 DAT. Flumioxazin PRE alone or tank mixed with pendimethalin followed by lactofen controlled only 30 to 59% of common waterhemp at 56 DAT. Similarly, pendimethalin PRE followed by acifluorfen provided only 64% waterhemp control at 56 DAT. The tank mixture of lactofen plus 2,4-DB provided no control of common waterhemp. (Dept. of Plant, Soil and General Agriculture, Southern Illinois University, Carbondale).

Table. Herbicide programs for control of a waterhemp population. (Young and Mager)

Treatment[a]	Application Rate	Application Time	Soybean injury days after POST 0	14	28	Soybean height 56 days after POST	Control, days after POST AMATA 0	14	28	56	IPOHE 0	14	28	Plants, days after POST AMATA 0	28	IPOHE 28
	(lb/A)		%	%	%	cm	%	%	%	%	%	%	%	1 m^2	1 m^2	1 m^2
Nontreated			0	0	0	76	0	0	0	0	0	0	0	620	466	6
Flumioxazin /lactofen+NIS	0.078 /0.156+0.25%	PRE /4-6"W-2	4	5	5	76	60	69	39	30	97	97	97	43	35	1
Flumioxazin /glyphosate(UM)+AMS	0.078 /0.75+2.0%	PRE /4-6"W-2	8	8	8	83	84	97	98	98	97	97	94	28	1	2
Flumioxazin+pendimethalin /lactofen+NIS	0.063+1.24 /0.156+0.25%	PRE /4-6"W-2	0	0	0	89	84	91	81	59	99	99	99	31	17	1
Pendimethalin/acifluorfen +COC+AMS	1.24/0.188 +1.0%+2.5	PRE /4-6"W-2	0	0	0	82	39	48	40	64	25	35	20	123	67	4
Pendimethalin/imazethapyr &glyphosate+NIS+AMS	1.24/0.059 &0.76+0.125%+2.0%	PRE /4-6"W-2	0	0	0	82	45	99	99	99	18	80	84	92	1	1
Pendimethalin/cloransulam +glyphosate(GP)+NIS+AMS	1.24/0.015 +0.56+0.25%+2.0%	PRE /4-6"W-2	2	0	0	83	48	98	98	97	16	80	75	91	2	2
S-metolachlor&CGA-154281 /fomesafen+COC+28%N	1.27 /0.294+1.0%+2.5%	PRE /4-6"W-2	0	0	0	87	99	99	99	98	0	0	0	1	1	6
S-metolachlor&metribuzin /fomesafen+COC+28%N	1.18&0.28 /0.294+1.0%+2.5%	PRE /4-6"W-2	8	8	8	84	99	99	99	98	0	0	0	0	0	7
S-metolachlor&CGA-154281 /glyphosate(TD)+AMS	1.27 /0.75+2.0%	PRE /4-6"W-2	1	0	0	84	99	99	99	99	0	73	75	1	0	3
S-metolachlor&metribuzin /glyphosate(TD)+AMS	1.18&0.28 /0.75+2.0%	PRE /4-6"W-2	5	3	3	74	99	99	99	99	0	75	75	0	0	5
Chlorimuron&sulfentrazone /glyphosate(UM)+AMS	0.0264&0.132 /0.75+2.0%	PRE /4-6"W-2	1	3	3	84	98	99	99	99	99	99	99	2	0	0
Alachlor/glyphosate(UM) +AMS	1.5/0.75 +2.0%	PRE /4-6"W-2	0	0	0	86	96	99	99	99	0	73	73	5	0	2
Flufenacet&metribuzin /glyphosate(UM)+AMS	0.18&0.27 /0.58+2.0%	PRE /4-6"W-2	2	0	0	75	99	99	99	98	3	73	70	0	0	4
Sulfentrazone/glyphosate(UM) +AMS	0.188/0.58 +2.0%	PRE /4-6"W-2	3	3	3	91	98	99	99	99	99	99	99	5	0	0
Glyphosate(TD)+fomesafen +AMS	0.75+0.147 +2.0%	4-6"W-1		0	0	79		99	97	92		93	90		16	2
Glyphosate(UM)+lactofen +AMS	0.75+0.156 +2.0%	4-6"W-1		0	0	74		99	98	96		94	90		6	3
Lactofen+2,4-DB +NIS+28%N	0.195+0.047 +0.25%+2.5%	4-6"W-1		0	0	68		0	0	0		0	0		471	7
LSD			6	6	6	18	6	3	6	12	4	6	7	80	87	3
P			0.09	0.05	0.05	0.6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

[a]Glyphosate(UM) was Roundup UltraMax from Monsanto.
Glyphosate(GP) was Glyphomax Plus from Dow.
Glyphosate(TD) was Touchdown from Syngenta.
AMS = spray grade ammonium sulfate.
COC = Prime Oil crop oil concentrate, a petroleum based additive with 17% emulsifier from Agriliance.
NIS = Activator 90, a nonionic surfactant from Loveland Industries, Inc.
28%N = 28% urea ammonium nitrate.