

Herbicide performance in corn at Waseca, MN tall waterhemp site in 2003. Hoverstad, Thomas R. and Jeffrey L. Gunsolus. The objective of this trial was to evaluate weed management systems available to corn producers in southern Minnesota on several annual weed species. This site had an especially high population of tall waterhemp. The research site was a Webster clay loam soil containing 6.7% organic matter, pH = 7.0 and soil test P and K levels of 26 and 165 ppm, respectively. The previous crop was corn that had been chisel plowed in the fall. The area was fertilized in the spring with 175 lb N/A as urea and field cultivated once to a depth of 3 inches to prior to planting to incorporate nitrogen and prepare a seedbed. Three corn hybrids were used to evaluate the products for weed control in this trial. Those treatments that included glyphosate (Roundup WeatherMax or Touchdown IQ) were evaluated using Garst '8590RR'. The treatment including Lightning was evaluated using Garst '8590IT'. The treatments using Liberty and those treatments that require no special herbicide resistance were evaluated using 'Garst 8517LL'. All corn was planted on May 2, 2003 in 30-inch rows. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at 40 psi using 8002 flat-fan nozzle tips. Visual estimates of weed control were taken on September 18, 2002. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 2	May 30	June 12	June 24
Treatment	Pre	V3 corn	V4 corn	4-inch regrowth
air temp °F	64	74	72	85
soil temp (4-inch) °F	52	65	64	75
Relative humidity (%)	45	30	40	25
Wind	W6	W 12	W2	W 6
Soil moisture	Moist	Dry	Moist	Moist
Corn				
stage	--	V3	V4	V9
height (inch)	--	4	6	30
Giant foxtail				
leaf no.	--	1-2	2-3	2-4
height (inch)	--	1-2	2-3	3-5
Tall waterhemp				
leaf no.	--	2-4	4-6	2-4
height (inch)	--	1-2	4	2-4
Velvetleaf				
leaf no.	--	2-4	3	6-10
height (inch)	--	1-2	3-4	3-4
Rainfall after application (inch)				
Week 1	1.93	0.03	0.03	0.93
Week 2	1.24	2.09	1.44	1.67
Week 3	0.21	0.03	0.26	1.16

Poor tall waterhemp control was observed with [acetochlor & atrazine] plus [flumetsulam & clopyralid] soil applied as a one-pass preemergence treatment. A postemergence application of [nicosulfuron&rimsulfuron&clopyralid&flumetsulam] plus dicamba plus atrazine resulted in poor tall waterhemp control because the atrazine rate was inadvertently applied at 0.25 oz/A instead of 0.25 lb/A. Postemergence treatments that used mesotrione all resulted in excellent tall waterhemp control. (University of Minnesota, Southern Research and Outreach Center, Waseca, MN and Dept of Agronomy and Plant Genetics, University of Minnesota, St Paul).

Table. Herbicide performance in corn at Waseca, MN tall waterhemp site in 2003 (Hoverstad and Gunsolus).

Treatment ^a	Rate (lb/A or %)	Giant	Tall	Velvetleaf	Yield Bu/A ^b
		foxtail	waterhemp		
<u>Preemergence Corn hybrid = Garst 8517LL</u>					
Keystone LA + Hornet WDG	2.2 qt+ 4oz	80	53	98	96
Lumax	6 pt	94	85	78	126
<u>Preemergence/POST II (V4 corn) Corn hybrid = Garst 8517LL</u>					
Surpass/ Hornet+atrazine+COC+AMS	2.75 pt/ 4 oz+0.75 lb+1%+2.5 lb	93	97	92	137
Surpass/ Hornet+Callisto+atrazine+NIS+AMS	2.75 pt/ 3 oz+0.75 oz+0.28 lb+1%+2.5 lb	87	99	92	127
Keystone LA/ Hornet+Clarity+NIS+AMS	2.2 qt/3 oz+4 oz+0.25 lb+1%+2.5 lb	92	93	92	128
Outlook/ Distinct+atrazine+NIS+AMS	21 oz/ 4 oz+0.5 lb+0.25%+2.5 lb	95	85	65	95
Define/ Liberty+atrazine+AMS	12 oz/ 32 oz +0.5 lb+3 lb	97	97	84	144
Define/ Option+Distinct+MSO+28%	12 oz/1.5 oz+4 oz+1.5 pt+3 pt	96	70	65	124
Cinch/ AccentGold+Callisto+atrazine+COC+AMS	0.75 pt/ 3.5 oz+1 oz+0.5 lb+1%+2 lb	89	99	98	133
Cinch/ Streadfast+Callisto+atrazine+COC+AMS	0.75 pt/ 0.75 oz+2 oz+0.5 lb+1%+2 lb	94	96	96	154
Dual II Magnum/ Northstar+atrazine+COC+28%N	2 pt/5 oz+0.5 lb+1%+2.5%	90	97	91	120
Dual II Magnum/ Callisto+atrazine+COC+28%N	1 pt/ 3 oz+0.28 lb+1%+2.5%	64	99	97	125
Outlook/ Aim+atrazine+COC	21 oz/ 0.5 oz+1 lb+1%	83	97	97	133
Outlook/ Aim+atrazine+Clarity+COC	21 oz/ 0.5 oz+1 lb+4 oz+1%	89	99	99	123
<u>Preemergence/POST II (V4 corn) Corn hybrid = Garst 8590 RR</u>					
Harness/ Roundup WeatherMax+AMS	1.25 pt/22 oz+2.5 lb	87	95	86	131
Dual II Magnum/ Touchdown IQ+AMS	1 pt/ 32 oz+2.5 lb	97	94	82	138
Outlook/ RoundupWeatherMax+Clarity	12 oz/ 22 oz + 8 oz	94	99	96	129
<u>POST I (V3 corn) / POST III (4-inch Regrowth) Corn hybrid = Garst 8590 RR</u>					
Roundup WeatherMax+AMS/	22 oz+2.5 lb/	98	98	98	139
Roundup WeatherMax+AMS	22 oz+2.5 lb				
<u>POST I (V3 corn) / POST III (4-inch Regrowth) Corn hybrid = Garst 8517LL</u>					
Liberty+atrazine+AMS / Liberty+atrazine+AMS	32 oz+0.5 lb+2.5 lb/ 28 oz +0.5 lb+2.5 lb	98	99	75	132
<u>POST 1(V3 corn) Corn hybrid = Garst 8590IT</u>					
Lightning+Marksman+ NIS+AMS	1.28 oz+2 pt+0.25%+2.5 lb	75	86	99	130
<u>POST II (V4 Corn) Corn hybrid = Garst 8517LL</u>					
Steadfast+Callisto+COC+AMS	0.75 oz+2 oz+1%+2 lb	92	86	93	135
Steadfast ATZ+Callisto+COC+AMS	14 oz+2 oz+1%+2 lb	91	99	99	133
Accent Gold WDG+Clarity+atrazine+COC+AMS	3.5 oz+4 oz+0.5 oz+1%+2 lb	84	51	99	110
Steadfast+Lumax+NIS+AMS	0.75 oz+2 pt+0.25%+2 lb	89	99	94	142
<u>Checks</u>					
Weedy	-	0	0	0	63
Hand-Weeded	-	100	100	100	154
	LSD (0.10)	11	15	22	23

^b Yield adjusted to 15.5% moisture.