

Herbicide performance in corn at Waseca, MN tall waterhemp site in 2002. 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 a site that was heavily infested with tall waterhemp. The research site was a Webster clay loam soil containing 8% organic matter, pH = 7.4 and soil test P and K levels of 75 and 248 ppm, respectively. The previous crop was soybean that had been chisel plowed in the fall. The area was fertilized in the spring with 150 lb N/A as anhydrous ammonia and field cultivated once to a depth of 3 inches to prior to planting to prepare a seedbed. Novartis 'NK 42B7' (imidazolinone and glufosinate tolerant) corn seed was planted on May 10, 2002 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 9, 2002. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 10	June 5	June 13
Treatment	Pre	3-collar	4-collar
air temp °F	63	74	81
soil temp (4-inch) °F	60	68	69
Relative humidity (%)	35	30	40
Wind	W 11	S 5	S 15
Soil moisture	Dry	Wet	moist
Corn			
stage	--	V3	V4
height (inch)	--	4	7
Tall Waterhemp			
Leaf no.	--	2-3	3-4
height (inch)	--	1-3	4-5
Rainfall after application (inch)			
Week 1	0.41	1.15	0.36
Week 2	0.00	0.36	2.85
Week 3	0.74	3.15	0.00

Soil applied [FOE 5043 & metribuzin] followed by AE F130360 01 provided very poor tall waterhemp control. The best soil applied treatments for tall waterhemp control were those that included acetochlor. The best postemergence treatments for tall waterhemp control were those that included ZA 1296. (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 a tall waterhemp site at Waseca, MN in 2002 (Hoverstad and Gunsolus).

Treatment ^a	Rate (lb/A or %)	AMATU (% control)	Yield Bu/A ^b
<u>Preemergence</u>			
Acet+[Flms&clpy]	2.2+[0.046&0.15]	83	194
Isft+FOE 5043+Atra	0.07/0.375+1.0	58	186
<u>Preemergence/POST III (4-collar corn)</u>			
Acet/[Flms&clpy]+Atra+COC+AMS	2.2/[0.035&0.11]+0.75+1%+2.5	99	218
Acet/[Flms&clpy]+Dica+NIS+AMS	2.2/[0.035&0.11]+0.125+1%+2.5	99	180
Dimethenamid-P/ [Flms&clpy]+Carf+NIS+AMS	0.94/ [0.035&0.11]+0.007+0.25%+2.5	70	181
Dimethenamid-P/ Carf+atra+NIS+AMS	0.94/ 0.007+1.0+0.25%+2.5	90	203
Dimethenamid-P/ [Dica&SAN 1269H]+NIS+AMS	0.94/ [0.125&0.05]+0.25%+2.5	89	163
[FOE 5043&metr]/ AE F130360 01+MSO+28%	[0.45&0.11]/ 0.03+1%+2.5%	6	122
[S-meto&CGA-154281]/ Meso+atra+COC+28%N	1.91/ 0.094+0.25+1%+2.5%	100	197
[S-meto&CGA-154281]/ [Prim&dica]+COC+28%N	1.91/ [0.023&0.125]+1%+2.5%	66	168
[S-meto&CGA-154281]/ Meso+[Nico&rims]+ atra+COC+28%N	1.91/ 0.094+[0.016&0.008]+ 0.25+1%+2.5%	99	179
[S-meto&CGA-154281]/ Meso+Gluf+atra+COC+28%N	1.91/ 0.094+0.18+0.25+1%+2.5%	97	163
FOE 5043/ AE F130360+[Dica&SAN 1269H]+ MSO+28%	0.375/ 0.033+[0.125&0.05]+ 1.5pt+3pt	80	156
[S-meto&CGA-154281]/ [Nico&rims&clpy&flms]+ atra+COC+28%N	1.91/ [0.01&0.01&0.11&0.03]+ .75+1%+qt	81	176
FOE 5043/Gluf+Atra+AMS	0.375/0.31+0.5+3.0	98	173
Acet ² /[Hals&dica]+NIS	2.2/[0.03&.14]+0.25%	99	186
<u>POST I (3-collar Corn)</u>			
[Imep&impr]+[Dica&atra]+ NIS+AMS	[0.042&0.014]+[0.28&0.55]+ 0.25%+2.5	84	163
<u>POST II (4-collar Corn)</u>			
[Nico&rims]+ Meso+atra+COC+AMS	[0.023&0.012]+ 0.06+0.25+1%+2	96	181
[Nico&rims]+ [Flms&clpy]+atra+COC+AMS	[0.023&0.012]+ [0.035&0.11]+0.5+1%+2	51	173
[Nico&rims]+ Carf+Atra+COC+AMS	[0.023&0.012]+ 0.007+0.5+1%+2	76	184
[Nico&rims&clpy&flms]+ Dica+Atra+COC+AMS	[0.01&0.01&0.11&0.03]+ 0.125+0.5+1%+2	63	197
[Nico&rims&clpy&flms]+ Meso+Atra+COC+AMS	[0.01&0.01&0.11&0.03]+ 0.03+0.25+1%+2	93	200
<u>Checks</u>			
Weedy	-	0	76
Hand-Weeded	-	49	204
	LSD (0.10)	14	31

^aAcet = acetochlor = Surpass 6.4E; Acet² = acetochlor = Harness 7E; Atra = atrazine = Aatrex 90DF; AE F130360 01 = Option 35DF; [Dica&SAN 1269H] [dicamba & SAN1269H] = Distinct 70WG; [FOE 5043&metr] = [FOE 5043 & metribuzin] = Axiom 60DF; [S-meto&CGA-154281] = [S-metolachlor & CGA-154281] = Dual II Magnum 7.64EC; Dica = dicamba = Clarity 4S; [Flms&clpy] = [flumetsulam & clopyralid] = Hornet WDG; carf = carfentrazone = Aim EW; Gluf = glufosinate = Liberty 1.67L; [Hals & dica] = [halosulfuron & dicamba] = Yukon67.5DF; [Imep&impr] = [imazethapyr & imazapyr] = Lightning 70DF; [Nico&rims&clpy&flms] = [nicosulfuron & rimsulfuron & clopyralid & flumetsulam] = Accent Gold WDG; [Prim&Dica] = [primisulfuron & dicamba] = Northstar 47.4WG; Isft = isoxaflutole = Balance Pro 4L; Dimethenamid-P = Outlook 6L; [Dica&atra] = [dicamba & atrazine] = Marksman 3.3L; [Nico&rims] = [nicosulfuron & rimsulfuron] = Steadfast 75DF; FOE 5043 = Define 60DF; Meso = mesotrione = Callisto 4L; COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.

^b Yield adjusted to 15.5% moisture.