

Herbicide performance in corn at Waseca, MN in 1998. Hoverstad, Thomas R., Jeffrey L. Gunsolus and Jodie K. Getting. The objective of this trial was to evaluate several new herbicide options and mechanical weed control methods in corn for southern Minnesota. The research site was a Webster clay loam soil containing 6.7% organic matter, pH = 7.1 and soil test P and K levels of 24 and 171 ppm, respectively. The previous crop was oats that had been moldboard plowed in the fall. The entire area was field cultivated in the spring prior to any treatment application. 150 lb N/A was spring applied as anhydrous ammonia. Following preplant incorporated treatment application the entire area was field cultivated once to a depth of 3 inches to incorporate herbicides and prepare a seedbed. Garst '8540 LL IT' corn seed was planted on May 5, 1998 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. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 5	May 6	May 21	May 26	May 29
Treatment	PPI	Pre	2-collar	3-collar	4-collar
air temp °F	75	77	78	78	79
soil temp (4-inch) °F	64	74	69	75	67
Relative humidity (%)	21	10	20	30	22
Wind	W 5	S 6	NE 8	S 3	N 7
Soil moisture	Dry	Moist	Moist	Moist	Moist
Corn					
stage	--	--	V2	V3	V4
height (inch)	--	--	4	5	6-7
Giant foxtail					
leaf no.	--	--	2	1-3	2-4
height (inch)	--	--	1	1-2	2-5
Common ragweed					
leaf no.	--	--	Coty.-2	Coty.-4	2-6
height (inch)	--	--	1	1-2	2-3
Common lambsquarters					
leaf no.	--	--	2	Coty.-4	4-8
height (inch)	--	--	½	2-3	2-3
Velvetleaf					
leaf no.	--	--	Coty.-1	1-2	2-4
height (inch)	--	--	½	1-1½	2-3
Rainfall after application (inch)					
Week 1	0.83	0.83	1.40	0.47	0.67
Week 2	1.53	1.53	0.47	0.44	0.61
Week 3	1.40	1.40	0.44	0.55	0.37

The dominant weed species in this trial were giant foxtail and giant ragweed. All treatments that provided 70 percent giant foxtail control or better resulted in excellent corn yields. F8426 provided poor control of common ragweed. Cultivation improved control of grass only slightly with DPX79406 or [imazethapyr&imazapyr] or nicosulfuron and resulted in no grain yield improvement.

Table. Herbicide performance in corn at Waseca, MN in 1998 (Hoverstad, Gunsolus and Getting).

Treatment ^a	Rate (lb/A or %)	Gift	Corw	Vele	Colq	Lodging	Yield
		-----(% control)-----				(%)	(Bu/A) ^b
Preplant incorporate 1X/POST III (4-collar corn)							
[EPTC+R-29148&Acet]/Dica	[4.2&1.05]/0.5	96	99	98	99	0	198
CGA 77102/dicamba	1.91/0.5	77	99	98	99	0	200
Acetochlor/dicamba	2.0/0.5	92	99	96	99	1	206
SAN-582H/dicamba	1.5/0.5	88	99	99	99	4	213
Preemergence/POST III (4-collar corn)							
CGA 77102/dicamba	1.91/0.5	80	99	98	99	10	208
Acetochlor/dicamba	2.0/0.5	97	99	99	99	7	224
SAN-582H/dicamba	1.5/0.5	89	99	99	99	13	200
Weedy check	-	0	0	0	0	6	145
Preemergence/POST III (4-collar corn)/cultivation (37 DAP)							
CGA 77102/Dica/cultivate	1.91/0.5	91	99	99	99	0	203
Acet/Dica/cultivate	2.0/0.5	98	99	99	99	10	195
SAN-582H/Dica/cultivate	1.5/0.5	93	99	99	99	22	193
Hand-weeded check	-	100	100	100	100	0	199
Preemergence							
RPA 201772+acetochlor	0.07+1.0	95	99	99	99	0	209
RPA 201772+atrazine	0.094+0.72	96	99	99	99	0	202
Acetochlor+[Flms&Clpy]	2+[0.056&0.154]	78	99	94	99	4	196
Preemergence/POST III (4-collar corn)							
Acet/Gluf+Atra+AMS	1.2/0.26+0.45+2.5	98	99	99	99	0	201
CGA 77102/F8426+atrazine	1.91/0.008+0.45	60	22	98	68	2	183
CGA 77102/Nico+[Flms&Clpy] +COC+28%N	1.91/0.023+[0.034&0.094] +1.0%+4.0%	98	99	99	98	2	207
CGA 77102/ [Nico&Rims&Flms&Clpy] +Dica+COC+28%N	1.91/ [0.012&0.01&0.034&0.094] +0.125+1.0%+4.0%	99	99	99	99	0	194
BAY FOE 5043/Gluf+Atra+AMS	0.85/0.26+0.45+2.5	97	99	99	99	0	204
BAY FOE 5043/ [Nico&Rims&Flms&Clpy] +COC+28%N	0.85/ [0.012&0.01&0.034&0.094] +1.0%+4.0%	98	99	98	96	0	209
Acet/[Flms&Clpy] +Dica+NIS+28%N	2.0/[0.034&0.094] +0.125+0.25%+2.5%	86	99	99	99	7	216
CGA 77102/ [Prim&Dica]+COC+28%N	1.91/ [0.023&0.125]+1.25%+1.25%	88	99	99	99	17	207
CGA 77102+Atra/ [Prim&Dica]+COC+28%N	1.91+0.72/ [0.023&0.125]+1.25%+1.25%	78	99	99	99	14	196
BAS 65607/BAS 662+NIS+28%N	0.98/0.26+0.25%+1.25%	95	99	99	99	21	203
Weedy check	-	0	0	0	0	21	131
POST I (2-collar corn)/Cultivation (37 DAP)							
[Rims&Thif]+Dica +NIS+28%N/cultivate	[0.01&0.005]+0.25 +0.25%+4.0%	94	99	98	99	0	194
POST II (3-collar corn)/Cultivation (37 DAP)							
[DPX 79406&atrazine] +[Flms&Clpy]+COC+28%N/ cultivate	[0.023&0.75] +[0.034&0.094]+1.0%+1.25%	98	99	99	99	0	208
[Imep&Impr]+Dica +NIS+28%N/cultivate	[0.042&0.014]+0.1875 +0.25%+1.25%	99	99	99	99	0	191
POST III (4-collar corn)/Cultivation (37 DAP)							
Nico+[Dica&Atra] +NIS+28%N/cultivate	0.031+[0.34&0.66] +0.25%+2.5%	99	99	99	99	0	201
Hand-weeded check	-	100	100	100	100	2	200
POST II (3-collar corn)							
[DPX 79406&atrazine] +[Flms&Clpy]+COC+28%N	[0.023&0.75] +[0.034&0.094]+1.0%+1.25%	92	99	99	99	4	205
[Imep&Impr]+Dica +NIS+28%N	[0.042&0.014]+0.1875 +0.25%+1.25%	95	99	99	99	1	212
POST III (4-collar corn)							
Nico+[Dica&Atra] +NIS+28%N	0.03+[0.34&0.66] +0.25%+2.5%	98	99	99	99	2	216
Gluf+Atra+AMS	0.26+0.45+2.5	95	98	98	99	2	211
Gluf+F8426+AMS	0.26+0.008+2.5	90	98	97	99	0	197
[Nico&Rims&Flms&Clpy] +Dica+COC+28%N	[0.012&0.01&0.034&0.094] +0.125+1.0%+2.5%	98	99	99	99	0	203
[Nico&Rims&Flms&Clpy] +Nico+Dica+COC+28%N	[0.012&0.01&0.034&0.094] +0.012+0.0625+1.0%+2.5%	99	99	99	99	8	195
	LSD (0.10)	6	9	2	9	Ns	19

^a Acet or acetochlor = Surpass 6.4E; Atra or atrazine = Aatrex 90DF; BAS 662 = Distinct 70WG; BAY FOE 5043 = Axiom 68DF; CGA 77102 = Dual II Magnum 7.64EC; Dica or dicamba = Banvel 4S; [Dica&Atra] = Marksman 3.2F; [DPX 79406&Atra] = Basis Gold 89.9WG; [EPTC+R-29148&Acet] = DoublePlay 7EC; [Flms&Clpy] = Hornet 85.6WG; F8426 = Aim 40DF; Gluf = Liberty 1.67L; [Imep&Impr] = Lightning 70DF; Nico = Accent 75DF; [Nico&Rims&Flms&Clpy] = Accent Gold 83.8DF; [Prim&Dica] = Northstar 47.4WG; [Rims&Thif] = Basis 75DF; RPA 201772 = Balance 75DF; SAN-582H = Frontier 6EC; 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.