<u>Herbicide performance in corn at Waseca, MN in 1999.</u> 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 Mnnesota. The research site was a Webster clay loam soil containing 6.7% organic matter, pH = 7.5 and soil test P and K levels of 28 and 181 ppm respectively. The previous crop was oats that had been chisel plowed in the fall. The entire area was field cultivated in the spring prior to any treatment application. The area was fertilized in the spring with 150 lb N/A as anhydrous annonia. 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 '8773 Bt/LL/IT' (inidazolinone and glufosinate tolerant) corn seed was planted on May 10, 1999 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. Cultivation was performed on the appropriate treatments on June 24, 1999. Visual estimates of weed control were taken on September 21, 1999. Application dates, environmental conditions, crop and weed stages are listed below

Treatment PPI Pre 2-collar 3-collar 4-collar air temp °F 81 70 55 82 62 soil temp (4-inch) °F 56 60 58 65 60 Relative hunidity (%) 30 44 83 S W Wind S 17 S 12 NE 8 7 5 Soil noisture Mbist wet Mbist moist const Soil noisture Mbist wet Mbist moist const Stage V2 V3 V5 height (inch) 3 5 9-11 Giant foxtail 2 3-4 5 leaf no. 1 2-4 6-8 height (inch) 1 3 4-6 Connon ragseed - 1 3 4-6 Velvetleaf	Date	May 10	May 19	June 1	June 7	June 14
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Week 3 0. 34 0. 77 0. 47 0. 38 0. 67	Week 2	1.50	0. 50	2.08	0. 47	0. 50
	Week 3	0. 34	0. 77	0.47	0. 38	0.67

Soil applied acetanalide herbicides performed better when applied preemergence compared to preplant incorporated. This was likely the result of abundant soil moisture prior to and after planting. Postemergence treatments targeting 4-collar corn resulted in reduced corn yields due to delayed application and early season weed competition. Because of excessive rain the 4-collar treatments were not actually applied until corn was in the V5 stage and giant foxtail was 6 to 8inches tall. When these same treatments were applied following soil applied acetanalide herbicides yield reductions were not observed. (MN Agric. Exp. Sta. Paper No. 991051001, Misc Journ Series, University of MN, St Paul).

Treatment ^a	Rate	Gift	Corw	Colq	Vele	Rrpw	Yield
	(lb/A or %)		('	% con	trol)		Bu/A [⊳]
Preplant incorporate 1X/POS	<u> ST III (4-collar corn)</u>						
[EPTC+R-29148&Acet]/Dica	[4.2&1.05]/0.5	86	99	99	99	99	172.9
CGA 77102/dicamba	1.91/0.5	74	99	99	99	99	144.7
Acetochlor/dicamba	1.97/0.5	75	99	99	99	99	154.9
SAN-582H/dicamba	1.5/0.5	76	99	99	99	99	170.8
Preemergence/POST III (4-co	ollar corn)						
CGA 77102/dicamba	1.91/0.5	84	99	99	99	99	176.6
Acetochlor/dicamba	1.97/0.5	89	99	96	99	99	166.7
SAN-582H/dicamba	1.5/0.5	93	99	99	99	99	175.2
Weedv check	-	0	0	0	0	0	21.3
Preemergence/POST III (4-co	ollar corn)/cultivation (42 D	AP)	-	-	-	-	-
CGA 77102/Dica	1.91/0.5	99	99	99	99	99	159.9
Acetochlor/dicamba	1 97/0 5	96	99	99	99	99	174 6
SAN-582H/Dica	1 5/0 5	97	99	99	99	99	170 7
Hand-weeded check	-	100	100	100	100	100	176 1
Preemergence	_	100	100	100	100	100	170.1
EOE-50/38 PDA 2017721+	[0 2380 07]+0 0	00	00	00	00	00	173.0
atrazino	[0.33&0.07]+0.9	99	33	99	99	33	175.0
BBA 201772 estrazino	0.004 . 0.72	00	00	00	00	00	161 2
Acotochlor [Elms ? Clov]	2,10,05920,4561	99	99 00	33	99	99 00	101.5
	2+[0.056&0.156]	09	33	99	99	99	101.0
Preemergence/POST III (4-co		00	00	00	00	00	460.0
ACET/GIUT+ATTA+AMS	1.2/0.26+0.45+2.5	99	99	99	99	99	169.0
	.08/	99	99	99	99	99	107.4
Giuf+atrazine+AMS	.26+0.72+2.5	05	00	00		00	404.0
CGA7/102/	U.63/	95	99	99	99	99	164.6
		04	00	00	00	00	475 0
[FUE-5043&metr]/		94	99	99	99	99	1/5.3
Giul+alia+AWS	.20+.45+2.5	00	00	00	00	00	470.0
[FUE-5043&metr]/		99	99	99	99	99	170.0
	[0.012&0.012&0.094&0.035]						
		05	00	00	00	00	40E E
	2.0/[0.035&0.094]+	90	99	99	99	99	103.3
Dica+ini3+20%in		04	00	00	00	00	470 C
		91	99	99	99	99	170.0
F6285+NI5+28%N	0.008+0.25%+2.5%	04	00	00	00	00	457.0
CGA //102/	1.91/	91	99	99	99	99	157.8
		~~	00	00		00	450.0
CGA 7/102/[Prim&Dica]+	1.91/[0.025&0.123]+	99	99	99	99	99	159.3
	0.015+1.25%+4%	00	00	00	00	00	4 4 0 E
	1.3/	99	99	99	99	99	146.5
	[0.187&0.075]+ 0.25% +1.25%						
Moody abook	0.25%+1.25%	0	0	0	•	0	50 1
Rect (2 coller corre)/Cultive		U	U	U	U	U	50.1
POST I (2-collar corn)/Cultiva	$\frac{(100)(42 \text{ DAP})}{(42 \text{ DAP})}$	00	00	00	00	00	400.0
		83	99	99	99	99	102.8
	U.2070+4.070						
PUSI II (3-COllar Corn)/Cultiv	<u>/ation (42 DAP)</u>	00	00	00	00	00	400 4
		99	98	98	98	99	169.4
		00	00	00	00	00	450 F
Imep&imprj+Dica+ NIS+28%N	[0.042&0.014]+0.1875+ 0.25%+1.25%	99	99	99	99	99	159.5

POST III (4-collar corn)/Cul	tivation (42 DAP)						
Nico+[dica&San 1269H]+ NIS+28%N	0.031+[0.125&0.05]+ 0.25%+1.25%	96	99	99	99	99	147.4
Hand-weeded check	-	100	100	100	100	100	154.7
POST II (3-collar corn)							
[Rims&Nico&Atra]+ [FIms&Clpy]+COC+28%N	[0.012&0.012&0.76]+ [0.035&0.094]+1.0%+1.25%	87	99	99	99	99	159.1
[Imep&Impr]+Dica+ NIS+28%N	[0.042&0.014]+0.1875+ 0.25%+1.25%	96	97	99	99	99	167.9
<u>POST III (4-collar corn)</u>							
Nico+[Dica&San 1269H]+ NIS+28%N	0.031+[0.125&0.05]+ 0.25%+1.25%	93	99	99	99	99	144.0
Nico+F6285+Atra+ NIS+28%N	0.031+0.008+0.5+ 0.25%+2.5%	94	6	99	99	99	106.8
Gluf+Atra+AMS	0.26+0.45+2.5	89	99	99	96	99	152.5
Gluf+F6285+AMS	0.26+0.008+2.5	86	82	76	96	99	161.0
[Nico&Rims&Clpy&Flms]+ Dica+COC+28%N	[0.012&0.012&0.094&0.035] + 0.125+1.0%+2.5%	81	99	99	99	99	131.3
[Nico&Rims&Clpy&Flms]+ F6285+COC+28%N	[0.012&0.012&0.094&0.035] + 0.008+1.0%+2.5%	94	96	97	99	99	140.8
Weedy check		0	0	0	0	0	8.0
	LSD (0.10)	6	4	4	2	1	16.6

^a Acet or acetochlor = Harness 7E; Atra or atrazine = Aatrex 90DF; [Dica&SAN 1269H] = Distinct 70WG; FOE 5043&metr = Axiom 68DF; CGA 77102 = Dual II Magnum 7.64EC; Dica or dicamba = Clarity 4S; [Rims&Nico&Atra] = Basis Gold 89.9WG; [EPTC+R-29148&Acet] = DoublePlay 7EC; [FIms&Clpy] = Hornet 85.6WG; F6285 = Aim 40DF; Gluf = Liberty 1.67L; [Imep&Impr] = Lightning 70DF; Nico = Accent 75DF; [Nico&Rims&Clyp&FIms] = 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.