Herbicide performance in corn at Lamberton, MN in 1997. Getting, Jodie K. and Jeffrey L. Gunsolus. The objective of this study was to evaluate herbicide combinations for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 5.4% organic matter, pH 6.0 and soil test P and K levels of 80 and 370 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. No crop was planted on this site in 1996. Weeds were allowed to go to seed and the site was fall moldboard plowed. The area was fertilized with 140 lb/A of nitrogen as urea and field cultivated once on May 6, 1997. On May 9, 1997 the preplant incorporated treatments were applied. The entire trial was field cultivated once with a field cultivator set to till 3 inches deep and operated at 5 to 6 mph. On the same day Pioneer '3531' field corn was planted in 30-inch rows at a seeding rate of 30,000 seeds/A. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at a pressure of 40 psi. The sprayer was equipped with 8002 flat-fan nozzles spaced 15 inches apart on the boom. Mechanical treatment included cultivation at 42 days after planting (DAP). Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 9	May 9	June 3	June 9
Treatment	PPI	PRE	Early Post	POST
Temperature (F)				
air	38	60	67	76
soil (4 inch)	44	58	66	78
Relative humidity (%)	45	35	70	34
Wind (mph)	NW 8-10	NW 5-8	S 2-5	SE 8
Sky	sunny	sunny	cloudy	clear
Soil moisture	dry	moist	dry	dry
Corn				
leaf no.	–	–	2	3
height (inch)	–	–	3.5	5
Yellow foxtail				
leaf no.	–	–	1 to 3	2 to 4
height (inch)	–	–	0.25 to 1.0	2 to 4
no./ft^2	–	–	12	20
Common lambsquarters				
leaf no.	–	–	1 to 2	2 to 4
height (inch)	–	–	0.5 to 1.0	2 to 3
no./ft^2	–	–	25	33
Pennsylvania smartweed				
leaf no.	–	–	cotyledon	2 to 4
height (inch)	–	–	0.5 to 1.0	2 to 3
no./ft^2	–	–	4	6
Rainfall after application (inch)				
1 week	0.02	0.02	0.0	0.0
2 week	0.04	0.04	0.0	1.32
3 week	0.54	0.54	1.34	3.32

None of the treatments caused visible crop injury. Dry conditions after PRE applications resulted in poor early-season common lambsquarters control, however, PPI treatments gave 80 to 95% control. This early-season competition with the crop resulted in lower crop yields. In September, RPA 201772 and RPA 201772 + ICIA 5676 applied PRE had 48 and 35% common lambsqarters control, respectively, all other treatments had greater than 84% control. All treatments provided excellent Pennsylvania smartweed control.

Table. Herbicide performance in corn at Lamberton, MN in 1997 (Gelting and Gunsolus).

Treatment[a]	Rate	Yeft			Colg			Pesw			Moisture	Yield
		6/11	6/30	9/4	6/11	6/30	9/4	6/11	6/30	9/4		
	(lb/A or %)	(% control)									(%)	(bu/A)[b]
Preplant incorporate 1X/POST (3 to 4-inch weeds)												
[EPTC+R-29148&Acet]/Dica	[4.2&1.05]/0.5	97	94	94	95	100	100	93	100	100	20.3	143
CGA 77102/Dica	1.91/0.5	93	88	87	81	100	100	75	100	100	20.7	143
[Acet&MON 4660]/Dica	2.0/0.5	95	92	91	91	100	100	90	100	100	19.7	150
SAN-582H/Dica	1.5/0.5	93	90	90	80	99	100	76	100	100	20.6	146
Preemergence/POST (3 to 4-inch weeds)/cultivation (42 DAP)												
CGA 77102/Dica/cultivate	1.91/0.5	91	87	84	25	100	100	39	100	100	27.4	126
SAN-582H/Dica/cultivate	1.5/0.5	91	86	83	23	100	100	30	100	100	26.0	122
[Acet&MON 4660]/Dica/ cultivate	2.0/0.5	94	91	91	50	100	100	60	100	100	26.3	134
Hand-weeded check	-	100	100	100	100	100	100	100	100	100	25.2	142
Preemergence/POST (2-collar corn)												
CGA 77102/[Rims&Thif]+Atra +COC+28%N	0.76/[0.01&0.005]+0.5 +1.25%+5.0%	97	88	79	97	98	99	100	100	100	19.2	141
Early POST (2-collar corn)												
ICIA 5676+Dica+Nico +NIS+28%N	1.6+0.25+0.016 +0.25%+5.0%	93	95	89	93	97	98	100	96	100	20.6	147
Pend+Dica+Nico +NIS+28%N	1.24+0.375+0.016 0.25%+5.0%	95	91	85	97	99	99	99	99	100	20.6	140
[Rims&Thif]+Atra +COC+28%N	[0.01&0.005]+0.5 +1.25%+5.0%	93	84	80	98	99	100	100	100	100	19.5	131
Weedy check	-	0	0	0	0	0	0	0	0	0	31.3	23
Preemergence/POST (3 to 4-inch weeds)												
CGA 77102/Dica	1.91/0.5	93	86	73	15	99	98	18	100	100	25.5	109
SAN-582H/Dica	1.5/0.5	92	88	73	30	94	100	23	98	100	23.0	113
[Acet&MON 4660]/Dica	2.0/0.5	95	91	79	34	91	97	30	97	100	23.5	133
BAY FOE 5043/Dica	0.98/0.5	89	88	80	28	90	94	30	97	100	24.0	125
ICIA 5676/[Flms&Clpy] +NIS+28%N	2.0/[0.034&0.094] +0.25%+5.0%	96	91	80	24	80	84	20	95	99	23.9	116
ICIA 5676/[Flms&Clpy] +Dica+NIS	2.0/[0.034&0.094] +0.125+0.25%	96	91	81	23	95	99	28	99	100	22.2	128
ICIA 5676/[Flms&Clpy] +Atra+COC+28%N	2.0/[0.034&0.094] +0.5+1.25%+5.0%	94	91	83	31	97	100	28	99	100	22.5	140
ICIA 5676/[Flms&Clpy&2,4-D] +NIS	2.0/[0.023&0.063&0.125] +0.25%	95	91	80	26	92	98	20	95	100	21.5	129
CGA 77102/[CGA-152005&Prim] +Dica+COC+28%N	1.91/[0.014&0.014] +0.063+1.25%+5.0%	95	90	80	13	89	95	18	96	100	25.0	121
CGA 77102/Prim+Dica +COC+28%N	1.91/0.018+0.063 +1.25%+5.0%	95	90	75	13	85	95	20	95	100	26.0	113
CGA 77102/Prim+Atra +CGA 248757+COC+28%N	1.91/0.018+0.5 +0.004+1.25%+5.0%	95	90	78	31	96	99	28	95	100	23.7	129
SAN-582H/BAS 662 +NIS+28%N	1.5/0.26 +0.25%+1.25%	93	92	83	25	98	98	23	100	100	26.1	129
CGA 77102/F8426+Atra+NIS	1.91/0.008+0.5+0.25%	94	90	81	25	96	98	35	93	100	23.5	138
CGA 77102/F8426+Atra +Dica+NIS	1.91/0.008+0.5 0.094+0.25%	94	89	79	25	96	97	19	94	98	22.6	131
Weedy check	-	0	0	0	0	0	0	0	0	0	29.7	28
Preemergence												
RPA 201772	0.094	81	86	86	63	54	48	93	95	99	20.9	122
RPA 201772+ICIA 5676	0.094+1.0	92	89	90	73	48	35	83	91	98	21.0	130
POST (3 to 4-inch weeds)												
[DPX 79406&Atra]+COC+28%N	[0.023&0.75]+1.25%+5.0%	-	88	79	-	98	100	-	95	100	24.8	128
Nico+[Dica&Atra] +NIS+28%N	0.031+[0.34&0.66] +0.25%+2.5%	-	90	81	-	95	100	-	95	99	23.9	135
Nico+Dica+NIS+28%N	0.031+0.5+0.25%+5.0%	-	93	84	-	97	99	-	98	100	25.0	128
Nico+[Brox&Atra] +NIS+28%N	0.031+[0.23&0.46] +0.25%+5.0%	-	91	81	-	97	99	-	98	99	23.1	139
Nico+[Flms&Clpy] +Atra+COC+28%N	0.031+[0.034&0.094] +0.5+1.25%+5.0%	-	92	83	-	97	100	-	98	100	24.9	132
Nico+MON 12000 +Dica+COC+28%N	0.031+0.031 +0.063+1.25%+5.0%	-	95	83	-	91	98	-	99	100	25.5	129
Weedy check	-	0	0	0	0	0	0	0	0	0	30.8	32
Nico+[CGA 152005&Prim] +COC+28%N	0.031+[0.009&0.009] +1.25%+5.0%	-	95	86	-	90	88	-	97	98	24.2	128
Nico+Prim+Dica +COC+28%N	0.031+0.018+0.063 +1.25%+5.0%	-	94	82	-	91	98	-	97	100	24.4	124
Hand-weeded		100	100	100	100	100	100	100	100	100	23.7	149
	LSD (0.10)	2	2	4	9	5	7	11	3	1	2.4	13

[a] [Acet&MON 4660] = Harness 7E; atrazine = Aatrexx 90DF; BAY FOE 5043 = Axiom 68DF; Brox = Buctril 2EC; [Brox&Atra] = Buctril & Atrazine 3.2F; CGA 248757 = Action 4.75WP; [CGA 152005&Prim] = Exceed 57WDG; CGA 77102 = Dual II Magnum 7.64EC; Dica = 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; [Flms&Clpy&2,4-D] = Scorpion III 84.3DF; ICIA 5676 = Surpass 6.4EC; MON 12000 = Permit 75DF; Nico = Accent 75DF; Pend = Prowl 3.3EC; Prim = Beacon 75DF; [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.

[b] Yield adjusted to 15.5% moisture.