Evaluation of the performance of GWN-3075 for weed control in field corn at Potsdam, MN in 2005. Behnken, Lisa M., Fritz R. Breitenbach, Angela L. White, and Kira L. Stearns. The objective of this trial was to evaluate the performance of GWN-3075 for weed control in field corn in southeastern Minnesota. The research site was a Port Byron silt loam containing 3.2% organic matter, soil pH of 6.7, and soil test P and K levels of 65 ppm and 273 ppm, respectively. The previous crop was soybean. The area was fertilized in the spring with 144 lb/A of nitrogen, 23 lb/A of phosphorus, 120 lb/A of potash, and 24 lb/A of sulfur. The field was field cultivated twice prior to planting. The corn hybrid, Pioneer 38H69, was planted on May 6, 2005 at a depth of 1.5 inches in 30-inch rows at 32,000 seeds/A. A randomized complete block design with four replications was used. Preplant incorporated (PPI) and postemergence (POST) treatments were applied with a tractor-mounted sprayer, delivering 20 gpa at 32 psi using Turbo Tee 11002 nozzles. Evaluations of the plots were taken on May 31, June 6, June 16, June 27, and July 21. Application dates, environmental conditions, and crop and weed stages are listed below.

Date	May 6	June 16
Treatment	PPI	POST
Temperature (F)		
air	69	70
soil	48	63
Relative humidity (%)	40	42
Wind (mph)	6	6
Soil moisture	dry	adequate
Cloud cover (%)	15	0
Corn		
stage	seeded	4-5 collar
height (inch)	--	14.1
Common lambsquarters		
weed density (ft^2)	--	50.4
height (inch)	--	7.4
Velvetleaf		
weed density (ft^2)	--	1.3
height (inch)	--	4.9
Wild proso millet		
weed density (ft^2)	--	3.5
height (inch)	--	7.3
Rainfall after application (inch)		
week 1	1.28	0.15
week 2	1.63	1.23
week 3	0.50	0.07

Minimal, but not statistically significant, amounts of crop injury were reported in the GWN-3075 treatments at the 4.38 and 5.25 lb/A rates. GWN-3075 applied at the 5.25 lb/A rate (all ratings) and at the 4.38 lb/A rate (May 31, June 27, and July 31 rating dates) provided significantly greater control of wild proso millet than s-metolachlor & atrazine & benoxacor. Wild proso millet control was also greater with the 5.25 lb/A rate of GWN-3075 compared to the 2.63 lb/A rate, May 31 and June 16 rating.

GWN-3075 at 5.25 lb/A provided greater common lambsquarters control than when applied at 4.38 lb/A or when applied at 2.63 lb/A (May 31 and June 16). The 4.38 lb/A rate of GWN-3075 resulted in similar common lambsquarters control as the s-metolachlor & atrazine & benoxacor treatment. However, both of these treatments provided greater control of common lambsquarters than the 2.63 lb/A rate of GWN-3075, May 31 and June 16.

GWN-3075 at 5.25 lb/A controlled velvetleaf better than when applied at 4.38 lb/A or 2.63 lb/A. However, GWN-3075 applied at either 5.25 or 4.38 lb/A resulted in significantly greater velvetleaf control than the s-metolachlor & atrazine & benoxacor treatment, all rating dates.

The sequential treatment of GWN-3075 at 2.63 lb/A followed by glyphosate provided superior common lambsquarters control compared to all treatments. The sequential treatment resulted in similar wild proso millet and velvetleaf control as the GWN-3075 applied at 5.25 lb/A treatment and superior control compared to GWN-3075 at 4.38 lb/A or the s-metolachlor & atrazine & benoxacor treatment.

The highest corn yields were achieved with the GWN-3075 treatments, with all being statistically greater than the s-metolachlor & atrazine & benoxacor treatment. (University of Minnesota Extension Service, Regional Center, Rochester, MN)

Table. Performance of GWN-3075 for weed control in corn on May 31, June 16, June 27, and July 21 at Potsdam, MN in 2005. (Behnken, Breitenbach, White, and Stearns).

Treatment[a]	Rate	Crop injury[b]	PANMI control				CHEAL control				ABUTH control				Corn yield[c]
		5/31	5/31	6/16	6/27	7/21	5/31	6/16	6/27	7/21	5/31	6/16	6/27	7/21	
	(lb/A)	(%)	(%)				(%)				(%)				(bu/A)
Preplant Incorporated															
GWN-3075	4.38	3	98	92	87	80	92	91	77	79	96	94	73	83	217
GWN-3075	5.25	3	99	97	93	89	99	98	88	88	99	98	87	96	211
s-metolachlor & atrazine & benoxacor	1.415 & 1.134	0	94	88	79	73	94	91	85	75	88	88	63	65	200
PPI / Postemergence															
GWN-3075 / glyphosate + AMS	2.63 / 0.77 + 2	0	94	91	97	94	85	85	98	95	90	91	99	99	217
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	64
LSD (P = 0.10)		3	3	6	6	7	6	5	6	4	4	3	10	6	9

a. AMS = spray grade ammonium sulfate
b. Crop stunting
c. Yield at 15.5% moisture