

Weed control with glyphosate tank mixed with dicamba and [dicamba & SAN 1269] in glyphosate-resistant corn at Lamberton, MN in 2003. Getting, Jodie K. and Bruce D. Potter. The objective of this study was to evaluate glyphosate tank mixed with dicamba and [dicamba & SAN 1269H] for annual grass and annual broadleaf weed control in glyphosate-resistant corn. This study was conducted on a Normania loam soil containing 4.7% organic matter, pH 5.8 and soil test P and K levels of 36 and 272 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. The site was planted to soybeans in 2002 and was fall chiseled. The area was fertilized with 120 lb/A of nitrogen as anhydrous ammonia. On May 2, 2003, Dekalb 'DKC 53-34RR' glyphosate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. Cyfluthrin + tebupirimphos (Aztec 2.1G) was applied at 6.7 oz/1000 row feet in a T-band for the control of northern corn rootworm larvae. 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. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 2	June 3	June 11
Treatment	PRE	POST I	POST II
Temperature (F)			
air	48	61	61
soil (4 inch)	48	64	66
Relative humidity (%)	32	63	82
Wind (mph)	calm	calm	calm
Sky	clear	clear	cloudy
Soil moisture	dry	dry	dry
Corn			
leaf no.	-	4-collar	5-collar
height (inch)	-	5	10
Green foxtail			
leaf no.	-	2 to 4	3 to 5
height (inch)	-	2 to 4	5 to 8
no./ft ²	-	33	24
Common lambsquarters			
leaf no.	-	2 to 5	5 to 8
height (inch)	-	1 to 3	3 to 6
no./ft ²	-	8	6
Tall waterhemp			
leaf no.	-	2 to 4	4 to 6
height (inch)	-	0.25 to 1	2 to 5
no./ft ²	-	12	15
Rainfall after application (inch)			
1 week	1.07	1.24	0.01
2 week	1.15	0.01	3.34
3 week	0.50	2.59	0.59

Early season crop development was delayed due to a June 23 hailstorm. The precipitation received in July and August was below average with a total of 2.96 inches compared to the historical average of 7.07 inches. None of the herbicide treatments caused visible crop injury except for twisting of plants 2 days after treatment on POST II applied dicamba + glyphosate + NIS + AMS, [dicamba & SAN 1269H] + glyphosate + NIS + AMS, data not shown. These treatments resulted in 85% and 20 to 24% twisted plants, respectively. No visible crop injury was apparent 2 weeks later. On May 28, prior to POST treatments, PRE herbicide treatments provided 92% or greater green foxtail, common lambsquarters, and tall waterhemp control. On August 27, glyphosate + AMS applied POST I gave 78% green foxtail control. Dicamba + glyphosate + NIS + AMS, [dicamba & SAN 1269H] + glyphosate + NIS + AMS, pendimethalin + glyphosate + NIS + AMS, and dimethenamid-P + dicamba + NIS + AMS resulted in 78, 83, 86, and 91% control, respectively. Acetochlor applied PRE followed by glyphosate POST II resulted in 85% control. All other PRE/POST II treatments had 88 to 92% control. Herbicide treatments applied POST I gave 90 to 91% and 77 to 86% common lambsquarters and tall waterhemp control, respectively. Acetochlor applied PRE followed by glyphosate POST II resulted in 90 and 91% common lambsquarters and tall waterhemp control, respectively. All other PRE/POST II treatments had 97% common lambsquarters control and 93 to 97% tall waterhemp control. Pendimethalin + glyphosate + NIS + AMS applied POST II provided 74% tall waterhemp control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Weed control with glyphosate tank mixed with dicamba and [dicamba & SAN 1269H] in glyphosate-resistant corn at Lamberton, MN in 2003 (Getting and Potter).

Treatment ^a	Rate (lb/A or %)	SETVI				CHEAL				AMATU				Yield (bu/A) ^b
		5/28	6/13	6/27	8/27	5/28	6/13	6/27	8/27	5/28	6/13	6/27	8/27	
<u>PRE/POST I (5-inch corn)</u>		-----(% control)-----												
Dimt-P/Dica+Glyt+NIS+AMS	0.56/0.25+0.375+0.25%+2.5	93	100	97	89	95	99	96	93	96	100	97	92	160
<u>POST I (5-inch corn)</u>														
Pend+Glyt+NIS+AMS	1.0+0.56+0.25%+2.5	-	100	97	86	-	99	96	91	-	99	95	86	146
Dimt-P+Dica+Glyt+NIS+AMS	0.56+0.25+0.375+0.25%+2.5	-	100	98	91	-	98	97	91	-	100	95	86	155
Dica+Glyt+NIS+AMS	0.25+0.375+0.25%+2.5	-	99	92	78	-	98	97	91	-	99	89	77	150
[Dica&SAN 1269H]	[0.125&0.05]	-	99	96	83	-	97	98	91	-	100	93	82	163
+Glyt+NIS+AMS	+0.375+0.25%+2.5													
Glyt ¹ +AMS	0.75+2.5	-	100	91	78	-	100	97	90	-	100	90	78	143
<u>PRE/POST II (10-inch corn)</u>														
Dimt-P/Dica+Glyt+NIS+AMS	0.56/0.25+0.375+0.25%+2.5	93	91	97	88	92	83	98	97	96	95	98	97	149
Dimt-P/[Dica&SAN 1269H]	0.56/[0.063&0.025]	95	92	97	89	96	90	98	97	97	97	97	95	146
+Glyt+NIS+AMS	+0.56+0.25%+2.5													
Dimt-P/[Dica&SAN 1269H]	0.56/[0.125&0.05]	95	94	97	92	96	95	98	97	97	96	98	97	153
+Glyt+NIS+AMS	+0.375+0.25%+2.5													
Dimt-P/Glyt ¹ +AMS	0.56/0.75+2.5	95	93	97	91	95	93	98	97	97	96	97	93	161
Dimt-P/[Dica&Atra]	0.56/[0.28&0.54]	94	100	97	91	96	100	98	97	95	100	98	97	162
+Glyt+NIS+AMS	+0.375+0.25%+2.5													
[Dimt-P&Atra/	[0.56&0.68]/	95	100	97	89	97	100	98	97	97	100	98	97	153
Dica+Glyt+NIS+AMS	0.25+0.375+0.25%+2.5													
Acet/Glyt ¹ +AMS	1.0/0.75+2.5	93	100	95	85	97	100	97	90	98	100	97	91	153
<u>POST II (10-inch corn)</u>														
Pend+Glyt+NIS+AMS	1.0+0.56+0.25%+2.5	-	-	98	91	-	-	98	94	-	-	86	74	139
<u>Checks</u>														
Weedy check		0	0	0	0	0	0	0	0	0	0	0	0	34
Weed-free		100	100	100	100	100	100	100	100	100	100	100	100	149
	LSD (0.10)	3.9	2.9	1.4	4.5	4.1	6.6	2.0	4.4	2.6	2.3	3.0	5.6	17.3

^a Acet or acetochlor = Harness 7E; Dica or dicamba = Clarity 4L; [Dica&Atra] or [dicamba & atrazine] = Marksman 3.2F; [Dica&SAN 1269H] or [dicamba & SAN 1269H] = Distinct 70WG; Dimt-P or dimethenamid-P = Outlook 6L; [Dimt-P&Atra] = G-max Lite 5EC; Glyt or glyphosate = Roundup Original 3S; Glyt¹ or glyphosate¹ = Roundup Weathermax 4.5L; Pend or pendimethalin = Prowl H2O 3.8CS; NIS = nonionic surfactant; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.

^b Yield adjusted to 15.5% moisture.