

Performance of glyphosate products when applied under adverse weather conditions in field corn at Potsdam, MN in 2004. Breitenbach, Fritz R., Lisa M. Behnken, Kira L. Stearns, and Kevin R. Griffin. The objective of this trial was to evaluate the performance of glyphosate products when applied under adverse weather conditions for weed control in field corn in southeastern Minnesota. The research site was a Port Byron silt loam containing 3.2% organic matter with a pH of 6.7 and soil test P and K levels of 66 ppm and 376 ppm, respectively. The field was fertilized in the spring with 160 lb/A of nitrogen and 120 lb/A of potash. The previous crop was soybean. The field was disked and field cultivated once prior to planting. The corn hybrid, Pioneer 37R70 RR, was planted on May 11, 2004 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. Postemergence (POST) treatments were applied with a tractor-mounted sprayer, delivering 15 gpa at 32 psi using TurboTee 11002 nozzles. Evaluations of the plots were taken on June 25 and July 9. Application date, environmental conditions, and crop and weed stages are listed below.

Date	June 14
Treatment	POST
Temperature (F)	
Air	75
Relative humidity (%)	46
Wind (mph)	14
Soil moisture	adequate
Corn	
Stage	V3
height (inches)	12.6
Wild proso millet	
weed density	moderate
height (inch)	1.9
Common lambsquarters	
weed density	moderate
height (inch)	0.9
Velvetleaf	
weed density	light
height (inch)	1.2
Giant ragweed	
weed density	moderate
height (inch)	8.7
Rainfall after application (inch)	
week 1	1.85
week 2	0.63
week 3	0.38

There were some differences in weed control at the June 25 rating among the glyphosate products. However, no differences were observed among the glyphosate products applied alone for wild proso millet or velvetleaf control by the July 9 rating. Common lambsquarters control was lower with glyphosate⁶ + AMS (78% for the July 9 rating) compared to all other treatments except glyphosate⁵ + AMS, which gave 81%. No differences in common lambsquarters control was observed among the other glyphosate products applied alone by the July 9 rating. However, control was only 84 to 88% with these treatments. Glyphosate¹ + mesotrione + atrazine + AMS provided significantly better control of velvetleaf and common lambsquarters than all other treatments, 100% and 100%, respectively (July 9 rating). (University of Minnesota Extension Service, Regional Center, Rochester, MN)

Table. Performance of glyphosate products for weed control in corn on June 25 and July 9 at Potsdam, MN in 2004 (Breitenbach, Behnken, Stearns, and Griffin).

Treatment	Rate	Corn injury	PANMI control		CHEAL control		ABUTH control		AMBTR control	
		6/25	6/25	7/9	6/25	7/9	6/25	7/9	6/25	7/9
	(lb/A)	(%)	(%)		(%)		(%)		(%)	
Postemergence										
Glyphosate ¹ + AMS	0.56 + 3.0	0	92	95	93	85	98	89	96	93
Glyphosate ¹ + AMS	0.77 + 3.0	1	92	95	97	88	98	90	96	95
Glyphosate ¹	0.77	3	93	95	95	87	97	89	98	93
Glyphosate ¹ + NIS	0.77 + 0.125%	0	93	95	96	87	99	90	95	91
Glyphosate ¹ + AMS	1.12 + 3.0	3	94	95	96	86	99	88	98	93
Glyphosate ² + AMS	0.77 + 3.0	0	94	95	94	86	98	89	97	94
Glyphosate ² + NIS + AMS	0.77 + 0.125 + 3.0	2	91	95	96	85	96	89	96	91
Glyphosate ³ + AMS	0.56 + 3.0	3	94	95	92	84	98	89	94	91
Glyphosate ³ + AMS	0.75 + 3.0	1	93	95	94	86	98	90	96	91
Glyphosate ⁴ + AMS	0.56 + 3.0	1	92	95	95	88	97	89	95	93
Glyphosate ⁴ + AMS	0.75 + 3.0	4	94	95	90	85	98	88	96	91
Glyphosate ⁵ + AMS	0.75 + 3.0	2	93	95	92	81	97	90	98	94
Glyphosate ⁶ + AMS	0.75 + 3.0	1	95	95	91	78	98	90	97	90
Glyphosate ¹ + mesotrione + atrazine + AMS	0.77 + 0.047 + 0.506 + 3.0	3	96	95	97	100	99	100	97	91
Glyphosate ¹ + dicamba&diflufenzopyr + AMS	0.77 + 0.0875 + 3.0	2	96	95	96	89	98	91	98	95
Untreated		0	0	0	0	0	0	0	0	0
LSD = (0.10)		3	3	0	5	4	1	3	3	4

Glyphosate¹ = Roundup WeatherMax, Glyphosate² = Roundup Original Max, Glyphosate³ = Touchdown IQ, Glyphosate⁴ = ClearOut 41 Plus, Glyphosate⁵ = Glyphomax Plus, Glyphosate⁶ = Glystar Plus, AMS = spray grade ammonium sulfate, Helena; NIS = AGRI-DEX nonionic surfactant, Helena.