

Evaluation of spray adjuvants and deposition aids on glyphosate performance in field corn at Rochester, MN in 2004. Breitenbach, Fritz R., Lisa M. Behnken, Angela L. White, and Kira L. Stearns. The objective of this trial was to evaluate spray adjuvants and deposition aids on glyphosate performance in field corn in southeastern Minnesota in 2004. The research site was a Lawler loam series containing 2.7% organic matter with a pH of 6.5 and soil test P and K levels of 43 ppm and 185 ppm, respectively. The previous crop was soybean. The area was fertilized in the spring with 122 lb/A of nitrogen, 23 lb/A of phosphorus, 120 lb/A of potash, 23 lb/A of sulfur and 3 T/A of lime. The area was topdressed with 40 lb/A of nitrogen on June 15. The field was disked and field cultivated once prior to planting. The corn hybrid, DeKalb DKC 47-10, was planted on April 29, 2004 at a depth of 1.5 inches in 30-inch rows at 32,000 seeds/A. All of the adjuvants and deposition aids used in this trial are products of West Central, Inc. A randomized complete block design with four replications was used. Postemergence (POST I and II) 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 June 7, June 14, June 29 and July 9, 2004. Application dates, environmental conditions, and crop and weed stages are listed below.

Date	May 25	June 21
Treatment	POST I	POST II
Temperature (F)		
air	59	69
Relative humidity (%)	67	65
Wind (mph)	16	7
Soil moisture	adequate	adequate
Corn		
Stage	2 collar	6 collar
height (inches)	2.5	18
Giant ragweed		
weed density	heavy	heavy
height (inch)	3	3 regrowth
Common lambsquarters		
weed density	light	light
height (inch)	3.5	8 regrowth
Common waterhemp		
weed density	moderate	moderate
height (inch)	0.5	2 regrowth
Giant foxtail		
weed density	moderate	moderate
height (inch)	0.5	3 regrowth
Rainfall after application (inch)		
week 1	1.05	0.63
week 2	0.33	0.16
week 3	5.65	2.82

No differences were observed among the glyphosate products plus spray adjuvants and/or deposition aids for common waterhemp or giant foxtail control compared to the sequential glyphosate¹ / glyphosate¹ standard applied alone, by the July 9 rating. There were some differences observed in the treatments for giant ragweed and common lambsquarters control. The sequential application of glyphosate¹ applied with One-Ap XL provided significantly better giant ragweed control (92%), than when applied with Cornbelt Guardian, WC038, WC037 or WC036 and the sequential glyphosate² + WC037 and glyphosate¹ alone treatments (July 9 rating). Glyphosate¹ applied with Cornbelt Premier 90 + Premier AMS provided better giant ragweed control than when applied with Cornbelt Guardian, WC038 or WC037 and the sequential glyphosate² + WC037 and glyphosate¹ alone treatments (July 9 rating). The sequential application of glyphosate¹ applied with WC036 provided significantly better common lambsquarters control than when applied with Cornbelt Guardian, One-Ap XL, Cornbelt Dri-Gard, or, Cornbelt Guardian Plus. Foramsulfuron + carfentrazone & halosulfuron + Soy-Stik + Premium AMS and nicosulfuron & rimsulfuron + carfentrazone & halosulfuron + Premium COC + Premium AMS gave significantly lower giant ragweed and giant foxtail control compared to all other treatments by the July 9 rating. Foramsulfuron + carfentrazone & halosulfuron + Soy-Stik + Premium AMS provided significantly lower common waterhemp control than all of the glyphosate treatments. (University of Minnesota Extension Service, Regional Center, Rochester, MN)

Table. Performance of spray adjuvants and deposition aids with glyphosate in field corn on June 7, June 14, June 29 and July 9 at Rochester, MN in 2004 (Breitenbach, Behnken, White and Stearns).

Treatment	Rate	AMBTR control				CHEAL control				AMATA control				SETFA control			
		6/7	6/14	6/29	7/9	6/7	6/14	6/29	7/9	6/7	6/14	6/29	7/9	6/7	6/14	6/29	7/9
	(lb/A)	AMBTR control (%)				CHEAL control (%)				AMATA control (%)				SETFA control (%)			
Postemergence I																	
Foramsulfuron + carfentrazone & halosulfuron + Soy-Stik + Premium AMS	0.033 + 0.008 & 0.031 + 0.94% + 2.0	90	95	-	61	96	99	-	80	97	97	-	75	100	99	-	89
Nicosulfuron & rimsulfuron + carfentrazone & halosulfuron + Premium COC + Premium AMS	0.023 & 0.012 + 0.008 & 0.031 + 1% + 2.0	86	95	-	51	97	99	-	85	96	98	-	81	100	99	-	94
Postemergence I / Postemergence II																	
Glyphosate ¹ / glyphosate ¹	0.75 / 0.375	95	90	84	85	98	99	93	88	95	97	98	89	100	98	98	99
Glyphosate ¹ + Cornbelt Premier 90 + Premium AMS / glyphosate ¹ + Cornbelt Premier 90 + Premium AMS	0.75 + 0.5% + 1.7 / 0.375 + 0.5% + 1.7	96	90	93	90	98	98	95	90	97	97	99	91	100	98	99	98
Glyphosate ² + Cornbelt Gardian / glyphosate ² + Cornbelt Gardian	0.75 + 0.5% / 0.375 + 0.5%	95	90	84	84	94	98	86	84	93	96	95	87	100	98	99	99
Glyphosate ¹ + One-Ap XL / glyphosate ¹ + One-Ap XL	0.75 + 1.8 / 0.375 + 1.8	95	90	95	92	96	98	88	83	94	94	96	89	100	98	99	99
Glyphosate ¹ + WC038 / glyphosate ¹ + WC038	0.75 + 0.5% / 0.375 + 0.5%	95	90	83	84	97	99	92	89	97	97	97	91	100	98	99	99
Glyphosate ¹ + Cornbelt Dri-Gard / glyphosate ¹ + Cornbelt Dri-Gard	0.75 + 1.8 / 0.375 + 1.8	95	90	93	88	96	98	87	83	94	96	97	91	100	98	99	98
Glyphosate ¹ + Cornbelt Gardian Plus / glyphosate ¹ + Cornbelt Gardian Plus	0.75 + 2.5% / 0.375 + 0.25%	95	90	90	89	97	97	87	85	96	96	98	92	100	99	99	99
Glyphosate ¹ + WC037 / glyphosate ¹ + WC037	0.75 + 0.5% / 0.375 + 0.5%	95	90	87	85	98	98	93	90	97	96	98	92	100	98	99	99
Glyphosate ² + WC037 / glyphosate ² + WC037	0.75 + 0.5% / 0.375 + 0.5%	95	90	87	84	98	99	96	91	95	96	97	93	100	98	98	99
Glyphosate ¹ + WC036 / glyphosate ¹ + WC036	0.75 + 0.5% / 0.375 + 0.5%	95	90	90	88	98	99	94	93	96	97	97	93	100	99	99	98
LSD (0.10)		1	0	4	4	2	1	4	6	2	1	3	6	0	1	1	3

Glyphosate¹ = Buccaneer, Glyphosate² = Buccaneer Plus,