

**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 glyphosate standard applied alone as Buccaneer / Buccaneer, by the July 9 rating. There were some differences observed in the treatments for giant ragweed and common lambsquarters control. The sequential application of Buccaneer applied with One-Ap XL provided significantly better giant ragweed control (92%), than when applied with Cornbelt Gardian, WC038, WC037 or WC036 and the sequential Buccaneer Plus + WC037 and Buccaneer alone treatments (July 9 rating). Buccaneer applied with Cornbelt Premier 90 + Premier AMS provided better giant ragweed control than when applied with Cornbelt Gardian, WC038 or WC037 and the sequential Buccaneer Plus + WC037 and Buccaneer alone treatments (July 9 rating). The sequential application of Buccaneer applied with WC036 provided significantly better common lambsquarters control than when applied with Cornbelt Gardian, One-Ap XL, Cornbelt Dri-Gard, or, Cornbelt Gardian Plus. Option + Priority+ Soy-Stik + Premium AMS and Steadfast+ Priority+ Premium COC + Premium AMS gave significantly lower giant ragweed and giant foxtail control compared to all

other treatments by the July 9 rating. Option + Priority + 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	Giant ragweed control				Common lambsquarters control				Common waterhemp control				Giant foxtail 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
	(rate/A)	(%)				(%)				(%)				(%)			
<b>Postemergence I</b>																	
Option + Priority + Soy-Stik + Premium AMS	1.5 oz + 1 oz + 1.5 oz + 2 lbs	90	95	-	61	96	99	-	80	97	97	-	75	100	99	-	89
Steadfast + Priority + Premium COC + Premium AMS	0.75 oz + 1 oz + 1 % v/v + 2 lbs	86	95	-	51	97	99	-	85	96	98	-	81	100	99	-	94
<b>Postemergence I / Postemergence II</b>																	
Buccaneer / Buccaneer	32 oz / 16 oz	95	90	84	85	98	99	93	88	95	97	98	89	100	98	98	99
Buccaneer + Cornbelt Premier 90 + Premium AMS / Buccaneer + Cornbelt Premier 90 + Premium AMS	32 oz + 0.5 % v/v + 8.5 lbs/100 gal / 16 oz + 0.5 % v/v + 8.5 lbs/100 gal	96	90	93	90	98	98	95	90	97	97	99	91	100	98	99	98
Buccaneer Plus + Cornbelt Gardian / Buccaneer Plus + Cornbelt Gardian	32 oz + 2 qts/100 gal / 16 oz + 2 qts/100 gal	95	90	84	84	94	98	86	84	93	96	95	87	100	98	99	99
Buccaneer + One-Ap XL / Buccaneer + One-Ap XL	32 oz + 9 lbs/100 gal / 16 oz + 9 lbs/100 gal	95	90	95	92	96	98	88	83	94	94	96	89	100	98	99	99
Buccaneer + WC038 / Buccaneer + WC038	32 oz + 2 qts/100 gal / 16 oz + 2 qts/100 gal	95	90	83	84	97	99	92	89	97	97	97	91	100	98	99	99
Buccaneer + Cornbelt Dri-Gard / Buccaneer + Cornbelt Dri-Gard	32 oz + 9 lbs/100 gal / 16 oz + 9 lbs/100 gal	95	90	93	88	96	98	87	83	94	96	97	91	100	98	99	98
Buccaneer + Cornbelt Gardian Plus / Buccaneer + Cornbelt Gardian Plus	32 oz + 2.5 gal/100 gal / 16 oz + 2.5 gal/100 gal	95	90	90	89	97	97	87	85	96	96	98	92	100	99	99	99
Buccaneer + WC037 / Buccaneer + WC037	32 oz + 2 qts/100 gal / 16 oz + 2 qts/100 gal	95	90	87	85	98	98	93	90	97	96	98	92	100	98	99	99
Buccaneer Plus + WC037 / Buccaneer Plus + WC037	32 oz + 2 qts/100 gal / 16 oz + 2 qts/100 gal	95	90	87	84	98	99	96	91	95	96	97	93	100	98	98	99
Buccaneer + WC036 / Buccaneer + WC036	32 oz + 2 qts/100 gal / 16 oz + 2 qts/100 gal	95	90	90	88	98	99	94	93	96	97	97	93	100	99	99	98
<b>LSD (0.10)</b>		1	0	4	4	2	1	4	6	2	1	3	6	0	1	1	3