

Evaluation of WestCentral Cornbelt adjuvants with postemergence grass herbicides to control volunteer glyphosate tolerant corn at Rochester, MN, in 2007.

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The objective of this trial was to evaluate WestCentral Cornbelt adjuvants with postemergence grass herbicides to control volunteer glyphosate tolerant corn in southeastern Minnesota. The research sites were located on a Lawler loam series soil. Fertility levels on the early planted site were pH 6.7 and soil test P and K levels of 36 and 146 respectively. Fertility levels on the later planted site were pH 6.9 and soil test P and K levels of 44 ppm and 131 ppm, respectively. Corn was planted on May 23, 2007, on the early site, and on August 8, 2007, at the late site. Corn at both sites was planted at a depth of 2.5 inches and a rate of 32,000 plants per acre. A randomized complete block design was used with four replications. Postemergence (POST I) 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 July 5, July 12, and July 27 for the early planted site and on September 5, and 10 for the later planted site. An early September frost halted evaluation on the later planted site. Application dates, environmental conditions, and corn stages are listed below.

Date	June 26	August 31
Treatment	POST I	POST I
Temperature (F)		
Air	86	77
soil	85	81
Relative Humidity (%)	60	50
Wind (mph)	13	3
Soil moisture	Dry	Adequate
Volunteer Corn		
height (inch)	14	10
Rainfall after each application (inch)		
week 1	0.27	1.27
week 2	0.66	1.52
week 3	0.48	1.27

CONCLUSIONS

In the early planted trial, all adjuvant systems maximized control of glyphosate tolerant volunteer corn with the exception of Trophy Gold + Premium AMS. Volunteer corn control with the Trophy Gold + Premium AMS treatment, whether tank mixed with Assure II or Volunteer, provided statistically lower control than the maximum control achieved in the trial. In the later planted trial, Assure II treatments were superior to the Volunteer treatments; however, its control ratings may have leveled out if a later rating could have been taken.

When the trials were broken down by herbicide and date no statistical differences were evident for the early planted Assure II treatments (Table 3). Statistical differences were evident with the later planting date. Trophy Gold + Premium AMS, and Premier 90 + Premium AMS provided statistically lower control than the best treatment (Table 4). Results for Volunteer in the early planted trial also showed that Trophy Gold + Premium AMS provided statistically lower control than the best treatment (Table 5). No statistical differences were observed for Volunteer in the later planted study (Table 6).

Table 1. Performance of Cornbelt adjuvants with Assure II and Volunteer herbicides to control glyphosate tolerant corn on July 5, 12, and 27, at Rochester, MN, in 2007.

Treatment	Rate (rate/A)	Volunteer corn			
		7/5	7/12	7/27	
		(% control)			
POST I					
Assure II	3 fl oz	33	20	58.3	
Assure II + Premium COC + Premium AMS	3 fl oz + 1 qt + 2 lb	63	73	97.0	
Assure II + Premium COC + N-Tense	3 fl oz + 1 qt + 0.5% v/v	60	80	97.7	
Assure II + Trophy Gold + Premium AMS	3 fl oz + 0.25% v/v + 2 lb	63	68	94.0	
Assure II + Trophy Gold + N-Tense	3 fl oz + 0.25% v/v + 0.5% v/v	63	65	94.7	
Assure II + Premier 90 + Premium AMS	3 fl oz + 0.5% v/v + 2 lb	62	67	98.3	
Volunteer	3 fl oz	40	20	60.0	
Volunteer + Premium COC + Premium AMS	3 fl oz + 1 qt + 2 lb	63	89	99.0	
Volunteer + Premium COC + N-Tense	3 fl oz + 1 qt + 0.5% v/v	63	87	98.3	
Volunteer + Trophy Gold + Premium AMS	3 fl oz + 0.25% v/v + 2 lb	47	80	93.7	
Volunteer + Trophy Gold + N-Tense	3 fl oz + 0.25% v/v + 0.5% v/v	52	75	96.3	
Volunteer + Premier 90 + Premium AMS	3 fl oz + 0.5% v/v + 2 lb	58	82	94.7	
		LSD (P=0.10)	13	11	3.9

Table 2. Performance of Cornbelt adjuvants with Assure II and Volunteer herbicides to control glyphosate tolerant corn on September 5, and 10, at Rochester, MN, in 2007.

Treatment	Rate (rate/A)	Volunteer corn		
		9/5	9/10	
		(% control)		
POST I				
Assure II	3 fl oz	46	52	
Assure II + Premium COC + Premium AMS	3 fl oz + 1 qt + 2 lb	80	96	
Assure II + Premium COC + N-Tense	3 fl oz + 1 qt + 0.5% v/v	81	98	
Assure II + Trophy Gold + Premium AMS	3 fl oz + 0.25% v/v + 2 lb	77	90	
Assure II + Trophy Gold + N-Tense	3 fl oz + 0.25% v/v + 0.5% v/v	81	96	
Assure II + Premier 90 + Premium AMS	3 fl oz + 0.5% v/v + 2 lb	78	94	
Volunteer	3 fl oz	42	47	
Volunteer + Premium COC + Premium AMS	3 fl oz + 1 qt + 2 lb	83	88	
Volunteer + Premium COC + N-Tense	3 fl oz + 1 qt + 0.5% v/v	83	88	
Volunteer + Trophy Gold + Premium AMS	3 fl oz + 0.25% v/v + 2 lb	80	88	
Volunteer + Trophy Gold + N-Tense	3 fl oz + 0.25% v/v + 0.5% v/v	82	86	
Volunteer + Premier 90 + Premium AMS	3 fl oz + 0.5% v/v + 2 lb	81	85	
		LSD (P=0.10)	3	3

Table 3. Performance of Cornbelt adjuvants with Assure II herbicides to control glyphosate tolerant corn on July 5, 12, and 27, at Rochester, MN, in 2007.

Treatment	Rate	Volunteer corn		
		7/5	7/12	7/27
	(rate/A)	(% control)		
POST I				
Assure II	3 fl oz	33	20	58
Assure II + Premium COC + Premium AMS	3 fl oz + 1 qt + 2 lb	63	73	97
Assure II + Premium COC + N-Tense	3 fl oz + 1 qt + 0.5% v/v	60	80	98
Assure II + Trophy Gold + Premium AMS	3 fl oz + 0.25% v/v + 2 lb	63	68	94
Assure II + Trophy Gold + N-Tense	3 fl oz + 0.25% v/v + 0.5% v/v	63	65	95
Assure II + Premier 90 + Premium AMS	3 fl oz + 0.5% v/v + 2 lb	62	67	98
	LSD (P=0.10)	17	15	5

Table 4. Performance of Cornbelt adjuvants with Assure II herbicides to control glyphosate tolerant corn on September 5, and 10, at Rochester, MN, in 2007.

Treatment	Rate	Volunteer corn	
		9/5	9/10
	(rate/A)	(% control)	
POST I			
Assure II	3 fl oz	46	52
Assure II + Premium COC + Premium AMS	3 fl oz + 1 qt + 2 lb	80	96
Assure II + Premium COC + N-Tense	3 fl oz + 1 qt + 0.5% v/v	81	98
Assure II + Trophy Gold + Premium AMS	3 fl oz + 0.25% v/v + 2 lb	77	90
Assure II + Trophy Gold + N-Tense	3 fl oz + 0.25% v/v + 0.5% v/v	81	96
Assure II + Premier 90 + Premium AMS	3 fl oz + 0.5% v/v + 2 lb	78	94
	LSD (P=0.10)	3	3

Table 5. Performance of Cornbelt adjuvants with Volunteer herbicides to control glyphosate tolerant corn on July 5, 12, and 27, at Rochester, MN, in 2007.

Treatment	Rate	Volunteer corn		
		7/5	7/12	7/27
	(rate/A)	(% control)		
POST I				
Volunteer	3 fl oz	40	20	60
Volunteer + Premium COC + Premium AMS	3 fl oz + 1 qt + 2 lb	63	89	99
Volunteer + Premium COC + N-Tense	3 fl oz + 1 qt + 0.5% v/v	63	87	98
Volunteer + Trophy Gold + Premium AMS	3 fl oz + 0.25% v/v + 2 lb	47	80	94
Volunteer + Trophy Gold + N-Tense	3 fl oz + 0.25% v/v + 0.5% v/v	52	75	96
Volunteer + Premier 90 + Premium AMS	3 fl oz + 0.5% v/v + 2 lb	58	82	95
	LSD (P=0.10)	11	7	4

Table 6. Performance of Cornbelt adjuvants with Volunteer herbicides to control glyphosate tolerant corn on September 5, and 10, at Rochester, MN, in 2007.

Treatment	Rate	Volunteer corn	
		9/5	9/10
	(rate/A)	(% control)	
POST I			
Volunteer	3 fl oz	42	47
Volunteer + Premium COC + Premium AMS	3 fl oz + 1 qt + 2 lb	83	88
Volunteer + Premium COC + N-Tense	3 fl oz + 1 qt + 0.5% v/v	83	88
Volunteer + Trophy Gold + Premium AMS	3 fl oz + 0.25% v/v + 2 lb	80	88
Volunteer + Trophy Gold + N-Tense	3 fl oz + 0.25% v/v + 0.5% v/v	82	86
Volunteer + Premier 90 + Premium AMS	3 fl oz + 0.5% v/v + 2 lb	81	85
	LSD (P=0.10)	2	4