

Common Lambsquarters Control in Roundup Ready® Corn During the 2008 Growing Season.

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A field study was initiated near Scottsbluff, Nebraska to compare various herbicide treatments for control of common lambsquarters in Roundup Ready Corn. The experimental design was a randomized complete block with four replications. Plots were 11 feet wide by 50 feet long and were located on a sandy loam soil with an organic matter content of 1.4% and pH of 8.2. Corn, 'DKC 42-91', was planted on May 12. Herbicides were applied preemergence on May 14 and postemergence on June 3, June 10 and June 25 (Table 1). Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 20 gallons of water per acre at 32-psi pressure with Spraying Systems 11002 VS nozzles. The environmental conditions at the time of spraying are given in Table 1.

Corn stand was not reduced by any of the herbicide treatments (Table 2). Minor corn injury was observed in areas treated with KIH-485 at the highest application rate of 0.222 lb/acre.

Weed density was severe and consisted of common lambsquarters, hairy nightshade and redroot pigweed at average densities of 592, 14, and 24 plants/137 sq ft, respectively. Common lambsquarters control increased from 61% to 94% as KIH-485 rate increased from 0.089 to 0.222 lb/acre. Even at 94% common lambsquarters control there was enough lambsquarters plants remaining to reduce corn yield 61 bu/acre compared to areas treated with KIH-485 at 0.089 lb/acre preemergence and followed postemergence with Roundup WeatherMax which provided 99% lambsquarter control and had a corn yield of 190 bu/acre. Nontreated plots had a corn yield of 19 bu/acre, a preemergence application of Dual Magnum provided 48% common lambsquarters control with a corn yield of 70 bu/acre, following Dual Magnum with Roundup WeatherMax postemergence increased common lambsquarters control to 99% and corn yield increased to 179 bu/acre.

Table 1. Environmental conditions at the time of herbicide application.

Date	Air temperature (F)	Humidity (%)	Wind speed & direction (mph)	Time of day	Crop stage of growth	Weed heights		
						Colq	Hans	Rrpw
						----- (inches) -----		
May 14	52	52	2 W	8:00 am	PRE	----- no weeds -----		
June 3	74	43	4 W	11:00 am	V 3	4	1	0.5
June 10	65	47	3 SE	9:00 am	V 3	6	4	1
June 25	74	54	2 NE	9:00 am	V 4	18	5	12

Rainfall and irrigation before herbicide application

Date	Amount	Date	Amount	Date	Amount
	- (inches) -		- (inches) -		- (inches) -
May 15	0.60	June 1	0.19	June 20	0.36
May 22	0.21	June 4	0.75	June 27	0.75
May 23	0.31	June 12	0.60		
May 26	0.20	June 19	0.07		

Table 2. Common Lambsquarters Control in Roundup Ready Corn during the 2008 Growing Season.

Treatment ¹	Rate (lbs/acre)	Time of application ²	Corn					Percent weed control 6/23 ⁴			
			Visual Injury ³			Stand	Yield at 15.5% moisture	Colq	Rrpw	Hans	Avg
			6/3	6/10	6/24	6/23	(bu/acre)	----- (%) -----			
Nontreated	—	—	0	0	0	35640	19.0	0	0	0	0
Dual II Magnum	0.95	Pre	0	0	0	36472	70.4	48	99	57	68
Dual II Magnum Impact + Atrazine + MSO + AMS	0.95 0.016 + 0.5 8.5 lbs/100gal	Pre 2-4" Weeds	0	0	1	36472	153.3	99	99	99	99
Impact + Atrazine + MSO + AMS	0.016 + 0.5 8.5 lbs/100gal	2-4" Weeds	0	0	0	35878	161.3	99	99	99	99
Dual II Magnum Impact Roundup WeatherMax + AMS	0.95 0.011 1 8.5 lbs/100gal	Pre 6" Weeds 6" Weeds	0	0	0	36709	166.3	99	99	99	99
Dual II Magnum Impact + Atrazine + Roundup WeatherMax + AMS	0.95 0.011 + 0.5 + 1.0 8.5 lbs/100gal	Pre 6" Weeds	0	0	0	36115	177.4	99	99	97	98
Dual II Magnum Roundup WeatherMax + AMS	0.95 1 8.5 lbs/100gal	Pre 6" Weeds	1	0	1	36947	179.4	99	99	99	99
Outlook Status + Roundup PowerMAX + AMS	0.75 0.19 + 1.12	Pre 6" Weeds	0	0	0	37897	182.7	99	99	99	99
Status + Roundup PowerMAX + AMS Roundup PowerMAX + AMS	0.19 + 1.12 1.12	2-4" Weeds 3 Wk Later	0	0	0	37184	160.7	99	99	99	99
G-Max Lite Status + Roundup PowerMAX + AMS	1 0.19 + 1.12	Pre 6" Weeds	3	3	2	38254	178.2	99	99	99	99

Treatment ¹	Rate (lbs/acre)	Time of application ²	Corn				Stand 6/23 (plants/acre)	Yield at 15.5% moisture (bu/acre)	Percent weed control 6/23 ⁴			
			Visual Injury ³			Colq			Rrpw	Hans	Avg	
			6/3	6/10	6/24							
			----- (%) -----			----- (%) -----						
Status + Atrazine + Roundup PowerMAX + AMS Roundup PowerMAX + AMS	0.19 + 0.5 + 1.12 1.12	2-4" Weeds 3 Wk Later	0	0	0	37184	177.4	99	99	99	99	
Roundup PowerMAX + AMS Status + Roundup PowerMAX + AMS	1.12 0.19 + 1.12	2-4" Weeds 3 Wk Later	0	0	0	36709	191.4	97	92	96	95	
Atrazine + Roundup WeatherMax + AMS Roundup WeatherMax + AMS	0.5 + 1.0 0.75	2-4" Weeds 3 Wk Later	0	0	0	37303	158.2	99	99	99	99	
Status + Roundup WeatherMax + AMS Status + Roundup WeatherMax + AMS	0.19 + 0.75 0.19 + 0.75	2-4" Weeds 3 Wk Later	0	0	2	37066	149.6	99	99	99	99	
KIH - 485	0.089	Pre	0	0	0	36353	47.2	61	78	91	77	
KIH - 485	0.111	Pre	2	2	2	36353	100.5	73	98	90	87	
KIH - 485	0.147	Pre	0	1	1	37303	131.6	86	99	96	94	
KIH - 485	0.222	Pre	0	6	2	36709	129.1	94	99	99	97	
KIH - 485 Roundup WeatherMax + AMS	0.089 0.75	Pre 6" Weeds	1	2	2	35878	190.5	99	99	99	99	
KIH - 485 Status + X77	0.089 0.19	Pre 6" Weeds	1	5	2	36472	143.3	97	99	99	98	
LSD at 5%	---	---	2	3	2	NS	42.4	21	13	14	13	

¹ Spray additives were combined with the spray solution at the following rate: ammonium sulfate (AMS) at 17lbs/100 gal, methylated seed oil (MSO) at 1%, and surfactant X77 at 0.25%.

² Time of application: preemergence (Pre) on May 14, at 2-4" weeds on June 3, at 6" weeds on June 10, and 3 weeks after 2-4" weeds application on June 25.

³ Visual crop injury evaluated on a scale from 0 to 100 with 0 equal to no injury and 100 equal to death of the plant.

⁴ Percent weed control calculated from weed counts taken on June 23. Weed abbreviations: common lambsquarters (Colq), redroot pigweed (Rrpw), and hairy nightshade (Hans).