

Weed Control in ExpressSun Sunflower, Carrington, 2008

Greg Endres

The experimental design was a randomized complete block with three replicates. The dryland trial was established on a loam soil with 2.8% organic matter and 6.8 pH. Pioneer '63N82' oil sunflower was planted in 30-inch rows on May 22. Best management practices were used for sunflower production. PRE treatments were applied with a CO₂-hand-boom plot sprayer delivering 17 gal/A at 30 psi through 80015 flat-fan nozzles on May 22 with 67° F, 31% RH, 85% clear sky. Rainfall totaling 1.1 inches occurred within 8 days after application of PRE treatments. The sunflower plant population was thinned to about 20,000 plants/A on June 18. POST treatments were applied on June 30 with 77° F, 56% RH, 95% clear sky, and 8 mph wind to V8-stage sunflower, 4-leaf to 2-tiller yellow and green foxtail, 2- to 12-inch tall common lambsquarters, 1- to 4-inch tall prostrate and redroot pigweed, and 2-inch tall to vining wild buckwheat. The trial was harvested with a plot combine on October 27.

PRE Express provided poor or no control of broadleaf weeds (Table 1). PRE Spartan provided excellent control of pigweed (93-96%) and suppression of common lambsquarters (67-68%) and wild buckwheat (75-76%). Common lambsquarters and pigweed control generally were excellent with Spartan and POST Express, while wild buckwheat was suppressed. Foxtail control ranged from 83-96% with Assure II while control was 71-75% with Assure II tank-mixed with Express. No crop injury was noted when visually evaluated on June 27 (PRE treatments), and July 7 and 14 (data not shown). Days required for emergence was similar among treatments (data not shown). Plant stand was similar among treatments (Table 2). Days to reach crop flowering and physiological maturity were less with herbicides compared to the untreated check. Untreated check plots were not harvested due to poor yield and high weed density. Sunflower seed yield, moisture, and test weight were similar among herbicide treatments.

Table 1. Weed control in Express Sun sunflower, Carrington, 2008.																	
			Weed control ¹														
Herbicide		6/27			7/14				7/29				8/29				
Treatment ²	Application ³	Rate	colq	pws	wibw	colq	pws	wibw	fota	colq	pws	wibw	fota	colq	pws	wibw	fota
		fl oz product/A	%														
Express/Assure II + COC	PRE/POST	0.5 oz/8 + 16	40	55	27	40	48	40	83	28	40	40	93	0	0	0	96
Spartan/Express + Assure II + COC	PRE/POST	4.5/0.125 + 8 + 16	68.33	93	76	93	93	73	74	95	88	68	71	99	85	65	75
Spartan/Express + Assure II + COC	PRE/POST	4.5/0.25 + 8 + 16	66.67	96	75	95	99	75	73	98	96	77	74	99	95	80	75
untreated check	x	x	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C.V. (%)			4.3	13.7	29.9	2.5	14.9	3.1	11.1	8.5	10.5	4.0	3.8	0.0	21.8	24.2	4.1
LSD (0.05)			4	17	27	3	18	3	13	9	12	4	5	0	19	17	5

¹colq=common lambsquarters; wibw=wild buckwheat; pws=redroot and prostrate pigweed; fota=yellow and green foxtail.
²COC=methylated seed oil - Destiny (WinField).
³PRE=May 22; POST=June 30.

Table 2. Express Sun sunflower crop response to Express herbicide, Carrington, 2008.

Treatment ²	Herbicide Application ³	Rate fl oz product/A	Stand plt/A	Bloom Jday	Sunflower ¹			Moisture %	TW lb/bu
					PM Jday	Yield bu/A			
Express/Assure II + COC	PRE/POST	0.5 oz/8 + 16	25675	226	274	435	12.1	31.7	
Spartan/Express + Assure II + COC	PRE/POST	4.5/0.125 + 8 + 16	30325	223	274	614	11.1	32.6	
Spartan/Express + Assure II + COC	PRE/POST	4.5/0.25 + 8 + 16	24125	223	275	782	11.0	31.8	
untreated check	x	x	26120	230	276	x	x	x	
C.V. (%)			11.1	0.4	0.1	35.0	9.6	1.8	
LSD (0.05)			NS	2	1	NS	NS	NS	

¹Bloom=date of initial flowering (R5); PM=date of physiological maturity (R9).

²COC=methylated seed oil - Destiny (WinField).

³PRE=May 22; POST=June 30.