

Weed control in ExpressSun Trait sunflower, Carrington, 2007

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The experimental design was a randomized complete block with three replicates. The dryland trial was established on a Heimdal loam soil with 3.2% organic matter and 6.9 pH. Herbicide treatments were applied with a CO₂-hand-boom plot sprayer delivering 11.5 gal/A at 30 psi through 8001 flat fan nozzles to the center 6.7 ft of 10 by 30 ft plots. Preplant (PP) treatments were applied on May 24 with 44 F, 80% RH, clear sky, no wind, and on moist soil. Rainfall totaling 1.2 inches occurred within two days after application of PP treatments. Pioneer '63N81' oil sunflower was direct-seeded in 30-inch rows on June 4. The sunflower plant population was thinned to about 20,000 plants/A on June 27. Weed density on June 27 was very low (<2 plants/ft²) except wheat averaged 11 plants/ft². Post-emergence (POST) treatments were applied on June 28 with 55 F, 76% RH, 100% cloudy sky, and 4 mph wind to V4-stage sunflower, 6-leaf (jointing) wheat, 0.5- to 3-inch tall common lambsquarters, 0.5- to 1-inch tall prostrate and redroot pigweed, 0.5- to 6-inch tall wild mustard, 0.5- to 5-inch tall lanceleaf sage, and vining wild buckwheat. The trial was over-sprayed on July 9 with Assure II at 8 fl oz/A + COC at 24 fl oz/A to completely control the wheat. The trial was harvested with a plot combine on November 19.

Wheat control was slightly improved with Assure II not tank-mixed with Express (Table). Common lambsquarters, pigweed and wild mustard control was excellent when visually evaluated in August, ranging from 93 to 99% control. Control of other broadleaf weeds was fair to poor, with generally no difference in control between the two herbicide treatments. No crop injury was noted when visually evaluated on July 13 and July 20. Days required to reach crop flowering and physiological maturity were similar among treatments (data not shown). Sunflower yield was highest with Prowl followed by Express + Assure II.

Table. Weed control in ExpressSun Trait sunflower, Carrington, 2007.

Treatment ²	Herbicide Application ³	Rate fl oz product/A	Weed control ¹														Sunflower		
			7/9 wht	colq	pwsp	copu	hans	wimu	llsa	wibw	colq	pwsp	hans	wimu	llsa	wibw	Yield bu/A	TW lb/bu	Oil %
Prowl/Express + Assure II + COC	PP/POST	32/0.25 oz + 8 + 24	65	98	68	73	52	78	65	65	99	93	72	96	76	72	1886	31.4	44.4
Spartan/Express + Assure II + COC	PP/POST	4.5/0.25 oz + 8 + 24	68	99	89	72	67	78	69	68	98	99	77	94	76	73	1440	31.3	43.0
untreated check			70	0	0	0	0	0	0	0	0	0	0	0	0	0	1189	30.9	43.6
C.V. (%)			1.0	0.9	12.5	7.7	28.6	12.7	1.5	3.8	2.0	4.7	4.2	1.7	2.6	10.3	10.5	0.7	1.5
LSD (0.05)			2	1	15	8	40	15	2	4	13	7	7	2	3	11	360	NS	NS

¹colq=common lambsquarters; pwsp=redroot and prostrate pigweed; copu=common purslane; hans=hairy nightshade; llsa=lanceleaf sage; and wibw=wild buckwheat.

²COC=Destiny, a methylated seed oil from WinField.

³PP=May 24; POST=June 28.