

**CONTROL OF ROUNDUP READY® CANOLA IN ROUNDUP READY SUGARBEET  
AT PROSPER, ND - 2009**

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'Dekalb IS3057' Roundup Ready canola at 11 pounds per acre was seeded in 7.5 inch rows perpendicular to herbicide plots. 'SES 36711 (Expt. 11)' sugarbeet was seeded 1.25 inches deep in 22 inch rows May 27. Sugarbeet seed was treated with Tachigaren at 45 grams dry product per 100,000 seeds. Counter 15G insecticide at 12 pounds product per acre was applied modified in-furrow at planting. Herbicide treatments were applied June 15, June 23, June 25 and July 2. All treatments were applied in 17 gpa water at 40 psi through 8002 nozzles with a bicycle sprayer to the center four rows of six row plots 30 feet in length. Glyphosate (0.75 lb ae/A) plus AmStik (2.5 qt/A) was applied to the weed-free check as necessary. Glyphosate (1.0 lb ae/A) plus AmStik was applied on July 21 to all treatments except for the untreated treatment to control other weeds. All evaluations are a visual estimate of percent fresh weight reduction in the treated plot compared to the adjacent untreated strip. Sugarbeet from the center two rows of each plot was counted and harvested October 12. Experiment designed as a randomized complete block having four replications.

Table. Application information.

<b>Application Code</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Date of Application	June 15	June 23	June 25	July 2
Time of Day	9:00 am	4:30 pm	3:45 pm	11:15 am
Air Temperature (°F)	74	81	85	81
Relative Humidity (%)	50	47	28	57
Soil Temp. (°F at 6")	64	75	78	62
Wind Velocity (mph)	7	11	8	2
Cloud Cover (%)	100	0	0	0
Soil Moisture	good	good	good	Wet
Sugarbeet (stage – range)	Cot.-V2	V2-V5	V2.0-V7	V4.2-V11.5
RR Canola (stage/height - range)	Cot.-2.5 lf/ 0.25-2.25" tall	3-5.5 lf/ 2-6" tall	-	-
RR Canola (avg. density)	11/row foot	12/row foot	-	-

**Summary:** Herbicide treatments applied twice and containing De&Ph plus Etho usually caused the greatest sugarbeet injury. No appreciable injury was observed after July 18.

Glyt-PM alone did not control Roundup Ready canola as expected. Treatments containing De&Ph plus Etho seldomly improved Roundup Ready canola control whether applied once or twice compared to treatments with Tfsu alone. Multiple herbicide applications improved Roundup Ready canola control compared to a single application. Tfsu applied at least at a total of 0.047 lb ai/A plus Glyt-PM to 2-leaf canola maximized control. Tfsu applied first at 0.031 lb/A and followed with at least 0.016 lb/A to 5-leaf canola maximized control for that timing, although control was reduced compared to the 2-leaf stage.

Roundup Ready canola at 11 to 12 plants per foot of row caused a near complete loss of sugarbeet plant population, root yield, and extractable sucrose in the untreated treatment. Sugarbeet root yield and extractable sucrose were similar whether Glyt-PM was applied alone or not at all, indicating the Roundup Ready canola caused nearly all of the yield loss compared to other weeds. Sugarbeet yield and extractable sucrose declined as Roundup Ready canola grew beyond the 2-leaf stage based upon the weed-free checks. Only Tfsu applied at 0.31 lb/A with Glyt-PM at the 2-leaf canola stage and followed by Tfsu at least at 0.016 lb/A plus Glyt-PM 10 days later provided similar root yield and extractable sucrose compared to the 2-leaf weed-free check. Nearly all herbicide treatments applied to 5-leaf canola reduced sugarbeet plant population, root yield, and extractable sucrose compared to treatments applied to 2-leaf canola. No herbicide treatment applied to 5-leaf canola compared to the weed-free check at the 5-leaf stage for sugarbeet plant population, root yield, and extractable sucrose.

**Table. Control of Roundup Ready® canola in Roundup Ready sugarbeet, Prosper, ND, 2009 (Stachler and Luecke).**

Treatment*	Rate (lb ae or ai/A)	Timing	July 18		July 29	Sept. 21
			Sgbt	RR-Cano		
			inju	cntl		%
Weed-Free Check	-	1,3	0	100	100	100
Glyt-PM	0.75	1	0	0	0	1
Tfsu+Glyt-PM	0.008+0.75	1	0	20	10	13
Tfsu+Glyt-PM	0.016+0.75	1	3	39	24	18
Tfsu+Glyt-PM	0.031+0.75	1	0	55	48	37
Tfsu+De&Ph+Etho+Glyt-PM	0.008+0.22+0.11+0.75	1	2	25	0	20
Tfsu+De&Ph+Etho+Glyt-PM	0.016+0.22+0.11+0.75	1	5	39	29	29
Tfsu+De&Ph+Etho+Glyt-PM	0.031+0.22+0.11+0.75	1	5	61	43	43
Tfsu+Glyt-PM	0.008+0.75	1,3	5	67	61	57
Tfsu+Glyt-PM	0.016+0.75	1,3	8	78	74	64
Tfsu+Glyt-PM	0.016+0.75	1				
Tfsu+Glyt-PM	0.031+0.75	3	2	80	80	69
Tfsu+Glyt-PM	0.031+0.75	1				
Tfsu+Glyt-PM	0.016+0.75	3	3	87	87	73
Tfsu+Glyt-PM	0.031+0.75	1,3	4	87	89	71
Tfsu+De&Ph+Etho+Glyt-PM	0.016+0.22+0.11+0.75	1,3	8	77	81	68
Weed-Free Check	-	2,4	0	100	100	100
Glyt-PM	0.75	2	0	0	0	1
Tfsu+Glyt-PM	0.008+0.75	2	2	29	20	19
Tfsu+Glyt-PM	0.016+0.75	2	3	41	24	18
Tfsu+Glyt-PM	0.031+0.75	2	3	53	26	24
Tfsu+De&Ph+Etho+Glyt-PM	0.008+0.22+0.11+0.75	2	4	21	10	19
Tfsu+De&Ph+Etho+Glyt-PM	0.016+0.22+0.11+0.75	2	8	38	21	25
Tfsu+De&Ph+Etho+Glyt-PM	0.031+0.22+0.11+0.75	2	5	42	26	24
Tfsu+Glyt-PM	0.008+0.75	2,4	2	58	36	34
Tfsu+Glyt-PM	0.016+0.75	2,4	2	73	55	37
Tfsu+Glyt-PM	0.016+0.75	2				
Tfsu+Glyt-PM	0.031+0.75	4	3	72	63	39
Tfsu+Glyt-PM	0.031+0.75	2				
Tfsu+Glyt-PM	0.016+0.75	4	1	75	64	43
Tfsu+Glyt-PM	0.031+0.75	2,4	5	79	74	48
Tfsu+De&Ph+Etho+Glyt-PM	0.016+0.22+0.11+0.75	2,4	16	73	61	47
Untreated Check	0	-	0	0	0	0
<b>CV (%)</b>			105	9	14	14
<b>LSD (0.05)</b>			4.8	7.2	9	7.6

\*Destiny HC (high surfactant oil [MSO] concentrate) at 1%v/v from Winfield Solutions and AmStik (AMS) at 2.5 qt/A from West Central was added to all treatments. Glyt-PM = Roundup PowerMAX from Monsanto; Tfsu = UpBeet from DuPont; De&Ph = Betamix from Bayer; Etho = Nortron from Bayer; lb ae/A = pound acid equivalent per acre; lb ai/A = pound active ingredient per acre; Sgbt = sugarbeet; Impur Index = impurity index; Extr Sucr = extractable sucrose; inju = injury; cntl = control.

**Table. Control of Roundup Ready® canola in Roundup Ready sugarbeet, Prosper, ND, 2009 (Stachler and Luecke).**

Treatment*	Rate (lb ae or ai/A)	Timing	Oct. 12			
			Sgbt Popl. #/60'	Root Yield ton/A	Impur Index %	Extr Sucr lb/A
Weed-Free Check	-	1,3	91	29.0	483	8571
Glyt-PM	0.75	1	10	2.2	489	601
Tfsu+Glyt-PM	0.008+0.75	1	56	9.0	532	2467
Tfsu+Glyt-PM	0.016+0.75	1	74	13.0	515	3613
Tfsu+Glyt-PM	0.031+0.75	1	86	16.5	419	4933
Tfsu+De&Ph+Etho+Glyt-PM	0.008+0.22+0.11+0.75	1	71	13.3	520	3637
Tfsu+De&Ph+Etho+Glyt-PM	0.016+0.22+0.11+0.75	1	88	16.3	447	4658
Tfsu+De&Ph+Etho+Glyt-PM	0.031+0.22+0.11+0.75	1	79	18.1	513	5066
Tfsu+Glyt-PM	0.008+0.75	1,3	86	22.9	463	6660
Tfsu+Glyt-PM	0.016+0.75	1,3	92	23.6	398	7101
Tfsu+Glyt-PM	0.016+0.75	1				
Tfsu+Glyt-PM	0.031+0.75	3	96	24.8	415	7461
Tfsu+Glyt-PM	0.031+0.75	1				
Tfsu+Glyt-PM	0.016+0.75	3	88	26.4	428	7897
Tfsu+Glyt-PM	0.031+0.75	1,3	88	26.7	431	7984
Tfsu+De&Ph+Etho+Glyt-PM	0.016+0.22+0.11+0.75	1,3	96	24.1	416	7300
Weed-Free Check	-	2,4	85	24.3	416	7308
Glyt-PM	0.75	2	30	3.1	518	855
Tfsu+Glyt-PM	0.008+0.75	2	39	5.9	530	1575
Tfsu+Glyt-PM	0.016+0.75	2	51	8.1	494	2308
Tfsu+Glyt-PM	0.031+0.75	2	48	7.0	455	1976
Tfsu+De&Ph+Etho+Glyt-PM	0.008+0.22+0.11+0.75	2	52	6.5	459	1827
Tfsu+De&Ph+Etho+Glyt-PM	0.016+0.22+0.11+0.75	2	69	10.6	545	2888
Tfsu+De&Ph+Etho+Glyt-PM	0.031+0.22+0.11+0.75	2	55	8.1	423	2397
Tfsu+Glyt-PM	0.008+0.75	2,4	52	7.9	508	2198
Tfsu+Glyt-PM	0.016+0.75	2,4	51	9.7	442	2778
Tfsu+Glyt-PM	0.016+0.75	2				
Tfsu+Glyt-PM	0.031+0.75	4	53	7.0	431	2026
Tfsu+Glyt-PM	0.031+0.75	2				
Tfsu+Glyt-PM	0.016+0.75	4	55	8.8	434	2503
Tfsu+Glyt-PM	0.031+0.75	2,4	62	12.7	406	3775
Tfsu+De&Ph+Etho+Glyt-PM	0.016+0.22+0.11+0.75	2,4	61	9.5	415	2742
Untreated Check	0	-	13	2	452	548
<b>CV (%)</b>			16	17	14	17
<b>LSD (0.05)</b>			14.5	3.2	91	954

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