

Roundup-resistant Canola Herbicide Trial, Carrington, 2000.

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The experiment was conducted on a minimum-till field with a Heimdahl-Emrick loam soil with 6.2 pH and 3.3% organic matter at the NDSU Carrington Research Extension Center. The experimental design was a randomized complete block with three replicates. Herbicide treatments were applied to 5 by 25 ft plots with a hand-boom plot sprayer. The PPI treatment was applied at 18.4 gal/A at 35 psi through 8002 flat fan nozzles on May 1 with 68 °F, 24% RH, 90% clear sky, and 8 mph wind on a dry soil surface and incorporated with a roto-tiller at a 3- to 4-inch depth. ‘Hyola 357RR’ canola was planted at 700,000 PLS/A on May 3 in 7-inch rows at a 0.5- to 1-inch depth. POST treatments were applied at 9.2 gal/A at 35 psi through 8001 flat fan nozzles. POSTA treatments were applied on May 25 with 57 °F, 55% RH, clear sky, and 9 mph wind to 1- to 2-leaf canola, 1- to 2-inch tall yellow and green foxtail, 1- to 5-inch tall common lambsquarters, 0.5-inch tall redroot and prostrate pigweed, and 1.5- to 4-inch tall wild buckwheat. POSTB treatments were applied on June 2 with 50 °F, 77% RH, clear sky, and 8 mph wind to 3- to 4-leaf canola, 3- to 4-leaf foxtail, 1- to 5-inch tall common lambsquarters, 4- to 6-inch tall horseweed, 0.5- to 1-inch tall pigweed, and 2- to 6-inch tall wild buckwheat. POSTC treatments were applied on June 8 with 66 °F, 69% RH, 80% cloudy sky, and 11 mph wind to 5- to 6-leaf canola, 5- to 6-leaf foxtail, 1- to 9-inch tall common lambsquarters, ≤12-inch tall horseweed, 1- to 2-inch tall pigweed, and 6- to 12-inch vine wild buckwheat. The trial was harvested with a plot combine on August 15.

Treatment ¹	Herbicide		Weed control								Canola seed yield lb/A	
			8-July				31-July					
			Fota ²	Colq	Howe	Piwe ³	Wibw	Fota	Colq	Howe		Wibw
	Rate lb/A	Timing	----- % -----									
Glyt	0.375	POSTA	94	99	99	97	81	90	96	94	76	1104.6
Glyt	0.56	POSTA	98	98	92	98	86	89	94	99	89	1283.4
Glyt	0.375	POSTB	98	99	68	98	75	96	98	98	67	1175.2
Glyt	0.56	POSTB	99	99	94	99	75	96	94	98	82	1149.1
Glyt	0.75	POSTB	97	99	92	98	84	90	89	99	85	1257.3
Glyt	0.375	POSTC	99	82	99	97	68	94	87	98	73	1334.9
Glyt	0.56	POSTC	99	81	92	98	77	91	95	91	75	894.6
Glyt/Glyt	0.375/0.375	POSTA/C	95	99	99	99	85	91	99	99	86	1099.2
Glyt/Glyt	0.560/0.375	POSTA/C	99	99	99	99	96	97	99	99	96	1379.4
Glyt/Glyt	0.560/0.560	POSTA/C	98	99	99	99	92	96	99	99	95	1077.0
Glyt+Clpy	0.375+0.094	POSTB	98	99	99	99	86	93	98	99	78	1152.8
Trif/Qufp-P	0.75/0.068	PPI/POSTB	99	89	99	95	81	98	76	99	88	1351.4
untreated			0	0	0	0	0	0	0	0	0	797.9
LSD (0.05)			5	9	2	14	11	10	9	11	6	NS

¹Glyphosate (Roundup Ultra) treatments include AMS at 1% v/v; Quizalofop treatment includes COC (Herbimax) at 1% v/v.

²Fota=yellow and green foxtail.

³Piwe=Redroot and prostrate pigweed.

Green and yellow foxtail, horseweed, and redroot and prostrate pigweed control was $\geq 90\%$ with glyphosate at 0.38 lb/A among application timings . Common lambsquarters control with trifluralin was less than with POST treatments on July 31. Common lambsquarters control was highest (96-99%) with glyphosate at 0.38 lb/A applied 22 or 30 days after planting compared to the late application. Wild buckwheat control on July 31 was highest (95-96%) with sequential applications of glyphosate at 0.560/0.375 and 0.560/0.560 lb/A. Canola injury was not detected with any treatment. Although not statistically significant, canola yield tended to improve with herbicide treatments compared to the untreated check.