

Canola injury with postemergence herbicides at Roseau and St. Paul, MN in 1997. Lueschen, William E., Ervin A. Oelke, Erik J. Levorson, David G. LeGare, Eric A. Ristau, and Karen Andol. The objective of this study was to investigate potential canola injury from postemergence herbicide applications and to evaluate the potential interaction between postemergence herbicides and canola varieties. This study was done near Roseau, MN on the Steve Dahl farm and at the University of Minnesota St. Paul Campus, St. Paul, MN. The study was designed as a randomized complete block experiment with a split plot treatment arrangement. Eight herbicide treatments were main plots and eight canola varieties were subplots with four replications. Individual plots were 6 by 20 ft in size with a harvest area of 6 by 15 ft. All herbicides were applied with a bicycle sprayer at a spray volume of 20 gpa using 8002 flat-fan nozzles and a spray pressure of 22 psi using CO₂ as the pressure source. No spray adjuvants were included with any POST treatment. All seed was prepackaged for planting at a seeding rate of 12 seeds/ft² in rows 6 inches apart with a cone-type planter; seed was treated with granular carbofuran and benomyl prior to planting. Trifluralin at 0.75 lb/A was applied to the entire site and incorporated twice with a field cultivator prior to planting. Plots were maintained in a near weed-free condition to prevent weed competition. Pertinent information for this study is listed as follows:

	<u>Roseau</u>	<u>St. Paul</u>
Previous crop	Barley	Corn
Fall tillage	moldboard plow	moldboard plow
Soil information		
type	Borup sandy clay loam	Waukegan silt loam
organic matter (%)	3.9	3.5
pH	8.0	6.5
P (lb/A)	24	200
K (lb/A)	268	484
Fertilization (lb/A)		
N	159	90
P	40	--
K	30	--
S	20	--
Planting Dates	5/29	4/22
Postemergence applied	6/18	6/2
canola leaf no.	2-4	4
canola height (in)	2-4	3-6
temperature (F)		
air	72	80
soil (4 in)	70	80
relative humidity (%)	60	35
sky	clear	p. cloudy
wind (mph:direction)	4-10:SE	5:SW
Rainfall after POST		
1st week	1.01	0.52
2nd week	1.30	0.77
3rd week	0.20	0.84

Rainfall for April and May at both locations was well below normal. However, planting at Roseau was delayed due to wet soil conditions caused by above average winter snowfall. At St. Paul, canola emergence was very uneven due to the dry conditions. The injury ratings reflected the uneven early season growth. At Roseau, dicamba caused more early season injury than the other treatments, however, injury levels with either 0.063 or 0.094 lb/A of dicamba were very low, 10 to 11%. Dicamba caused no significant injury symptoms at St. Paul. When rated approximately two weeks after the dates listed in the accompanying table, no injury was observed with any herbicide treatment. Mature plant height was not affected by any of the herbicide treatments. While canola maturity in days after planting (DAP) was affected by herbicide treatment, these differences were of no practical significance since they were all within 1-2 days at both locations. At Roseau, canola yields were reduced by 111 and 203 lb/A for the

0.063 and 0.094 lb/A rate of dicamba, respectively, compared to the non-treated check. All other herbicide treatments at Roseau and all herbicide treatments at St. Paul resulted in canola yields equal to the non-treated check. Differences among canola varieties were observed at both locations for most traits measured. At St. Paul, none of the herbicide treatment x variety interactions were significant, while at Roseau most of these interactions were significant. The variety x herbicide treatment interaction for canola injury on June 25 resulted from 'Hyola 330' and 'Hyola 401' exhibiting less injury than the other varieties with all rates of dicamba and endothall, although the differences in response were generally small. This interaction at Roseau for canola yield resulted from two varieties, Hudson and Topscore, yielding less than the non-treated checks of these varieties for the dicamba treatments while the yield of other varieties were not affected by dicamba treatment; these differences again were not large. [MN Agric. Exp. Sta. Paper No 97-1-13-0044, Misc Journ. Series, University of Minnesota, St. Paul, MN]

Table. Canola injury with postemergence herbicide at Roseau and St. Paul, MN in 1997 (Lueschen, Oelke, Levorson, LeGare, Ristau, and Andol).

Herbicide Treatment + Rate	Variety	Injury			Height		Maturity		Yield	
		ROS 6/25	ROS 6/30	STP 6/16	ROS	STP	ROS	STP	ROS	STP
(lb/A)		—(%)—			—(in)—		—(DAP)—		—(lb/A)—	
Clopyralid 0.125										
	Crusher	4	9	13	52.3	44.8	90	98	1928	1578
	Hudson	3	5	10	47.3	41.0	88	89	2082	1551
	Hyola 330	2	6	0	43.8	40.3	89	91	2006	1766
	Hyola 401	2	6	3	40.8	40.3	90	95	2099	1864
	Sponsor	2	5	13	54.8	49.8	90	97	2085	1606
	Topscore	2	7	13	52.3	48.5	91	94	1791	1542
	Victor	6	9	9	52.5	48.0	91	94	1979	1259
	45A71	4	5	8	53.5	48.0	91	93	2004	1453
Dicamba 0.063										
	Crusher	13	8	8	55.5	44.8	90	97	1804	1222
	Hudson	15	14	13	45.8	41.0	91	90	1777	1056
	Hyola 330	8	12	0	42.0	39.8	90	90	2096	1754
	Hyola 401	8	10	10	41.5	39.8	91	95	1833	1797
	Sponsor	10	9	15	58.1	48.3	90	98	2134	1441
	Topscore	10	10	14	50.8	48.0	91	96	1726	1432
	Victor	13	11	13	50.5	45.8	91	96	1825	1201
	45A71	11	9	10	49.5	46.8	91	93	1942	1167
Dicamba 0.094										
	Crusher	14	10	15	53.0	45.8	92	98	1797	1433
	Hudson	16	16	6	43.8	40.5	91	90	1748	1518
	Hyola 330	8	11	4	39.8	41.5	90	90	2035	1853
	Hyola 401	8	11	9	42.0	41.5	91	93	1808	2003
	Sponsor	10	9	11	57.0	47.8	90	98	1955	1417
	Topscore	12	10	15	51.5	43.3	91	97	1786	1452
	Victor	13	11	14	51.3	46.5	91	96	1913	1498
	45A71	12	9	5	48.8	47.0	91	95	2003	1402

Endothall 0.56

Crusher	9	6	18	53.5	43.5	90	94	1834	1679
Hudson	9	5	8	45.3	41.3	90	88	1854	1284
Hyola 330	8	5	6	42.5	38.5	89	91	1998	1754
Hyola 401	6	5	11	42.8	39.8	91	95	1974	1748
Sponsor	11	5	13	56.0	48.8	91	97	2090	1618
Topscore	9	7	10	54.5	45.5	90	94	2025	1473
Victor	13	8	13	52.0	48.5	91	92	2001	1393
45A71	13	5	10	52.8	47.0	91	91	2031	1148

Endothall 0.75

Crusher	12	7	16	50.5	45.8	90	96	1843	1384
Hudson	10	5	9	43.5	40.8	91	90	1859	1501
Hyola 330	8	6	3	40.5	39.0	90	90	2052	1740
Hyola 401	9	5	4	41.5	39.0	89	92	2027	1828
Sponsor	13	7	10	55.8	52.8	92	96	2018	1569
Topscore	10	10	10	53.3	50.5	90	95	1932	1589
Victor	13	10	9	50.5	51.0	90	95	2077	1356
45A71	13	7	3	51.3	44.8	91	92	1939	1367

Endothall 1.125

Crusher	17	9	16	51.8	45.5	93	97	2122	1535
Hudson	15	5	6	45.5	41.5	90	89	1852	1269
Hyola 330	10	5	3	41.0	38.5	89	90	2254	1795
Hyola 401	11	6	8	42.0	38.0	91	95	1951	1973
Sponsor	18	7	16	55.5	49.3	90	97	1960	1616
Topscore	16	9	8	53.3	47.0	90	95	1956	1582
Victor	18	10	11	51.0	49.0	90	94	1926	1416
45A71	20	7	6	51.0	46.5	90	93	1817	1311

Endothall 1.50

Crusher	19	8	16	53.5	46.8	92	97	1937	1347
Hudson	18	5	11	46.5	38.5	89	90	1971	1321
Hyola 330	14	6	4	42.3	40.3	89	92	2117	1535
Hyola 401	16	6	5	42.3	37.0	90	95	2015	1923
Sponsor	17	8	14	55.3	48.5	92	98	2042	1634
Topscore	15	9	13	51.0	47.0	90	94	1979	1484
Victor	17	9	14	51.1	49.3	91	95	1796	1332
45A71	19	7	13	47.8	47.3	91	94	2085	1381

