

## 2002 PACIFIC NORTHWEST SPRING CANOLA VARIETY TRIAL RESULTS

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### ABSTRACT

A canola variety trial with 18 cultivars or advanced breeding lines and four control cultivars was grown at 14 locations in Oregon, Washington, and Idaho. Cultivar mean yields ranged from 1267 to 1867 lbs. per acre when averaged for all locations. Mean yields for individual location yields ranged from 580 to 3023 lbs. per acre. Mean oil content of the cultivars ranged from 37.9 to 40.4%.

### INTRODUCTION

The farming community in the Pacific Northwest continues to show a strong interest in spring canola, (*Brassica napus* and *B. rapa*). Spring canola offers growers an alternate, spring-planted crop for rotation in an agricultural system predominated by small cereal grains. Comprehensive yield trials are needed to evaluate new cultivars and to determine which areas of the Pacific Northwest are best suited to the available cultivars. With this objective in mind, researchers at the University of Idaho established the Pacific Northwest Canola Variety Trial (PNWCVT) during 1994. This trial has been quite successful in attracting cultivar entries from seed and breeding companies. During the nine years of spring canola testing, the project has evaluated 124 spring cultivars representing 17 companies. The trial is funded in part by the Pacific Northwest Canola Research Program and by fees paid by the commercial companies that submit their cultivars or advanced breeding lines to be tested in the PNWCVT.

### MATERIALS AND METHODS

The *Brassica. napus* or "Argentine" cultivars 'Profit' and 'Westar' and the *B. rapa* or "Polish" cultivar 'Goldrush' were used as controls in the trial. In addition, the industrial rapeseed cultivar 'Hero' was included as a control for industrial cultivars. All entries are Argentine types with canola-quality except for 'Sterling', 'Garnet', and the three "UI.SH." entries, which are industrial rapeseed (*B. napus*) cultivars. Entries ending in "RR" are RoundupReady® types (resistant to glyphosate), while "CF" denotes Clearfield® Canola (resistant to imazemox). Companies entering cultivars are listed along with the performance data in Table 1.

The 2001 trials were planted at 14 locations: Colfax WA (direct seed), Dayton WA, Davenport WA (tilled and direct seed), Moscow ID (tilled and direct seed), Genesee ID (tilled and direct seed), Grangeville ID (direct seed), Nezperce ID (tilled and direct seed), Bonners Ferry ID, and Pendleton OR. Planting dates are listed in the location key at the bottom of Table 1. At each location, the trial design used was a randomized, complete block with four replications. The seeding rates were approximately 8 lbs. of seed per acre for *B.*

*napus* cultivars and 6 lbs. per acre for *B. rapa* cultivars. Plot size was 3.5 feet by 16 feet at tilled sites, and 4 feet by 16 feet at direct seed sites. All trials were grown on recrop ground and were fertilized according to local practice. The date of flower onset and plant height at maturity was recorded at Moscow and Genesee. After harvest, the seed was weighed to determine yield. Oil content was estimated on a subsample from ten locations with a Nuclear Magnetic Resonance Analyzer (NMR).

## RESULTS AND CONCLUSIONS

The mean yield of the trial varied widely across locations. The Bonners Ferry, ID site had the highest yield, 3023 lbs. per acre (Table 1). The Davenport, WA tilled site had the lowest yield, 580 lbs. per acre. The Pendleton, OR site suffered from drought conditions, and the Nezperce tilled site showed signs of imidazolinone herbicide damage. Data for Pendleton and the Nezperce tilled site are not included in this report. Yields of cultivars averaged across 12 locations varied from 1267 to 1867 lbs. per acre. Many cultivars performed well in the trial, with 19 cultivars yielding over 1500 lbs per acre. The best performing cultivars were CAB 34 Clearfield (from Croplan Genetics) Hyola 357RR and Hyola 401 (both from Interstate-Payco Seed.) All three lines yielded over 1860 lbs per acre averaged across all 12 locations.

The earliest cultivar, 'Goldrush,' began flowering 48 days after planting, and the earliest Argentine cultivar, Hyola 401, began flowering at 53 days (Table 2). The latest cultivar, 'Hylite 289 CF', began flowering 60 days after planting. Mean plant height ranged from 42 to 46 inches. Mean oil content at of each site ranged from 43.0% at the direct seed site at Nezperce, ID to 33.8% at the Moscow, ID tilled site. Cultivar oil content, averaged across all locations ranged from 37.9% to 40.4%.

Nearly all cultivars showed acceptable performance; although some are better adapted to the PNW than others. Data from the PNWCVT has been summarized in a flyer and distributed to interested growers and seed dealers.

**Table 1.** Yield results (lbs per acre) for 22 cultivars in the 2002 PNW Canola Variety Trial.

Cultivar	Mean	Rank	DAVE	DA-N	COLF	DAYT	BONF	POTL	MOSC	MO-N	GENE	GE-N	NE-N	GRAN
<b>Trial Controls</b>														
Westar	1576	18	669	785	1576	1401	3111	770	1107	1354	2087	2586	1773	1690
Profit	1617	16	556	605	1556	1277	3370	1202	1244	1276	2539	2278	1755	1741
Goldrush	1267	22	431	643	1181	1390	2011	562	1027	681	1639	2212	1708	1713
Hero Rapeseed	1342	21	506	786	1280	1080	1890	786	794	1151	2351	2125	1450	1902
<b>Croplan Genetics</b>														
KAB 36 CF	1867	1	488	665	1514	1826	3780	1629	1376	1385	3243	2797	1939	1761
<b>Interstate-Payco Seed</b>														
Dakota RR	1628	15	772	892	1688	1643	2558	1127	1400	1119	2155	2527	2041	1617
Hylite 289 CF	1693	7	591	663	1446	1447	3019	1189	1638	1401	3227	2543	1644	1509
Hyola 357 RR	1864	2	658	691	1463	1966	3976	1033	1498	1632	2613	2894	2178	1765
Hyola 401	1860	3	616	756	1521	1776	3905	1378	1332	1636	2663	2806	2160	1773
<b>University of Idaho Canola</b>														
Sunrise	1630	14	703	698	1267	1655	2825	1275	1270	1402	2814	2004	1934	1713
Clearwater CF	1649	11	612	743	1050	1475	2550	1092	1688	1305	3246	2075	1981	1967
Premier	1546	19	585	721	1276	1506	2476	826	1364	1237	2418	2432	1938	1767
UISC.00.1.3	1705	6	554	706	1679	1642	3354	964	1556	1301	2593	2608	1799	1709
UISC.00.3.1	1751	4	593	792	1242	1711	3455	1279	1761	1249	2750	2429	2030	1716
UISC.00.3.8	1729	5	521	678	1344	1663	3091	1406	1376	1261	3011	2704	2020	1678
UISC.00.3.13	1691	8	544	664	1402	1791	3164	918	1439	1419	2715	2549	2021	1662
UISC.00.5.7	1637	13	661	891	1371	1704	3352	931	1051	1317	2389	2297	1923	1755
<b>University of Idaho Industrial Rapeseed</b>														
Sterling	1485	20	490	724	1402	1237	2211	1240	1121	1191	2244	2421	1763	1771
Impress CF	1586	17	370	680	1319	1637	3018	810	1469	1233	2887	2356	1889	1367
UISH.00.3.13	1687	9	609	660	1510	1690	2988	1057	1720	1177	3111	2401	1563	1757
UISH.00.3.19	1644	12	631	765	1457	1840	2947	841	1591	1123	2733	2465	1648	1683
UISH.00.4.7	1687	9	590	699	1075	1788	2990	1145	1381	1300	2763	2716	1868	1931
<b>Mean</b>	1644		580	723	1390	1593	3023	1066	1373	1280	2645	2465	1864	1730
<b>LSD</b>	375		144	213	519	420	671	453	400	229	511	405	221	NS

**Location Key:**

DAVE	Davenport, WA	Apr 29	BONF	Bonner Ferry, ID	Apr 18	GENE	Genesee, ID	Apr 25
DA-N	Davenport, WA - Notill	Apr 29	POTL	Potlatch, ID	Apr 29	GE-N	Genesee, ID - Notill	May 1
DAYT	Dayton, WA - Notill	Apr 4	MOSC	Moscow, ID	Apr 26	NE-N	Nezperce, ID - Notill	Apr 22
COLF	Colfax, WA - Notill	Apr 10	MO-N	Moscow, ID - Notill	May 2	GRAN	Grangeville, ID - Notill	Apr 22

**Table 2.** Days to flowering from planting date, plant canopy height, lodging score, mean oil content, and oil content by location of 22 cultivars in the 2002 PNW Canola Variety Trial.

Cultivar	Days to Flowering - days -	Plant Height - inches -	Mean Oil Content - % -	Oil Content by Location									
				DAYT	COLF	BONF	POTL	MOSC	MO-N	GENE	GE-N	NE-N	GRAN
<b>Trial Controls</b>													
Westar	57	43	39.1	35.9	37.9	41.5	37.6	33.6	39.1	40.5	40.1	42.6	42.2
Profit	57	45	39.9	36.4	37.6	43.2	39.9	35.0	40.6	38.8	39.4	44.6	43.9
Goldrush	48	42	37.9	35.9	36.0	41.0	36.0	34.5	36.7	37.6	38.7	42.1	41.5
Hero Rapeseed	59	44	39.5	35.3	38.3	40.6	38.7	34.6	40.2	41.5	40.6	43.3	42.1
<b>Croplan Genetics</b>													
KAB 36 CF	57	46	39.9	37.0	38.4	43.2	39.3	33.8	40.3	40.5	41.4	42.8	42.7
<b>Interstate-Payco Seed</b>													
Dakota RR	54	42	38.0	35.3	36.4	41.2	37.0	32.2	36.7	38.9	40.0	41.5	40.8
Hylite 289 CF	60	45	40.4	36.4	39.2	42.6	39.7	35.0	40.9	41.0	41.7	44.4	43.4
Hyola 357 RR	54	44	38.6	35.6	35.3	42.0	37.6	33.7	39.5	39.8	39.7	42.2	41.1
Hyola 401	53	42	38.6	35.3	36.2	42.1	37.7	32.9	38.8	39.4	39.8	42.3	41.3
<b>University of Idaho Canola</b>													
Sunrise	58	46	38.7	35.2	35.5	41.7	37.9	34.9	39.1	40.5	37.4	42.3	42.2
Clearwater CF	58	48	38.7	35.7	35.9	41.9	37.8	33.5	38.9	39.8	37.7	43.0	43.1
Premier	56	43	38.9	34.7	37.5	41.9	38.7	32.9	39.0	40.4	39.7	42.5	41.2
UISC.00.1.3	57	45	38.7	35.6	36.6	41.9	37.6	32.9	38.8	39.3	39.2	42.8	42.2
UISC.00.3.1	55	44	38.7	35.8	36.1	42.9	37.8	34.0	37.9	40.1	38.6	42.3	41.8
UISC.00.3.8	54	42	38.3	35.3	36.3	42.0	38.5	31.9	37.8	39.1	38.8	42.6	41.2
UISC.00.3.13	54	43	39.6	36.1	38.8	41.9	39.1	33.4	39.6	40.6	40.4	43.8	42.6
UISC.00.5.7	58	45	39.2	36.4	36.6	42.1	39.1	33.8	38.6	40.8	38.9	43.2	45.0
<b>University of Idaho Industrial Rapeseed</b>													
Sterling	56	43	39.6	34.3	37.0	41.6	39.7	33.6	40.9	40.6	41.0	43.8	43.2
Impress CF	56	44	40.3	35.6	37.4	43.3	40.1	34.9	40.9	41.6	40.5	44.5	43.6
UISH.00.3.13	57	45	39.7	36.2	37.7	42.0	39.5	35.2	38.9	40.3	39.6	44.2	43.5
UISH.00.3.19	57	44	39.9	36.7	37.4	42.2	39.4	35.8	39.3	41.2	40.0	43.6	43.2
UISH.00.4.7	58	45	38.3	34.4	35.3	41.0	38.3	32.7	39.0	39.2	39.8	42.6	41.1
<b>Mean</b>	56	44	48.9	35.7	37.0	42.0	38.5	33.8	39.2	40.1	39.7	43.0	42.3
<b>LSD (p=0.05)</b>	1.8	3.5	1.6	1.2	1.6	0.9	1.3	1.7	0.9	1.8	1.3	0.9	1.0

**Location Key:**

DAYT	Dayton, WA - Notill	Apr 4	MO-N	Moscow, ID - Notill	May 2
COLF	Colfax, WA - Notill	Apr 10	GENE	Genesee, ID	Apr 25
BONF	Bonner Ferry, ID	Apr 18	GE-N	Genesee, ID - Notill	May 1
POTL	Potlatch, ID	Apr 29	NE-N	Nezperce, ID - Notill	Apr 22
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