Project Title: Statewide Camelina Trial, 2008

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Objective: Compare the oilseed yield and quality of 16 camelina (*Camelina sativa*) cultivars in a northwest Montana environment.

Results:

The trial was seeded on April 9, 2008 under conventional tillage, dryland, conditions following spring barley. Prowl was pre-plant incorporated at 4 pints/acre on April 4 for weed control. The cultivars were seeded in replicated, 15-foot, 7-row plots with 6-inch row spacing utilizing a `Hege' plot drill equipped with disk openers and packer wheels. Each plot was seeded with 2.34 grams, equal to seeding 3 lbs per acre. Seeding depth was ¼". Plant stand was determined by counting emerged plants per 3' section of row in 3 randomly selected locations of each plot. No post-emergence herbicides were applied, and all plots were kept weed free utilizing hand labor. Flowering date was recorded as the date when 50 percent of the plants within a plot had at least one open floret. Plant heights were measured from the ground to the top of the canopy. Pod shatter was minimal. The 75 square-foot plots were direct harvested using a Hege plot combine. Seed samples were cleaned in the laboratory using a 'Carter-Day Dockage tester' and then weighed following cleaning to determine seed yield. Seed test weight (pounds per bushel) and percent grain moisture content were obtained for each plot using a 'Dickey-john GAC 2100b' grain analyzer. Recorded grain yields are reported in pounds per acre. Grain oil and protein percentages will be determined using nuclear magnetic resonance (NMR) spectroscopy. Oil fatty acid profiles were analyzed with a Shimadzu 17A gas chromatograph with a flame ionization detector (FID).

Good stand establishment was obtained. Flowering began between June 12 and 16 and maturity was reached between July 25 and 27. Seed yields ranged from 866 – 1151 lbs/acre, with no significant differences among cultivars (Table 1). Test weights did differ among cultivars, ranging from 49.5 to 52.5 lbs/bushel. The only significant differences in fatty acid content were observed in the oleic and linoleic profiles (Table 2).

Summary: Yields were lower than in previous years, perhaps due to the late planting date and dry sandy soil at the location.

Table 1. Agronomic data for 16 camelina cultivars at Kalispell in 2008.

Entry	Plant Count	1st Flower	PlantHt	Lodging		Maturity	Yield	Moisture	TestWt
	#/3'	*date*	*inches*	*sev(1-5)**	*%plot*	*date*	*lbs/a*	*%*	*lbs/bu*
Blaine Creek	14.7	6/16	35	1.0	4	7/25	998	7.8	**51.4**
GP48	14.4	6/13	39	1.0	1	7/25	1006	7.5	**51.8**
GP67	16.0	6/14	37	1.3	4	7/25	874	8.0	**51.2**
SO-2	8.4	6/16	38	1.0	0	7/25	981	7.8	**51.9**
GP69	12.0	6/16	37	1.5	4	7/25	881	8.3	49.5
SO-1	10.8	6/14	36	1.0	1	7/26	882	8.0	**51.6**
SO-4	8.1	6/13	34	1.8	10	7/27	886	8.0	**51.5**
GP42	13.6	6/16	37	1.0	5	7/25	951	7.3	**51.7**
Calena	13.7	6/16	38	1.8	4	7/25	1151	8.4	**51.6**
Ligena	11.4	6/15	38	1.8	10	7/25	975	8.1	**51.4**
SO-5	9.0	6/15	37	1.0	2	7/25	1017	7.9	**51.5**
GP07	12.9	6/12	36	1.3	1	7/25	866	7.8	50.6
SO-3	14.4	6/14	39	1.5	5	7/25	896	7.8	**51.3**
SO-6	12.4	6/15	38	1.0	0	7/25	1038	8.1	50.9
Suneson	21.8	6/14	38	1.0	3	7/25	904	7.8	**52.5**
GP11	13.9	6/13	38	1.0	3	7/25	950	7.6	**51.8**
mean	13.0		37	1.2	4		953	7.9	51.4
Pr>F	0.1135		0.1587	0.4650	0.6718		0.6773	0.7350	0.0480
LSD(0.05)	NS		NS	NS	NS		NS	NS	1.4
CV %	40.4		6.2	49.9	190.3		18.3	8.5	1.9

*1=upright; 5=flat

Table 2. Analysis of 7 fatty acids in camelina oils produced at Kalispell in 2008.

GC%							
	Palmitic	Stearic	Oleic	Linoleic	Linolenic	Eicosenoic	Erucic
Entry	C16:0	C18:0	C18:1	C18:2	C18:3	C20:1	C22:1
Blaine Creek	5.32	2.23	**15.93**	16.41	37.41	12.92	1.81
GP48	5.44	2.06	14.80	**18.18**	38.55	12.58	1.99
GP67	5.55	2.21	**15.79**	**18.43**	38.55	12.08	1.74
SO-2	5.30	2.24	15.06	**18.27**	37.27	13.37	2.08
GP69	5.42	2.13	15.27	**17.96**	38.04	13.01	1.97
SO-1	4.03	2.23	15.29	17.47	37.32	13.72	2.25
SO-4	5.49	2.34	**15.37**	**18.11**	35.91	14.09	2.31
GP42	5.57	2.27	15.03	**18.20**	37.24	13.26	2.06
Calena	5.47	2.15	14.44	17.38	37.90	13.49	2.32
Ligena	5.70	2.15	15.31	**18.95**	37.38	12.64	1.99
SO-5	5.45	2.18	15.25	17.82	36.82	13.88	2.30
GP07	5.61	2.14	15.31	17.50	39.00	12.55	1.85
SO-3	5.41	2.28	**15.70**	17.61	36.64	13.74	2.26
SO-6	5.54	2.27	**16.16**	16.50	37.59	13.66	2.18
Suneson	5.57	2.24	**15.37**	17.82	38.55	12.78	1.89
GP11	5.52	2.23	14.85	17.60	38.87	12.50	1.98
mean	5.40	2.21	15.31	17.76	37.69	13.14	2.06
Pr>F	0.47	0.2943	0.0362	0.0034	0.2400	0.1032	0.1386
SE	0.7714	0.1119	0.5240	0.7061	1.1790	0.7844	0.2667
LSD(0.05)	NS	NS	0.83	1.12	NS	NS	NS