

PROJECT TITLE: **CAMELINA VARIETY TRIAL**

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OBJECTIVE: Assess the suitability of various camelina cultivars for
production in northwest Montana.

METHODS:

Fifteen cultivars/breeding lines of camelina (*Camelina sativa*) were seeded at 2.5 lbs PLS/a on 3/23/06 in 100 ft² plots at the Cross Bow Ranch, Bigfork, MT. Seeding depth was ¼ inch.

After emergence, plants were counted in linear foot sections of each row. The date on which 50% of the plants had bloomed in each plot was recorded. The height of the mature plants, relative maturity time, and % of plot with shattered seed were recorded. The mature seed was harvested by direct combining.

'MT-12' and 'MT101' (a Ukrainian accession) had the best stand establishment. 'C-54', 'C-53', 'C-88', and 'Robbie' produced very poor stands. 'MT-102' (the other Ukrainian accession) matured early and lost almost half its seed by harvest time. Seed yield exceeded 1000 lbs/a for all the MT lines except MT102. (Table 1)

RESULTS:

Seeds from each plot were ground and the oil extracted with hexane and the fatty acids converted to methyl esters. The FAMES were analyzed with a Shimadzu 17A gas chromatograph. Significant differences were observed among cultivars for EPA, an omega-3 fatty acid (Table 2).

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Table 1. Varieties

<u>Cv</u>	<u>Stand</u> <i>Plts/lin.</i> <i>ft</i>	<u>Bloom</u> <i>date</i>	<u>Plant</u> <u>Ht</u> <i>inches</i>	<u>Maturity</u>	<u>Shatter%</u>	<u>Seed</u> <u>Yld</u> <i>lbs/a</i>	<u>test wt</u> <i>lbs/bu</i>
MT-12	17.1	6/2	33.3	early	11.3	1215.0	41.6
MT-32	12.6	6/3	34.3	earliest	2.5	1074.7	42.3
MT-15	14.2	6/3	33.8	early	5.0	1193.1	40.9
MT-38	13.9	6/1	33.5	earliest	6.3	1306.5	42.3
C-54	0.8	6/2	33.5	early	5.0	387.9	42.0
C-53	0.4	6/5	33.3	medium	0.0	328.1	41.4
C-88	0.8	6/3	31.0	early	3.8	485.5	42.1
C-37	0.8	6/4	33.0	medium	0.0	485.0	40.9
Robbie	0.8	6/5	29.8	later	0.0	490.3	41.4
Celine	15.7	6/5	37.5	early	1.3	1334.5	41.7
MT-1	13.0	6/2	33.5	early	1.3	1155.2	41.2
MT-3	11.2	6/2	34.0	early	3.8	1279.4	42.2
MT-5	14.8	6/3	33.0	early	1.3	1070.5	42.0
MT101*	25.5	6/5	33.0	early	2.5	1034.7	42.3
MT102*	13.3	5/31	28.5	earliest	42.5	643.3	38.4
mean	10.3		33.0		5.8	898.9	41.5
LSD(0.05)	6.3		2.4		6.5	328.2	0.5
Pr>F	< 0.0001		<		< 0.0001	< 0.0001	<
CV(%mean)	42.8		5.1		76.4	25.3	0.9
*	<u>Species</u>			<u>Selection Line</u>		<u>Origin</u>	
MT101	<i>Camelina sativa</i> Grantz.			Stepovyi1'		Ukraine	
MT102	<i>Camelina sativa</i> Grantz.			Prestyzh'		Ukraine	

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Table 2. Fatty Acids

<u>Cv</u>	<u>GC Area %</u>					
	<u>Stearic</u> <u>C18:0</u>	<u>Oleic</u> <u>C18:1</u>	<u>Linoleic</u> <u>C18:2</u>	<u>Linolenic</u> <u>C18:3</u>	<u>EPA</u> <u>C20:5</u>	<u>DHA</u> <u>C22:5</u>
MT-12	2.26	16.51	16.25	36.90	2.63	0.50
MT-32	2.19	16.97	16.28	36.54	2.47	0.46
MT-15	2.23	15.73	16.63	35.87	3.06	0.52
MT-38	2.25	16.61	15.60	38.52	2.35	0.56
C-54	2.38	16.02	16.17	36.85	2.64	0.53
C-53	2.35	15.94	16.96	36.22	2.71	0.52
C-88	2.30	16.16	16.71	36.38	2.69	0.52
C-37	2.30	15.69	17.04	35.37	3.04	0.55
Robbie	2.26	15.68	17.63	36.82	2.43	0.52
Celine	2.22	15.59	18.50	36.52	2.30	0.54
MT-1	2.23	16.23	16.11	36.04	3.00	0.57
MT-3	2.31	15.83	17.29	36.06	2.58	0.52
MT-5	2.22	15.64	18.08	36.44	2.34	0.46
MT101	2.13	15.60	18.44	36.81	2.32	0.50
MT102	2.02	15.16	19.42	36.45	2.55	0.53
mean	2.24	15.96	17.14	36.52	2.61	0.52
Pr>F	0.0476	0.0002	< 0.0001	0.4218	0.0012	0.8331
LSD(0.05)	0.17	0.66	0.67	NS	0.39	NS
CV(%mean)	5.3	2.9	2.7	3.6	10.4	14.8