PROJECT TITLE: Camelina Performance Evaluations near Moccasin, Sidney, Havre, Kalispell, Huntley and Conrad, Montana and Williston, North Dakota. (Exps. 11-CM07, 11-CM70, 11-CM03, 11-CM02, 11-CM05, 11-CM08, 11-CM18, 11-CM20)

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OBJECTIVES:

To provide camelina growers in Montana and western North Dakota with a reliable, unbiased, up-to-date source of information that will facilitate valid dryland seed production comparisons among improved camelina varieties and experimental lines submitted for testing by participating commercial and university entities. Over time, these trials will help determine the yield potential of camelina in the various cropping environments which will assist producers in determining the economic viability of camelina in their region.

RESULTS and SUMMARY:

In 2011, two industry sponsors submitted a total of eight camelina entries that were included in trials with four publically available camelina check varieties for testing near Moccasin, Sidney, Havre, Kalispell, Huntley and Conrad, MT, and Williston, ND (Table 1). Moccasin, Sidney, Havre, Huntley, Conrad and Williston were dryland sites, while Kalispell was a high rainfall site. Two trials were grown at Moccasin; one seeded into tilled fallow and one seeded into no-till recrop. The trial at Kalispell was also seeded on recropped land. Summary weather information for each site is located in Table 2. Summaries of yield, percent oil and pounds of oil per acre are presented in Tables 3, 4 and 5. Seed yields across the state were variable (Table 3), but in general very good, with averages ranging from a low of 808 lb/ac at Moccasin on recrop to 2,218 lb/ac at Kalispell which is designated as high rainfall.

Central Agricultural Research Center, Moccasin: In a dryland environment, fallow seeded camelina seed yield at CARC ranged from 1,545 to 1,965 lb/ac, with no statistical difference between entries (Table 6). Test weight for fallow seeded camelina at CARC averaged over 51 lb/bu and grain oil averaged over 33 percent. Camelina ID, plant count, grain yield, grain test weight, grain moisture, grain protein, grain oil, oil yield and plant height data are summarized for CARC fallow seeded camelina in Table 6. Fatty acid composition data are summarized for CARC fallow seeded camelina in Table 14.

Recrop seeded camelina seed yield at CARC ranged from 728 lb/ac to 903 lb/ac, again with no statistical difference between entries (Table 7). Test weight for recrop seeded camelina at CARC averaged over 51 lb/bu and grain oil averaged nearly 33 percent. Camelina ID, plant count, grain yield, grain test weight, grain protein, grain oil, oil yield and plant height data are summarized for CARC recrop seeded camelina in Table 7. Fatty acid composition data are summarized for CARC recrop seeded camelina in Table 15.

Eastern Agricultural Research Center, Sidney: In a dryland environment, fallow seeded camelina at EARC produced an overall average seed yield of 979 lb/ac (Table 8). Eight of the 12 entries produced seed yields equal to the highest yielding entry, 'Calena' (1,130 lb/ac). Test weights of all entries averaged just over 52 lb/bu and grain oil ranged from 37.4 to 35.9 percent. Camelina ID, plant stand, grain yield, grain test weight, grain protein, grain oil, oil yield, flowering date, plant height and pod shatter are summarized for EARC in Table 8. Fatty acid composition data are summarized

for EARC fallow seeded camelina in Table 16.

Northern Agricultural Research Center, Havre: In a dryland environment, fallow seeded camelina seed yield at NARC averaged 1,542 lb/ac. Four of the 12 entries grown, produced yields statistically equal to the highest yielding entry, 'Blaine Creek' (1,773 lb/ac) which was a check variety (Table 9). Test weights averaged nearly 52 lb/bu. Grain oil averaged 34.3 percent and five of the 12 entries produced over 540 pounds of oil per acre. Camelina ID, plant stand, plant count, grain yield, grain test weight, grain moisture, grain protein, grain oil, oil yield, flowering date, maturity date, plant height, pod shatter and lodging index are summarized for NARC in Table 9. Fatty acid composition data are summarized for NARC fallow seeded camelina in Table 17.

Northwestern Agricultural Research Center, Kalispell: In a high rainfall environment, recrop camelina seed yield averaged 2,218 lb/ac. Nine of the 12 entries grown, produced yields statistically equal to the highest yielding entry, 'Blaine Creek', (2,400 lb/ac) which was one of the check varieties (Table 10). Test weights averaged over 52 lb/bu. Grain oil averaged nearly 34 percent with Blaine Creek also producing the most oil per acre at 824 lbs. Camelina ID, plant count, grain yield, grain test weight, grain moisture, grain protein, grain oil, oil yield, flowering date, plant height, pod shatter and lodging index are summarized for NWARC in Table 10. Fatty acid composition data are summarized for NWARC high rainfall, recrop seeded camelina, in Table 18.

Southern Agricultural Research Center, Huntley: In a dryland environment, fallow seeded camelina seed yield at SARC averaged 1,287 lb/ac (Table 11). The highest yielding entry was 'C10-BZ-SB7-6' (1,757 lb/ac), submitted by Sustainable Oils, LLC. "Ligena", "SO-30", "SO-40" and "SO-50" produced yields statistically equal to the top entry. Test weights averaged just over 49 lb/bu. Grain oil ranged from 28.6 to 30.3 percent and average oil per acre for the 12 entries was 380 lbs. Camelina ID, plant count, grain yield, grain test weight, grain moisture, grain protein, grain oil, oil yield, flowering date, maturity date, plant height, pod shatter and lodging index are summarized for SARC in Table 11. Fatty acid composition data are summarized for SARC fallow seeded camelina in Table 19.

Western Triangle Agricultural Research Center, Conrad: In a dryland environment, fallow seeded camelina seed yield at WTARC averaged 1,264 lb/ac, with no statistical difference between entries (Table 12). Grain oil averaged just over 39 percent and 496 lb/ac, again with no statistical differences between entries. Camelina ID, grain yield, grain test weight, grain protein, grain oil, oil yield, flowering date, maturity date, plant height, pod shatter and lodging index are summarized for WTARC in Table 12. Fatty acid composition data are summarized for WTARC fallow seeded camelina in Table 20.

Williston Research Extension Center, Williston, ND: In a dryland environment, fallow seeded camelina seed yield at WREC averaged 1,582 lb/ac (Table 13). Eight of the 12 entries grown, produced yields statistically equal to the highest yielding entry Calena (1,750 lb/ac). Grain oil averaged just over 36 percent and 570 lb/ac. Camelina ID, grain yield, grain test weight, grain protein, grain oil, oil yield, flowering date, plant height and lodging index are summarized for WREC in Table 13. Fatty acid composition data are summarized for WREC fallow seeded camelina in Table 21.

FUTURE PLANS:

With continued support from the camelina industry and research center personnel, multi-location camelina evaluations will continue in 2012 at selected sites across Montana and North Dakota.

Table 1. Contact Information for Industry Seed Sources of Eight Camelina Lines Tested near Moccasin, Sidney, Havre, Kalispell, Huntley and Conrad, MT and Williston, ND. 2011.
(Exps. 11-CM07, 11-CM70, 11-CM03, 11-CM02, 11-CM05, 11-CM08, 11-CM18, 11-CM20)

SPONSOR	LINES TESTED	CONTACTS
Phoenix Rising, Inc	Clearwater Hy 101 Yellowstone	Dr. Duane Johnson Senior Plant Breeder 439 Grand Ave., Suite 118 Bigfork, MT 59911 PH: 1-406-471-0671 EM: camelinaguy@juno.com
Sustainable Oils, LLC	SO-30 SO-40 SO-50 SO-60 C10-BZ-SB7-6 C10-BZ-SB7-7	Dr. Fernando Guillen-Portal Senior Plant Breeder 214 Shepherd Trail, Suite F Bozeman, MT 59718 PH: 1-406-522-8900 FX: 1-406-522-8910 EM: fernando.guillen@susoils.com
Montana State University Department of Research Centers	Blaine Creek Calena Ligena Suneson	

Table 2. Summary of climatic data by location for the crop year September 2010 - August 2011.

Entry ID	Moccasin CARC	Sidney EARC	Havre NARC	Kalispell NWARC	Huntley SARC	Conrad WTARC	Williston WREC
Precipitation (inches)	21.64	22.73	15.45	22.98	12.23	15.23	18.06
Mean Temperature (F)	42.1	42.5	40.3	41.2	43.2	40.8	41.8
Last Killing Spring Frost	May 19	May 2	May 14	May 18	May 5	May 18	May 2
First Killing Fall Frost	Sept 3	Sept 14	Sept 20	Sept 29	Oct 17	Oct 15	Sept 18
Frost Free Period (days)	107	134	129	134	139	150	138
Growing Degree Days (Base 50)	-	2,199	2,339	1,593	2,223	1,285	2,419
Maximum Summer Temperature (F)	99	98	101	89	100	97	98
Minimum Winter Temperature (F)	-25	-31	-37	-16	-22	-24	-27

Table 3. 11CMxx: Montana Statewide Camelina Trial Grain Yield Summary. 2011.

ID	Moccasin dryland fallow	Moccasin dryland recrop	Sidney dryland fallow	Havre dryland fallow	Kalispell high rainfall recrop	Huntley dryland fallow	Conrad dryland fallow	Williston dryland fallow
	lb/ac	lb/ac	lb/ac	lb/ac	lb/ac	lb/ac	lb/ac	lb/ac
Blaine Creek	1,661	815	887	**1,773**	**2,400**	1,163	1,225	**1,611**
Calena	1,803	873	**1,130**	**1,668**	**2,372**	1,309	1,256	**1,750**
Ligena	1,778	798	**1,050**	1,475	**2,351**	**1,409**	1,232	**1,558**
Suneson	1,913	903	**936**	**1,692**	2,065	1,044	1,168	**1,619**
Clearwater Hy 101	1,643	837	**1,066**	1,495	**2,248**	1,189	1,290	1,520
Yellowstone	1,647	728	650	1,335	1,900	938	1,362	1,366
SO-30	1,682	782	**1,029**	1,422	**2,275**	**1,361**	1,255	1,495
SO-40	1,545	749	**1,005**	1,511	**2,206**	**1,623**	1,363	**1,652**
SO-50	1,860	747	**1,004**	**1,589**	**2,156**	**1,424**	1,316	**1,619**
SO-60	1,719	859	**1,036**	1,506	**2,360**	1,116	1,325	**1,726**
C10-BZ-SB7-6	1,824	796	855	1,501	2,012	**1,757**	1,141	**1,597**
C10-BZ-SB7-7	1,965	810	**1,101**	1,541	**2,268**	1,116	1,238	1,472
Average	1,753	808	979	1,542	2,218	1,287	1,264	1,582
LSD (p=0.05)	ns	ns	211.1	214.9	268.8	420.0	ns	198.6
CV%	15.7	15.7	15.0	9.7	8.4	22.7	15.4	8.7
P-Value (Entry)	0.615	0.723	0.005	0.015	0.010		0.877	0.023

bold Indicates cultivars yielding equal to the highest yielding entry in each column based on Fischer's Protected LSD at the 0.05 probability level.

ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Table 4. 11CMxx: Montana Statewide Camelina Trial Grain Oil Content Summary. 2011.

ID	Moccasin dryland fallow	Moccasin dryland recrop	Sidney dryland fallow	Havre dryland fallow	Kalispell high rainfall recrop	Huntley dryland fallow	Conrad dryland fallow	Williston dryland fallow
	%	%	%	%	%	%	%	%
Blaine Creek	33.3	33.4	35.4	34.0	34.3	29.9	38.7	36.6
Calena	33.1	32.4	35.3	34.8	34.2	29.4	38.9	35.3
Ligena	33.6	33.7	35.5	34.0	33.5	29.6	39.7	36.3
Suneson	33.2	33.2	35.4	34.2	34.0	30.3	38.8	36.1
Clearwater Hy 101	32.7	33.1	35.9	34.3	34.0	29.2	38.9	36.7
Yellowstone	32.6	33.1	34.7	34.7	33.2	29.7	39.9	36.9
SO-30	33.4	32.9	35.4	35.0	33.4	29.2	39.7	36.2
SO-40	33.8	32.8	34.7	33.4	33.8	28.6	38.9	35.7
SO-50	33.0	32.4	35.5	34.2	33.4	29.9	39.3	35.8
SO-60	32.8	32.5	34.9	34.5	32.7	29.2	38.4	35.4
C10-BZ-SB7-6	33.3	33.7	35.2	33.2	34.6	29.9	38.9	36.2
C10-BZ-SB7-7	33.8	32.3	35.6	35.3	33.9	28.8	39.6	35.6
Average	33.2	32.9	35.3	34.3	33.8	29.5	39.2	36.1
LSD (p=0.05)	ns	0.3	0.6	ns	0.9	ns	ns	0.5
CV%	2.7	0.7	1.2	2.5	1.8	4.2	2.1	1.0
P-Value (Entry)	0.645	<0.0001	0.019	0.057	0.004		0.194	<0.0001

Grain oil is reported on a dry matter basis.

ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Table 5. 11CMxx: Montana Statewide Camelina Trial Grain Oil Yield Summary. 2011.

ID	Moccasin dryland fallow	Moccasin dryland recrop	Sidney dryland fallow	Havre dryland fallow	Kalispell high rainfall recrop	Huntley dryland fallow	Conrad dryland fallow	Williston dryland fallow
	lb/ac	lb/ac	lb/ac	lb/ac	lb/ac	lb/ac	lb/ac	lb/ac
Blaine Creek	554	272	314	**602**	**824**	349	475	589
Calena	597	282	**399**	**580**	**812**	384	489	617
Ligena	599	269	**373**	503	**786**	**422**	491	565
Suneson	636	300	**331**	**578**	701	316	454	584
Clearwater Hy 101	536	277	**382**	515	**765**	348	503	557
Yellowstone	537	240	226	463	627	278	544	504
SO-30	562	257	**364**	498	**760**	**402**	500	541
SO-40	522	245	**349**	505	**746**	**466**	530	589
SO-50	611	242	**356**	**542**	718	**426**	519	580
SO-60	563	279	**361**	519	**768**	325	510	611
C10-BZ-SB7-6	607	268	302	499	696	**526**	444	577
C10-BZ-SB7-7	663	262	**391**	**544**	**767**	321	490	524
Average	582	266	346	529	747	380	496	570
LSD (p=0.05)	ns	ns	77.7	79.7	86.4	130.8	ns	ns
CV%	15.5	15.6	15.6	10.5	8.0	23.9	16.8	8.5
P-Value (Entry)	0.527	0.691	0.005	0.041	0.004		0.900	0.067

bold Indicates cultivars yielding equal to the highest yielding entry in each column based on Fischer's Protected LSD at the 0.05 probability level.

ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Grain oil yield is reported on a dry matter basis.

Table 6. 11CM07: Statewide Industry Camelina Trial - Dryland, Fallow.
MSU Central Agricultural Research Center. Moccasin, MT. 2011.

ID	Plant Stand	Plant Count	Grain Yield	Test Weight	Grain Moisture	Grain Protein	Grain Oil	Oil Yield	Flowering Date		Maturity Date		Plant Height	Pod Shatter	Lodging Index
									Julian	Calendar	Julian	Calendar			
	%	no/ft2	lb/ac	lb/bu	%	%	%	lb/ac	day	date	day	date	inches	%	rating
Blaine Creek		19.6	1,661	51.7	7.1	26.8	33.3	554					31.9	0.0	0.0
Calena		21.0	1,803	51.8	7.4	26.6	33.1	597					32.6	0.0	0.0
Ligena		18.7	1,778	50.9	7.1	26.8	33.6	599					32.7	0.0	0.0
Suneson		22.0	1,913	50.9	7.4	26.4	33.2	636					33.3	0.0	0.0
Clearwater Hy 101		21.9	1,643	51.2	7.7	27.0	32.7	536					31.4	0.0	0.0
Yellowstone		17.8	1,647	51.3	7.3	26.8	32.6	537					33.3	0.0	0.0
SO-30		22.6	1,682	51.4	7.4	27.0	33.4	562					31.9	0.0	0.0
SO-40		22.8	1,545	51.0	7.0	27.1	33.8	522					33.0	0.0	0.0
SO-50		22.1	1,860	51.0	8.0	25.9	33.0	611					33.3	0.0	0.0
SO-60		19.6	1,719	50.8	7.7	26.6	32.8	563					33.8	0.0	0.0
C10-BZ-SB7-6		23.0	1,824	52.0	7.2	26.9	33.3	607					30.7	0.0	0.0
C10-BZ-SB7-7		17.8	1,965	51.4	7.5	26.3	33.8	663					33.4	0.0	0.0
Average		20.7	1,753	51.3	7.4	26.7	33.2	582					32.6	0.0	0.0
LSD (p=0.05)		ns	ns	ns	ns	ns	ns	ns					1.8	-	-
CV%		16.4	15.7	1.9	9.0	3.2	2.7	15.5					3.8	-	-
P-Value (Entry)		0.137	0.615	0.799	0.642	0.731	0.645	0.527					0.034	-	-

Grain yield is adjusted to 8 percent grain moisture content.

Grain protein, grain oil and oil yield are reported on a dry matter basis.

Lodging visually estimated on a score from 0 to 9 (0=none, 9=all plants flat).

ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Seeding Date: April 21, 2011
Harvest Date: August 9, 2011

Table 7. 11CM70: Statewide Industry Camelina Trial - Dryland, Recrop.
MSU Central Agricultural Research Center. Moccasin, MT. 2011.

ID	Plant Stand	Plant Count	Grain Yield	Test Weight	Grain Moisture	Grain Protein	Grain Oil	Oil Yield	Flowering Date Julian	Flowering Date Calendar	Maturity Date Julian	Maturity Date Calendar	Plant Height	Pod Shatter	Lodging Index
	%	no/ft2	lb/ac	lb/bu	%	%	%	lb/ac	day	date	day	date	inches	%	rating
Blaine Creek		21.3	815	51.6	7.2	27.2	33.4	272					25.7	0.0	0.0
Calena		23.2	873	51.4	7.3	26.8	32.4	282					25.7	0.0	0.0
Ligena		21.8	798	51.4	7.3	26.9	33.7	269					26.2	0.0	0.0
Suneson		21.6	903	52.4	7.2	26.9	33.2	300					25.9	0.0	0.0
Clearwater Hy 101		20.3	837	51.4	7.5	27.0	33.1	277					26.2	0.0	0.0
Yellowstone		19.9	728	50.9	7.4	27.8	33.1	240					27.1	0.0	0.0
SO-30		18.4	782	52.0	7.2	27.3	32.9	257					25.3	0.0	0.0
SO-40		22.6	749	50.7	7.4	27.1	32.8	245					26.1	0.0	0.0
SO-50		20.1	747	52.1	7.5	27.0	32.4	242					25.3	0.0	0.0
SO-60		19.1	859	51.0	7.5	27.0	32.5	279					27.2	0.0	0.0
C10-BZ-SB7-6		21.6	796	50.8	7.2	26.9	33.7	268					23.8	0.0	0.0
C10-BZ-SB7-7		18.7	810	51.3	7.3	27.8	32.3	262					25.3	0.0	0.0
Average		20.7	808	51.4	7.3	27.1	32.9	266					25.8	0.0	0.0
LSD (p=0.05)		ns	ns	0.7	0.3	0.4	0.3	ns					1.5	-	-
CV%		23.1	15.7	1.0	2.4	1.0	0.7	15.6					4.1	-	-
P-Value (Entry)		0.939	0.723	0.000	0.054	<0.0001	<0.0001	0.691					0.008	-	-

Grain yield is adjusted to 8 percent grain moisture content.
Grain protein, grain oil and oil yield are reported on a dry matter basis.
Lodging visually estimated on a score from 0 to 9 (0=none, 9=all plants flat).
ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Seeding Date: April 21, 2011
Harvest Date: August 9, 2011

Table 8. 11CM03: Statewide Industry Camelina Trial - Dryland, Fallow.
MSU Eastern Agricultural Research Center. Sidney, MT. 2011.

ID	Plant Stand	Plant Count	Grain Yield		Test Weight	Grain Moisture	Grain Protein	Grain Oil	Oil Yield		Flowering Date Julian	Flowering Date Calendar	Maturity Date Julian	Maturity Date Calendar	Plant Height	Pod Shatter	Lodging Index
	%	no/ft2	lb/ac		lb/bu	%	%	%	lb/ac		day	date	day	date	inches	%	rating
Blaine Creek	86.3		887		52.0		28.7	35.4	314		179.3	Jun 28			26.3	3.8	0.0
Calena	86.3		**1,130**	**	52.8		27.9	35.3	**399**	**	179.8	Jun 29			27.3	6.3	0.0
Ligena	86.3		**1,050**	*	51.8		28.6	35.5	**373**	*	180.8	Jun 30			27.0	2.5	0.0
Suneson	86.3		**936**	*	52.9		28.7	35.4	**331**	*	179.5	Jun 29			26.4	1.3	0.0
Clearwater Hy 101	88.8		**1,066**	*	51.8		28.4	35.9	**382**	*	179.3	Jun 28			27.0	5.0	0.0
Yellowstone	72.5		650		52.1		29.7	34.7	226		181.5	Jul 1			27.6	1.3	0.0
SO-30	88.8		**1,029**	*	52.6		28.5	35.4	**364**	*	179.3	Jun 28			28.0	1.3	0.0
SO-40	86.3		**1,005**	*	51.4		28.7	34.7	**349**	*	180.0	Jun 29			29.2	2.5	0.0
SO-50	87.5		**1,004**	*	52.5		28.1	35.5	**356**	*	180.3	Jun 29			27.8	2.5	0.0
SO-60	85.0		**1,036**	*	51.9		27.7	34.9	**361**	*	180.3	Jun 29			28.2	0.0	0.0
C10-BZ-SB7-6	78.8		855		51.5		29.0	35.2	302		180.5	Jun 30			25.2	2.5	0.0
C10-BZ-SB7-7	86.3		**1,101**	*	52.3		28.3	35.6	**391**	*	181.5	Jul 1			27.5	1.3	0.0
Average	84.9		979		52.1		28.5	35.3	346		180.1	Jun 29			27.3	2.5	0.0
LSD (p=0.05)	10.2		211.1		0.4		0.5	0.6	77.7		ns	-			ns	ns	-
CV%	8.4		15.0		0.6		1.3	1.2	15.6		0.6	-			7.5	147.0	-
P-Value (Entry)	0.110		0.005		<0.0001		<0.0001	0.019	0.005		0.060	-			0.489	0.529	-

Grain yield is reported "as is" at harvest - not adjusted to a uniform moisture content.
** Indicates highest yielding cultivar within a column.
***** Indicates cultivars yielding equal to the highest yielding entry based on Fisher's Protected LSD at the 0.05 probability level.
Grain protein, grain oil and oil yield are reported on a dry matter basis.
Lodging visually estimated on a score from 0 to 9 (0=none, 9=all plants flat).
ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Seeding Date: May 6, 2011
Harvest Date: August 3, 2011

Table 9. 11CM02: Statewide Industry Camelina Trial - Dryland, Fallow.
MSU Northern Agricultural Research Center. Havre, MT. 2011.

ID	Plant Stand	Plant Count	Grain Yield		Test Weight	Grain Moisture	Grain Protein	Grain Oil	Oil Yield		Flowering Date Julian	Flowering Date Calendar	Maturity Date Julian	Maturity Date Calendar	Plant Height	Pod Shatter	Lodging Index
	%	no/ft2	lb/ac		lb/bu	%	%	%	lb/ac		day	date	day	date	inches	%	rating
Blaine Creek	96.9	17.6	**1,773**	**	51.6	7.3	27.9	34.0	**602**	**	170.8	Jun 20	205.3	Jul 24	32.7	7.5	0.0
Calena	97.2	18.7	**1,668**	*	52.3	7.3	26.5	34.8	**580**	*	172.0	Jun 21	206.8	Jul 26	30.2	6.3	0.0
Ligena	95.8	21.9	1,475		51.3	7.3	27.8	34.0	503		173.0	Jun 22	208.8	Jul 28	31.7	3.0	0.0
Suneson	97.6	21.9	**1,692**	*	52.8	7.1	27.9	34.2	**578**	*	171.3	Jun 20	205.8	Jul 25	32.3	4.0	0.0
Clearwater Hy 101	96.7	20.8	1,495		51.1	7.4	27.1	34.3	515		172.5	Jun 22	206.3	Jul 25	31.3	8.8	0.0
Yellowstone	96.4	18.1	1,335		52.0	7.2	27.8	34.7	463		173.3	Jun 22	205.8	Jul 25	36.5	13.8	0.0
SO-30	94.8	15.4	1,422		52.4	7.1	26.8	35.0	498		173.0	Jun 22	209.0	Jul 28	29.6	3.0	0.0
SO-40	93.4	13.8	1,511		50.9	7.3	28.2	33.4	505		172.3	Jun 21	206.8	Jul 26	32.8	3.0	0.0
SO-50	97.9	18.7	**1,589**	*	52.2	7.3	27.2	34.2	**542**	*	172.0	Jun 21	206.5	Jul 26	30.9	7.5	0.0
SO-60	96.7	20.4	1,506		51.5	7.3	26.6	34.5	519		172.3	Jun 21	206.8	Jul 26	31.0	6.3	0.0
C10-BZ-SB7-6	96.0	21.1	1,501		50.9	7.4	28.1	33.2	499		170.5	Jun 20	204.5	Jul 24	27.3	10.0	0.0
C10-BZ-SB7-7	99.3	18.8	1,541		52.9	7.1	27.0	35.3	**544**	*	174.3	Jun 23	208.3	Jul 27	30.8	8.8	0.0
Average	96.6	18.9	1,542		51.8	7.3	27.4	34.3	529		172.3	Jun 21	206.7	Jul 26	31.4	6.8	0.0
LSD (p=0.05)	ns	ns	214.9		0.6	ns	1.2	ns	79.7		1.7	-	1.5	-	3.3	3.9	-
CV%	2.9	19.3	9.7		0.8	4.2	3.0	2.5	10.5		0.7	-	0.5	-	7.4	39.5	-
P-Value (Entry)	0.370	0.082	0.015		<0.0001	0.891	0.048	0.057	0.041		0.006	-	<0.0001	-	0.002	<0.0001	-

Grain yield is adjusted to 8 percent grain moisture content.
** Indicates highest yielding cultivar within a column.
***** Indicates cultivars yielding equal to the highest yielding entry based on Fisher's Protected LSD at the 0.05 probability level.
Grain protein, grain oil and oil yield are reported on a dry matter basis.
Lodging visually estimated on a score from 0 to 9 (0=none, 9=all plants flat).
ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Seeding Date: April 21, 2011
Harvest Date: August 15, 2011

Table 10. 11CM05: Statewide Industry Camelina Trial - High Rainfall, Recrop.
MSU Northwestern Agricultural Research Center. Kalispell, MT. 2011.

ID	Plant Stand	Plant Count	Grain Yield		Test Weight	Grain Moisture	Grain Protein	Grain Oil	Oil Yield		Flowering Date Julian	Flowering Date Calendar	Maturity Date Julian	Maturity Date Calendar	Plant Height	Pod Shatter	Lodging Index
	%	no/ft2	lb/ac		lb/bu	%	%	%	lb/ac		day	date	day	date	inches	%	rating
Blaine Creek		33.7	**2,400**	**	52.6	7.0	27.2	34.3	**824**	**	178.3	Jun 27			42.6	0.0	1.0
Calena		33.1	**2,372**	*	53.0	6.6	26.9	34.2	**812**	*	178.3	Jun 27			39.9	0.0	1.0
Ligena		29.4	**2,351**	*	51.8	7.5	27.3	33.5	**786**	*	179.3	Jun 28			42.9	0.0	1.8
Suneson		25.8	2,065		52.8	6.9	27.1	34.0	701		178.3	Jun 27			41.6	0.0	1.8
Clearwater Hy 101		34.4	**2,248**	*	51.9	7.2	26.7	34.0	**765**	*	178.8	Jun 28			40.9	0.0	1.0
Yellowstone		22.3	1,900		52.0	7.3	28.2	33.2	627		181.0	Jun 30			43.6	0.0	1.8
SO-30		24.8	**2,275**	*	52.8	7.2	26.7	33.4	**760**	*	179.8	Jun 29			43.6	0.0	1.5
SO-40		34.3	**2,206**	*	51.6	7.0	26.9	33.8	**746**	*	178.5	Jun 28			43.4	0.0	1.3
SO-50		25.0	**2,156**	*	52.8	6.9	27.0	33.4	718		179.5	Jun 29			42.1	0.0	1.3
SO-60		27.2	**2,360**	*	51.3	7.8	27.0	32.7	**768**	*	176.3	Jun 25			41.1	0.0	1.0
C10-BZ-SB7-6		26.9	2,012		51.1	6.3	27.1	34.6	696		178.0	Jun 27			40.1	0.0	1.5
C10-BZ-SB7-7		27.4	**2,268**	*	52.6	7.1	27.4	33.9	**767**	*	181.8	Jul 1			41.6	0.0	1.3
Average		28.7	2,218		52.2	7.1	27.1	33.8	747		179.0	Jun 28			42.0	0.0	1.3
LSD (p=0.05)		ns	268.8		0.8	0.7	0.5	0.9	86.4		2.3	-			ns	-	ns
CV%		22.7	8.4		1.0	6.9	1.2	1.8	8.0		0.9	-			8.5	-	34.5
P-Value (Entry)		0.130	0.010		<0.0001	0.015	<0.0001	0.004	0.004		0.003	-			0.867	-	0.097

Grain yield is adjusted to 8 percent grain moisture content.
** Indicates highest yielding cultivar within a column.
***** Indicates cultivars yielding equal to the highest yielding entry based on Fisher's Protected LSD at the 0.05 probability level.
Grain protein, grain oil and oil yield are reported on a dry matter basis.
Lodging visually estimated on a score from 0 to 9 (0=none, 9=all plants flat).
ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Seeding Date: April 26, 2011
Harvest Date: August 15, 2011

Table 11. 11CM08: Statewide Industry Camelina Trial - Dryland, Fallow.
MSU Southern Agricultural Research Center. Huntley, MT. 2011.

ID	Plant Stand	Plant Count	Grain Yield		Test Weight	Grain Moisture	Grain Protein	Grain Oil	Oil Yield		Flowering Date Julian	Flowering Date Calendar	Maturity Date Julian	Maturity Date Calendar	Plant Height	Pod Shatter	Lodging Index
	%	no/ft2	lb/ac		lb/bu	%	%	%	lb/ac		day	date	day	date	inches	%	rating
Blaine Creek		11.2	1,163		51.1	10.3	26.4	29.9	349		170.3	Jun 19	198.3	Jul 17	28.2	3.0	0.0
Calena		12.4	1,309		51.0	12.2	26.0	29.4	384		171.0	Jun 20	198.3	Jul 17	30.7	1.0	0.0
Ligena		11.0	**1,409**	*	49.8	13.8	26.8	29.6	**422**	*	171.0	Jun 20	199.8	Jul 19	29.7	1.5	0.0
Suneson		12.0	1,044		52.1	10.8	26.3	30.3	316		169.5	Jun 19	198.0	Jul 17	28.3	4.5	0.0
Clearwater Hy 101		11.7	1,189		49.9	13.0	26.5	29.2	348		170.3	Jun 19	198.3	Jul 17	29.1	2.5	0.0
Yellowstone		11.3	938		38.1	11.8	27.7	29.7	278		171.8	Jun 21	199.3	Jul 18	28.6	1.5	0.0
SO-30		13.6	**1,361**	*	50.8	13.2	26.5	29.2	**402**	*	170.5	Jun 20	198.8	Jul 18	30.4	1.2	0.0
SO-40		15.0	**1,623**	*	48.6	12.6	26.8	28.6	**466**	*	170.3	Jun 19	198.0	Jul 17	33.0	2.3	0.0
SO-50		7.6	**1,424**	*	50.9	12.5	25.9	29.9	**426**	*	170.8	Jun 20	199.0	Jul 18	29.3	1.5	0.0
SO-60		7.5	1,116		49.6	14.1	26.7	29.2	325		171.3	Jun 20	198.5	Jul 18	30.0	1.0	0.0
C10-BZ-SB7-6		13.4	**1,757**	**	50.4	11.3	26.6	29.9	**526**	**	170.0	Jun 19	198.0	Jul 17	29.8	2.8	0.7
C10-BZ-SB7-7		13.8	1,116		48.0	16.1	27.7	28.8	321		171.8	Jun 21	200.3	Jul 19	29.6	1.3	0.0
Average		11.7	1,287		49.2	12.6	26.7	29.5	380		170.7	Jun 20	198.7	Jul 18	29.7	2.0	0.1
PLSD (p=0.05)		ns	420.0		ns	ns	1.0	ns	130.8		0.9	-	0.9	-	ns	ns	ns
CV%		36.5	22.7		14.7	18.8	2.5	4.2	23.9		0.4	-	0.3	-	6.2	105.8	433.0

Grain yield is adjusted to 8 percent grain moisture content.
** Indicates highest yielding cultivar within a column.
***** Indicates cultivars yielding equal to the highest yielding entry based on Fisher's Protected LSD at the 0.05 probability level.
Grain protein, grain oil and oil yield are reported on a dry matter basis.
Lodging visually estimated on a score from 0 to 9 (0=none, 9=all plants flat).
ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Seeding Date: April 25, 2011
Harvest Date: July 27, 2011

Table 12. 11CM18: Statewide Industry Camelina Trial - Dryland, Fallow.
MSU Western Triangle Agricultural Research Center. Conrad, MT. 2011.

ID	Plant Stand	Plant Count	Grain Yield	Test Weight	Grain Moisture	Grain Protein	Grain Oil	Oil Yield	Flowering Date Julian	Flowering Date Calendar	Maturity Date Julian	Maturity Date Calendar	Plant Height	Pod Shatter	Lodging Index
	%	no/ft2	lb/ac	lb/bu	%	%	%	lb/ac	day	date	day	date	inches	%	rating
Blaine Creek			1,225	52.2		26.1	38.7	475	183.3	Jul 2	223.0	Aug 11	29.0	0.0	0.0
Calena			1,256	52.9		25.0	38.9	489	185.3	Jul 4	225.0	Aug 13	29.8	0.0	0.0
Ligena			1,232	52.2		24.8	39.7	491	184.5	Jul 4	223.0	Aug 11	31.0	0.0	0.0
Suneson			1,168	53.1		26.4	38.8	454	182.8	Jul 2	225.0	Aug 13	29.8	0.0	0.0
Clearwater Hy 101			1,290	51.7		25.9	38.9	503	182.8	Jul 2	225.0	Aug 13	30.5	0.0	0.0
Yellowstone			1,362	52.0		25.6	39.9	544	186.0	Jul 5	224.0	Aug 12	30.3	0.0	0.0
SO-30			1,255	52.8		25.1	39.7	500	183.5	Jul 3	223.0	Aug 11	29.3	0.0	0.0
SO-40			1,363	51.7		25.5	38.9	530	185.3	Jul 4	224.0	Aug 12	32.3	0.0	0.0
SO-50			1,316	52.8		24.9	39.3	519	184.5	Jul 4	225.0	Aug 13	32.0	0.0	0.0
SO-60			1,325	52.3		25.7	38.4	510	184.5	Jul 4	223.0	Aug 11	31.3	0.0	0.0
C10-BZ-SB7-6			1,141	51.5		25.5	38.9	444	181.5	Jul 1	224.0	Aug 12	28.8	0.0	0.0
C10-BZ-SB7-7			1,238	52.4		25.0	39.6	490	185.0	Jul 4	225.0	Aug 13	31.8	0.0	0.0
Average			1,264	52.3		25.4	39.2	496	184.1	Jul 3	224.1	Aug 12	30.5	0.0	0.0
LSD (p=0.05)			ns	0.5		ns	ns	ns	2.2	-	ns	-	ns	-	-
CV%			15.4	0.6		4.5	2.1	16.8	0.8	-	0.7	-	5.6	-	-
P-Value (Entry)			0.877	<0.0001		0.603	0.194	0.900	0.009	-	0.251	-	0.065	-	-

Grain yield is reported "as is" at harvest - not adjusted to a uniform moisture content.
Grain protein, grain oil and oil yield are reported on a dry matter basis.
Lodging visually estimated on a score from 0 to 9 (0=none, 9=all plants flat).
ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Seeding Date: May 6, 2011
Harvest Date: August 28, 2011

Table 13. 11CM20: Statewide Industry Camelina Trial - Dryland, Fallow.
NDSU Williston Research Extension Center. Williston, ND. 2011.

ID	Plant Stand	Plant Count	Grain Yield		Test Weight	Grain Moisture	Grain Protein	Grain Oil	Oil Yield	Flowering Date Julian	Flowering Date Calendar	Maturity Date Julian	Maturity Date Calendar	Plant Height	Pod Shatter	Lodging Index
	%	no/ft2	lb/ac		lb/bu	%	%	%	lb/ac	day	date	day	date	inches	%	rating
Blaine Creek			**1,611**	*	52.4		29.3	36.6	589	175.3	Jun 24			27.7		0.0
Calena			**1,750**	**	53.2		29.7	35.3	617	174.0	Jun 23			27.9		0.0
Ligena			**1,558**	*	52.1		29.6	36.3	565	174.8	Jun 24			26.6		0.0
Suneson			**1,619**	*	53.1		29.7	36.1	584	174.5	Jun 24			26.9		0.0
Clearwater Hy 101			1,520		52.1		29.4	36.7	557	174.8	Jun 24			25.9		0.0
Yellowstone			1,366		52.7		30.1	36.9	504	176.8	Jun 26			29.3		0.0
SO-30			1,495		52.6		29.4	36.2	541	174.8	Jun 24			25.9		0.0
SO-40			**1,652**	*	51.9		29.7	35.7	589	175.0	Jun 24			28.5		0.0
SO-50			**1,619**	*	52.9		29.4	35.8	580	175.3	Jun 24			28.9		0.0
SO-60			**1,726**	*	52.4		29.9	35.4	611	174.3	Jun 23			28.9		0.0
C10-BZ-SB7-6			**1,597**	*	51.8		29.4	36.2	577	173.8	Jun 23			25.3		0.0
C10-BZ-SB7-7			1,472		52.6		30.1	35.6	524	176.5	Jun 26			26.9		0.0
Average			1,582		52.5		29.6	36.1	570	175.0	Jun 24			27.4		0.0
LSD (p=0.05)			198.6		0.3		0.4	0.5	ns	1.5	-			2.0		-
CV%			8.7		0.4		1.0	1.0	8.5	0.6	-			5.0		-
P-Value (Entry)			0.023		<0.0001		0.005	<0.0001	0.067	0.006	-			0.002		-

Grain yield is reported "as is" at harvest - not adjusted to a uniform moisture content.
** Indicates highest yielding cultivar within a column.
***** Indicates cultivars yielding equal to the highest yielding entry based on Fisher's Protected LSD at the 0.05 probability level.
Grain oil and oil yield are reported on a dry matter basis.
Lodging visually estimated on a score from 0 to 9 (0=none, 9=all plants flat).
ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Seeding Date: April 27, 2011
Harvest Date: August 2, 2011

Table 14. 11CM07: Statewide Camelina Trial - Dryland, Fallow. Fatty Acid Composition.
MSU Central Agricultural Research Center. Moccasin, MT. 2011.

ID	Palmitic Acid (16:0)	Stearic Acid (18:0)	Oleic Acid (18:1)	Linoleic Acid (18:2)	α-Linolenic Acid (18:3)	Arachidic Acid (20:0)	Gondoic Acid (20:1)	Eicosadienoic Acid (22:0)	Erucic Acid (22:1)	Nervonic Acid (24:1)	Saturated	Mono-unsaturated	Poly-unsaturated
	%	%	%	%	%	%	%	%	%	%	%	%	%
Blaine Creek	5.3	2.4	18.9	18.6	31.0	1.9	15.7	0.4	3.3	0.6	9.7	36.8	49.1
Calena	5.2	2.4	20.0	17.0	31.4	2.0	16.4	0.5	3.6	0.6	9.6	38.5	47.6
Ligena	5.4	2.5	19.4	18.5	30.3	1.9	15.8	0.4	3.3	0.6	9.8	37.2	48.7
Suneson	5.1	2.4	19.4	17.2	32.2	1.8	16.4	0.4	3.3	0.6	9.4	37.6	48.5
Clearwater Hy 101	5.0	2.4	20.0	16.5	32.6	2.0	16.8	0.5	3.6	0.6	9.4	38.5	47.6
Yellowstone	5.4	2.3	19.0	18.9	30.7	1.9	16.0	0.5	3.5	0.6	9.6	37.0	49.0
SO-30	5.0	2.4	19.7	16.8	32.4	1.9	16.4	0.4	3.5	0.6	9.4	38.1	48.0
SO-40	5.2	2.5	19.5	17.5	31.3	1.9	15.8	0.4	3.3	0.6	9.7	37.7	48.3
SO-50	4.7	2.3	20.5	15.4	34.2	1.9	17.6	0.5	3.6	0.6	8.9	39.3	47.1
SO-60	5.0	2.3	20.0	16.4	32.7	1.9	16.9	0.5	3.5	0.6	9.3	38.4	47.8
C10-BZ-SB7-6	5.2	2.4	19.3	18.0	31.6	2.0	16.1	0.4	3.4	0.6	9.6	37.6	48.4
C10-BZ-SB7-7	5.0	2.4	19.8	16.7	32.5	1.9	16.7	0.4	3.4	0.6	9.4	38.4	47.8
Average	5.1	2.4	19.6	17.3	31.9	1.9	16.4	0.4	3.4	0.6	9.5	37.9	48.2
LSD (p=0.05)	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
CV%	7.75	4.20	4.55	14.54	7.24	6.31	16.38	5.77	9.47	6.22	5.07	4.31	2.73
P-Value (Entry)	0.539	0.373	0.425	0.718	0.571	0.754	0.716	0.971	0.897	0.661	0.502	0.664	0.599

Fatty acid composition reported on dry matter basis of the whole seed.
ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Table 15. 11CM70: Statewide Camelina Trial - Dryland, Recrop. Fatty Acid Composition.
MSU Central Agricultural Research Center. Moccasin, MT. 2011.

ID	Palmitic Acid (16:0)	Stearic Acid (18:0)	Oleic Acid (18:1)	Linoleic Acid (18:2)	α-Linolenic Acid (18:3)	Arachidic Acid (20:0)	Gondoic Acid (20:1)	Eicosadienoic Acid (22:0)	Erucic Acid (22:1)	Nervonic Acid (24:1)	Saturated	Mono-unsaturated	Poly-unsaturated
	%	%	%	%	%	%	%	%	%	%	%	%	%
Blaine Creek	5.0	2.5	19.9	17.1	32.3	2.0	16.4	0.4	3.1	0.6	9.5	38.1	47.8
Calena	5.1	2.4	19.1	17.7	32.8	2.0	16.4	0.4	3.2	0.6	9.3	37.1	48.9
Ligena	5.1	2.4	18.9	18.6	32.1	2.0	16.2	0.4	3.0	0.6	9.5	36.8	48.8
Suneson	5.2	2.4	19.3	18.3	31.7	2.1	16.1	0.4	3.1	0.6	9.6	37.3	48.6
Clearwater Hy 101	4.9	2.4	20.2	15.9	32.8	2.1	17.0	0.5	3.4	0.6	9.4	39.0	47.1
Yellowstone	4.7	2.3	19.3	16.0	35.5	1.9	16.2	0.4	3.0	0.6	8.8	37.2	48.8
SO-30	5.3	2.4	19.1	19.5	30.8	2.2	16.0	0.4	3.0	0.6	9.8	36.6	49.0
SO-40	5.1	2.3	19.6	18.1	31.9	2.2	16.3	0.4	3.3	0.6	9.5	37.8	48.1
SO-50	5.1	2.4	19.8	17.7	31.9	2.1	16.9	0.5	3.2	0.6	9.5	37.5	48.3
SO-60	5.1	2.4	20.1	17.4	31.8	2.1	16.9	0.5	3.3	0.6	9.5	37.9	47.9
C10-BZ-SB7-6	5.2	2.5	19.5	18.9	31.3	2.0	16.0	0.4	2.9	0.6	9.7	37.4	48.4
C10-BZ-SB7-7	5.1	2.4	18.7	17.3	33.6	2.0	16.2	0.4	3.0	0.6	9.2	36.6	49.4
Average	5.1	2.4	19.5	17.7	32.4	2.1	16.4	0.4	3.1	0.6	9.5	37.4	48.4
LSD (p=0.05)	0.2	0.0	0.4	1.1	1.0	0.1	0.6	0.0	0.2	0.0	0.2	0.7	0.6
CV%	2.30	1.34	1.34	4.28	2.09	3.20	2.42	2.03	3.86	1.98	1.53	1.32	0.82
P-Value (Entry)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.003	<0.0001	<0.0001	0.002	<0.0001	<0.0001	<0.0001

Fatty acid composition reported on dry matter basis of the whole seed.

Table 16. 11CM03: Statewide Industry Camelina Trial - Dryland, Fallow. Fatty Acid Composition.
MSU Eastern Agricultural Research Center. Sidney, MT. 2011.

ID	Palmitic Acid (16:0)	Stearic Acid (18:0)	Oleic Acid (18:1)	Linoleic Acid (18:2)	α-Linolenic Acid (18:3)	Arachidic Acid (20:0)	Gondoic Acid (20:1)	Eicosadienoic Acid (22:0)	Erucic Acid (22:1)	Nervonic Acid (24:1)	Saturated	Mono-unsaturated	Poly-unsaturated
	%	%	%	%	%	%	%	%	%	%	%	%	%
Blaine Creek	5.2	2.5	19.1	18.2	31.2	1.9	14.3	0.4	3.0	0.7	10.0	37.8	48.3
Calena	5.2	2.5	18.0	18.4	32.0	1.7	14.5	0.4	3.0	0.7	9.7	36.0	49.9
Ligena	5.3	2.4	17.3	20.4	31.2	1.8	13.5	0.4	2.7	0.7	9.9	35.3	50.6
Suneson	5.4	2.4	18.1	20.1	30.4	1.9	13.6	0.4	2.7	0.7	10.1	35.8	49.9
Clearwater Hy 101	5.1	2.4	18.4	19.1	31.6	1.9	13.9	0.4	2.9	0.7	9.9	37.0	49.1
Yellowstone	5.2	2.3	17.9	19.7	32.9	1.6	13.1	0.4	2.6	0.7	9.5	35.5	50.5
SO-30	5.6	2.4	17.9	21.6	29.0	1.9	13.5	0.4	2.8	0.7	10.3	35.4	50.2
SO-40	5.3	2.3	18.0	20.9	30.3	2.0	13.6	0.4	3.0	0.7	10.0	36.2	49.7
SO-50	5.4	2.5	18.2	20.4	30.1	1.9	14.0	0.4	2.8	0.7	10.1	35.8	49.9
SO-60	5.4	2.4	18.6	19.5	30.5	1.9	14.2	0.4	3.0	0.7	9.9	36.1	49.7
C10-BZ-SB7-6	5.4	2.4	17.5	21.7	30.9	1.7	13.4	0.4	2.6	0.7	9.9	35.3	50.5
C10-BZ-SB7-7	5.0	2.4	17.2	18.3	33.6	1.7	14.2	0.4	2.8	0.7	9.4	35.5	50.5
Average	5.3	2.4	18.0	19.9	31.1	1.8	13.8	0.4	2.8	0.7	9.9	36.0	49.9
LSD (p=0.05)	0.1	0.1	0.3	0.8	0.6	0.1	0.3	0.0	0.1	0.0	0.1	0.5	0.4
CV%	1.58	2.13	1.21	2.88	1.42	2.84	1.53	2.06	3.51	1.33	1.03	1.04	0.62
P-Value (Entry)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Fatty acid composition reported on dry matter basis of the whole seed.

Table 17. 11CM02: Statewide Industry Camelina Trial - Dryland, Fallow. Fatty Acid Composition.
MSU Northern Agricultural Research Center. Havre, MT. 2011.

ID	Palmitic Acid (16:0)	Stearic Acid (18:0)	Oleic Acid (18:1)	Linoleic Acid (18:2)	α-Linolenic Acid (18:3)	Arachidic Acid (20:0)	Gondoic Acid (20:1)	Eicosadienoic Acid (22:0)	Erucic Acid (22:1)	Nervonic Acid (24:1)	Saturated	Mono-unsaturated	Poly-unsaturated
	%	%	%	%	%	%	%	%	%	%	%	%	%
Blaine Creek	4.4	2.3	21.1	11.5	36.8	1.7	16.7	0.4	3.3	0.6	8.7	39.6	46.5
Calena	4.5	2.3	19.9	12.8	36.8	1.5	16.6	0.4	3.2	0.6	8.6	37.9	48.2
Ligena	4.7	2.2	19.6	14.6	35.8	1.5	15.9	0.4	3.0	0.6	8.8	37.1	48.6
Suneson	4.7	2.3	19.9	13.8	35.7	1.6	15.8	0.4	2.9	0.6	8.9	37.3	48.4
Clearwater Hy 101	4.5	2.2	20.4	12.6	36.3	1.6	16.4	0.4	3.2	0.6	8.7	38.6	47.5
Yellowstone	4.4	2.2	20.1	13.2	37.8	1.4	15.6	0.4	2.7	0.6	8.4	37.2	48.7
SO-30	4.8	2.2	19.7	14.9	34.4	1.7	15.8	0.4	3.0	0.6	9.1	37.0	48.5
SO-40	4.6	2.1	20.5	13.8	35.1	1.7	16.1	0.4	3.4	0.6	9.0	38.6	47.4
SO-50	4.8	2.3	20.5	13.5	34.8	1.7	16.7	0.4	3.2	0.6	9.0	37.8	47.8
SO-60	4.7	2.3	21.1	12.9	34.8	1.6	16.9	0.4	3.2	0.6	9.0	38.5	47.2
C10-BZ-SB7-6	4.8	2.3	20.1	14.7	35.5	1.5	16.0	0.4	3.0	0.6	8.9	37.3	48.4
C10-BZ-SB7-7	4.5	2.3	19.6	12.7	37.2	1.4	16.3	0.4	2.9	0.6	8.6	37.2	48.7
Average	4.6	2.3	20.2	13.4	35.9	1.6	16.2	0.4	3.1	0.6	8.8	37.8	48.0
LSD (p=0.05)	0.3	0.1	0.9	1.8	1.3	0.1	ns	0.0	0.2	ns	0.2	1.5	1.3
CV%	4.07	1.63	3.03	9.58	2.42	3.89	4.22	3.00	5.50	2.89	1.86	2.76	1.86
P-Value (Entry)	0.023	<0.0001	0.011	0.024	<0.0001	<0.0001	0.156	<0.0001	<0.0001	0.072	<0.0001	0.027	0.024

Fatty acid composition reported on dry matter basis of the whole seed.
ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Table 18. 11CM05: Statewide Industry Camelina Trial - High Rainfall, Recrop. Fatty Acid Composition.
MSU Northwestern Agricultural Research Center. Kalispell, MT. 2011.

ID	Palmitic Acid (16:0)	Stearic Acid (18:0)	Oleic Acid (18:1)	Linoleic Acid (18:2)	α-Linolenic Acid (18:3)	Arachidic Acid (20:0)	Gondoic Acid (20:1)	Eicosadienoic Acid (22:0)	Erucic Acid (22:1)	Nervonic Acid (24:1)	Saturated	Mono-unsaturated	Poly-unsaturated
	%	%	%	%	%	%	%	%	%	%	%	%	%
Blaine Creek	4.1	2.3	19.3	12.0	37.6	2.0	17.5	0.4	3.8	0.6	8.5	40.1	46.9
Calena	4.4	2.3	18.1	13.9	36.6	2.0	17.1	0.4	3.7	0.6	8.7	38.1	48.5
Ligena	4.3	2.2	18.6	13.9	36.9	2.0	17.5	0.4	3.7	0.6	8.5	38.8	47.9
Suneson	4.4	2.2	18.9	14.1	36.2	2.0	17.0	0.4	3.6	0.6	8.7	38.9	47.8
Clearwater Hy 101	4.1	2.2	19.5	11.9	37.6	2.0	17.8	0.4	3.9	0.6	8.4	40.4	46.6
Yellowstone	4.1	2.1	19.7	13.1	38.7	1.9	17.1	0.4	3.5	0.6	8.1	39.1	47.7
SO-30	4.4	2.2	18.8	14.2	35.6	2.2	17.6	0.5	3.9	0.6	8.8	38.9	47.7
SO-40	4.3	2.1	18.7	13.9	36.3	2.1	17.2	0.4	3.9	0.6	8.7	39.3	47.6
SO-50	4.6	2.3	18.9	14.7	34.8	2.1	17.4	0.4	3.7	0.6	9.0	38.5	48.0
SO-60	4.2	2.2	19.8	12.5	37.0	2.1	18.6	0.5	4.0	0.6	8.5	40.3	46.6
C10-BZ-SB7-6	4.7	2.4	18.3	16.5	34.6	1.8	15.9	0.4	3.2	0.6	9.1	37.5	48.9
C10-BZ-SB7-7	4.2	2.3	18.2	12.8	38.1	1.9	17.6	0.4	3.6	0.6	8.4	38.4	48.4
Average	4.3	2.2	18.9	13.6	36.7	2.0	17.4	0.4	3.7	0.6	8.6	39.0	47.7
LSD (p=0.05)	0.3	0.1	0.7	1.6	1.4	0.1	1.0	0.0	0.3	0.0	0.3	1.3	1.0
CV%	4.68	2.90	2.51	8.26	2.59	3.51	3.94	3.30	5.44	4.07	2.64	2.33	1.49
P-Value (Entry)	0.001	<0.0001	<0.0001	0.000	<0.0001	<0.0001	0.004	<0.0001	0.000	0.038	<.0001	0.002	0.001

Fatty acid composition reported on dry matter basis of the whole seed.

Table 19. 11CM08: Statewide Industry Camelina Trial - Dryland, Fallow. Fatty Acid Composition.
MSU Southern Agricultural Research Center. Huntley, MT. 2011.

ID	Palmitic Acid (16:0)	Stearic Acid (18:0)	Oleic Acid (18:1)	Linoleic Acid (18:2)	α-Linolenic Acid (18:3)	Arachidic Acid (20:0)	Gondoic Acid (20:1)	Eicosadienoic Acid (22:0)	Erucic Acid (22:1)	Nervonic Acid (24:1)	Saturated	Mono-unsaturated	Poly-unsaturated
	%	%	%	%	%	%	%	%	%	%	%	%	%
Blaine Creek	3.1	2.2	25.4	6.9	42.7	2.5	22.7	0.5	4.0	0.4	7.2	47.1	41.0
Calena	2.9	2.0	25.4	7.1	44.3	2.5	23.2	0.5	3.8	0.4	6.6	46.8	41.5
Ligena	2.7	2.0	25.7	7.3	44.7	2.7	23.2	0.5	3.6	0.4	6.6	47.4	40.9
Suneson	3.4	2.1	24.2	8.3	41.4	2.4	21.6	0.5	4.0	0.4	7.4	45.0	42.6
Clearwater Hy 101	2.6	2.0	26.2	5.9	44.8	2.7	23.6	0.6	4.0	0.4	6.7	48.6	40.0
Yellowstone	3.0	2.0	25.2	7.9	43.9	2.4	21.7	0.5	3.6	0.4	6.8	46.1	42.0
SO-30	2.9	1.9	25.5	8.3	43.0	2.8	23.2	0.6	3.8	0.4	6.9	47.1	41.1
SO-40	2.5	1.9	26.3	7.6	44.9	3.1	24.0	0.6	3.7	0.3	6.6	48.8	40.0
SO-50	3.3	2.2	25.3	8.0	41.4	2.5	22.8	0.5	4.0	0.4	7.3	46.2	41.5
SO-60	3.2	2.0	25.8	8.9	41.9	2.7	22.6	0.5	3.6	0.4	7.1	46.3	41.6
C10-BZ-SB7-6	3.3	2.2	24.1	9.1	41.9	2.3	21.9	0.5	3.8	0.4	7.3	45.1	42.7
C10-BZ-SB7-7	2.6	2.0	26.0	7.3	46.5	2.8	23.6	0.5	3.0	0.4	6.2	47.1	41.4
Average	3.0	2.0	25.4	7.7	43.4	2.6	22.8	0.5	3.7	0.4	6.9	46.8	41.4
PLSD (p=0.05)	ns	0.2	ns	ns	ns	ns	ns	ns	0.5	ns	ns	ns	ns
CV%	24.7	6.1	7.4	27.30	8.4	14.8	9.1	5.8	9.7	18.9	11.4	6	5

Fatty acid composition reported on dry matter basis of the whole seed.
ns Indicates no difference between cultivars within a column based on Fisher's Protected LSD at the 0.05 probability level.

Table 20. 11CM18: Statewide Industry Camelina Trial - Dryland, Fallow. Fatty Acid Composition.
MSU Western Triangle Agricultural Research Center. Conrad, MT. 2011.

ID	Palmitic Acid (16:0)	Stearic Acid (18:0)	Oleic Acid (18:1)	Linoleic Acid (18:2)	α-Linolenic Acid (18:3)	Arachidic Acid (20:0)	Gondoic Acid (20:1)	Eicosadienoic Acid (22:0)	Erucic Acid (22:1)	Nervonic Acid (24:1)	Saturated	Mono-unsaturated	Poly-unsaturated
	%	%	%	%	%	%	%	%	%	%	%	%	%
Blaine Creek	4.8	2.5	17.9	16.3	34.3	1.5	13.6	0.3	2.4	0.7	9.3	36.0	49.8
Calena	4.8	2.5	16.7	16.3	34.5	1.5	14.1	0.3	2.5	0.7	9.1	34.7	51.1
Ligena	4.9	2.5	16.1	19.2	33.5	1.5	13.1	0.3	2.1	0.7	9.2	33.7	51.8
Suneson	5.0	2.5	16.8	18.3	33.8	1.5	13.1	0.3	2.1	0.7	9.3	34.2	51.4
Clearwater Hy 101	4.8	2.5	17.7	16.8	33.8	1.5	13.7	0.3	2.4	0.7	9.3	35.9	49.9
Yellowstone	4.8	2.5	17.3	18.7	34.5	1.3	12.5	0.3	1.8	0.7	9.0	34.1	51.5
SO-30	5.0	2.4	16.1	19.4	33.0	1.6	13.1	0.3	2.1	0.7	9.4	33.5	51.9
SO-40	4.9	2.3	17.4	18.6	32.8	1.7	13.4	0.3	2.5	0.7	9.4	35.4	50.3
SO-50	5.1	2.6	17.0	18.3	32.3	1.5	13.7	0.3	2.3	0.7	9.5	34.3	51.1
SO-60	5.0	2.5	17.8	17.3	32.7	1.6	14.2	0.3	2.5	0.7	9.5	35.4	50.2
C10-BZ-SB7-6	5.1	2.6	17.1	20.0	32.2	1.4	13.1	0.3	2.1	0.7	9.6	34.4	51.1
C10-BZ-SB7-7	4.8	2.6	16.7	17.6	34.5	1.4	13.6	0.3	2.1	0.7	9.1	34.4	51.3
Average	4.9	2.5	17.1	18.1	33.5	1.5	13.4	0.3	2.3	0.7	9.3	34.7	50.9
LSD (p=0.05)	0.1	0.1	0.4	0.8	0.5	0.1	0.3	0.0	0.1	0.0	0.2	0.6	0.5
CV%	1.36	1.54	1.54	3.10	0.98	2.89	1.74	3.14	3.78	1.96	1.16	1.11	0.67
P-Value (Entry)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.009	<0.0001	<0.0001	<0.0001

Fatty acid composition reported on dry matter basis of the whole seed.

Table 21. 11CM20: Statewide Industry Camelina Trial - Dryland, Fallow. Fatty Acid Composition.
NDSU Williston Research Extension Center. Williston, ND. 2011.

ID	Palmitic Acid (16:0)	Stearic Acid (18:0)	Oleic Acid (18:1)	Linoleic Acid (18:2)	α-Linolenic Acid (18:3)	Arachidic Acid (20:0)	Gondoic Acid (20:1)	Eicosadienoic Acid (22:0)	Erucic Acid (22:1)	Nervonic Acid (24:1)	Saturated	Mono-unsaturated	Poly-unsaturated
	%	%	%	%	%	%	%	%	%	%	%	%	%
Blaine Creek	5.2	2.6	19.1	18.5	31.2	1.7	13.6	0.4	2.6	0.7	10.0	36.7	49.0
Calena	5.3	2.5	17.2	19.1	32.2	1.6	13.6	0.3	2.7	0.7	9.8	34.6	51.1
Ligena	5.5	2.5	17.2	22.0	30.1	1.6	12.6	0.3	2.2	0.7	10.1	34.0	51.3
Suneson	5.4	2.6	17.8	20.6	30.6	1.7	13.0	0.4	2.4	0.7	10.1	34.9	50.5
Clearwater Hy 101	5.4	2.5	18.3	20.2	30.3	1.7	13.2	0.4	2.5	0.7	10.2	35.7	49.8
Yellowstone	5.4	2.5	18.5	20.5	31.2	1.5	12.7	0.3	2.1	0.7	10.0	34.9	50.5
SO-30	5.7	2.5	17.6	22.5	28.8	1.7	12.7	0.4	2.3	0.7	10.4	34.1	51.1
SO-40	5.5	2.4	17.5	21.9	29.5	1.8	12.8	0.4	2.6	0.7	10.2	34.8	50.7
SO-50	5.7	2.6	18.2	21.1	28.8	1.8	13.5	0.4	2.5	0.7	10.4	34.8	50.5
SO-60	5.6	2.6	18.3	20.7	29.4	1.7	13.4	0.4	2.6	0.7	10.3	35.0	50.3
C10-BZ-SB7-6	5.5	2.6	17.3	21.5	30.7	1.5	13.0	0.3	2.3	0.7	10.0	34.3	51.2
C10-BZ-SB7-7	5.5	2.6	17.2	20.3	31.4	1.6	13.2	0.3	2.4	0.7	9.9	34.1	51.4
Average	5.5	2.5	17.9	20.7	30.3	1.7	13.1	0.4	2.4	0.7	10.1	34.8	50.6
LSD (p=0.05)	0.1	0.1	0.6	0.7	0.9	0.1	0.2	0.0	0.1	0.0	0.2	0.6	0.7
CV%	1.05	1.76	2.37	2.49	2.05	2.83	1.11	2.18	4.13	1.03	1.56	1.25	0.90
P-Value (Entry)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Fatty acid composition reported on dry matter basis of the whole seed.