

Camelina: a Potential New Oilseed for Idaho - Agronomic Studies and Cultivar Evaluation.

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ACCOMPLISHMENTS: Camelina, an old Brassica oilseed crop from Europe, might find new opportunities for production in Idaho just as production grows in Montana. Our 2007 agronomic trials to evaluate camelina were grown at Moscow, ID, Greencreek, ID, and Dusty, WA. All trials were seeded and harvested and results were analyzed. Oil amount and profiles are pending. In an additional observation trial, camelina was broadcast seeded at Lewiston, ID, and returned 1760 lb/a of seed yield. Three cultivar evaluations were conducted at the three sites described above. Entries were selections from Montana and older European varieties. Three of the Montana cultivars are now named varieties with seed available soon. For the third year, yields at Moscow have been over 2000 lb/a with the best varieties this year at almost 2200 lb/a (Table 1). The Greencreek site was less productive, however fertilizer rates, at 40 lb/a applied N, were probably too low as shown in the fertilizer trial. The Dusty site is in a low rainfall area and was seeded March 6 and averaged almost 1500 lb/a as expected in a 14" PPT area. Test weights were over 50 lb/a and plant heights ranged from 24 to 36 inches average height at Greencreek and Moscow, respectively. Seed test-weights were typical for camelina, but were highest at Greencreek, indicating the best grain filling. No insect problems were noted in any trials.

Table 1. Camelina Cultivar evaluation: 3-location summary 2007

Cultivar	Yield				3-site average		
	Mosco w	Greencreek	Dusty	3-site avg.	test wt. lb/bu	plant ht. inches	500 seed wt g
	lb/acre						
Blain Creek (MT-1)	2010	970	1435	1470	50.6	29	0.63
MT-3	2175	1290	1460	1640	51.5	29	0.55
Suneson (MT-5)	2170	1115	1500	1595	51.5	29	0.56
MT-12	2075	1090	1225	1465	50.8	29	0.49
MT-15	2090	1125	1560	1590	50.1	30	0.60
MT-32	2050	1150	1440	1545	50.7	28	0.46
MT-38	2075	1130	1480	1560	51.4	27	0.48
Calena	2085	1105	1780	1655	50.9	28	0.57
Ligena	2045	1175	1540	1585	49.7	29	0.69
Average	2085	1130	1490	1570	50.8	29	0.56
LSD 0.05	125	175	480	150	0.7	2	0.05
C.V. (%)	4	11	22				

Fertilizer was applied at the time of seeding as a broadcast application of urea to evaluate camelina response to N fertilizer rates. At Moscow, there were no significant responses to N fertilization for yield, test weight or plant height (Table 2). At Greencreek, yield increased and test weight decreased as N rate increased. Information from Montana shows that there is little N fertilizer response above 50 lb/a, and there is no explanation for the high fertilizer response, especially with the low yield at Greencreek. There was nearly 100 lb/a of soil available N at the Moscow site and that contributed to the lack of response at that location. Further work is needed to adequately define N fertilizer response by camelina.

Table 2. N Fertilizer on Camelina Studies, 2007

N Fert. lb/a	----- Moscow, Idaho -----			----- Greencreek, Idaho -----		
	yield lb/a	test wt. lb/bu	plant ht. inches	yield lb/a	test wt. lb/bu	plant ht. Inches
0	2020	50.0	33	760	51.7	22
20	2015	50.0	34	920	51.4	23
40	2080	50.1	34	940	51.0	23
60	2150	50.3	34	1090	51.1	23
80	2150	50.2	33	1210	51.1	23
100	2025	50.1	33	1350	51.1	24
Average	2070	50.1	33	1045	51.2	23
LSD 0.05	n.s.	n.s.	n.s.	200	0.5	n.s.
C.V. (%)	6	1.0	4	13	0.6	7

Camelina seeding methods and timing were evaluated at Moscow in two experiments. When three seeding dates were compared with drilled and broadcast seeding, the earliest date had the highest yields and test weights, followed by the second date. Yields dropped 25% in the drilled treatment on the third date, one month after the first date on March 19 (Study 1). Drill and broadcast seeding was not different except at the third date when broadcast seeding had poor stand establishment due to drier soil conditions. When camelina was seeded by drilling, broadcast, dribbling on the surface in a drill row, and packing after dribbling, there were no significant differences in yield, test weight or plant height at the first date (that was date two in the seeding date experiment)(Study 1). However, at the last planting date, April 19, drilling was superior for camelina performance, followed by dribbling and packing (to help incorporate the seed and facilitate germination), then broadcast and dribbled (without packing). When seeding camelina, even at Moscow with a high precipitation level, it is important to seed early and rely on camelina's frost tolerance. Early seeding and frost tolerance gives camelina an advantage over canola. The variety trial at Dusty survived 22°F with no ill effects, and reports from Montana showed tolerance to 16°F. The seeding method is not as important early when soil moisture on the surface is adequate, but when seeding is delayed to dates similar to other spring crops we seed, shallow incorporation of camelina seed in the soil is helpful.

Table 3. Seeding Studies, Moscow, Idaho, 2007

Study 1					Study 2				
----- Seeding ----- Date	Method	yield	test weight	plant height inches	----- Seeding ----- Date	Method	yield	test weight	plant height inches
		lb/a	lb/bu	s			lb/a	lb/bu	s
3/19	Drill	2175	51.7	35	4/5	Drilled	2235	48.9	35
3/19	Broadcast	2130	51.6	33	4/5	Dribbled	2065	49.5	34
4/5	Drill	2070	50.8	37	4/5	Drib.+pac k	2320	49.1	35
4/5	Broadcast	1990	50.9	36	4/5	Broadcast	2255	49.6	34
4/19	Drill	1655	50.8	34	4/19	Drilled	2070	48.4	35
4/19	Broadcast	1235	51.0	32	4/19	Dribbled	1185	50.2	29
Average		1875	51.1	34	4/19	Drib.+pac k	1730	49.5	34
LSD 5%		260	0.5	2	4/19	Broadcast	1285	49.8	29
C.V.		10.8	0.6	6.4	Average		1895	49.4	33
					LSD 5%		270	n.s.	3
					C.V.		9.6	2.0	5.9

IMPACTS/PROJECTIONS: Because this is new information about a new crop, there is little impact from the work yet, but these results were conveyed to growers at regional oilseed/energy meetings in Washington, Utah, and Oregon and at meetings in Idaho. These results will give growers important camelina management information that could help establish this new crop for the region. During 2007, camelina was discussed as a topic and information was presented at seven extension education events.

PUBLICATIONS:

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