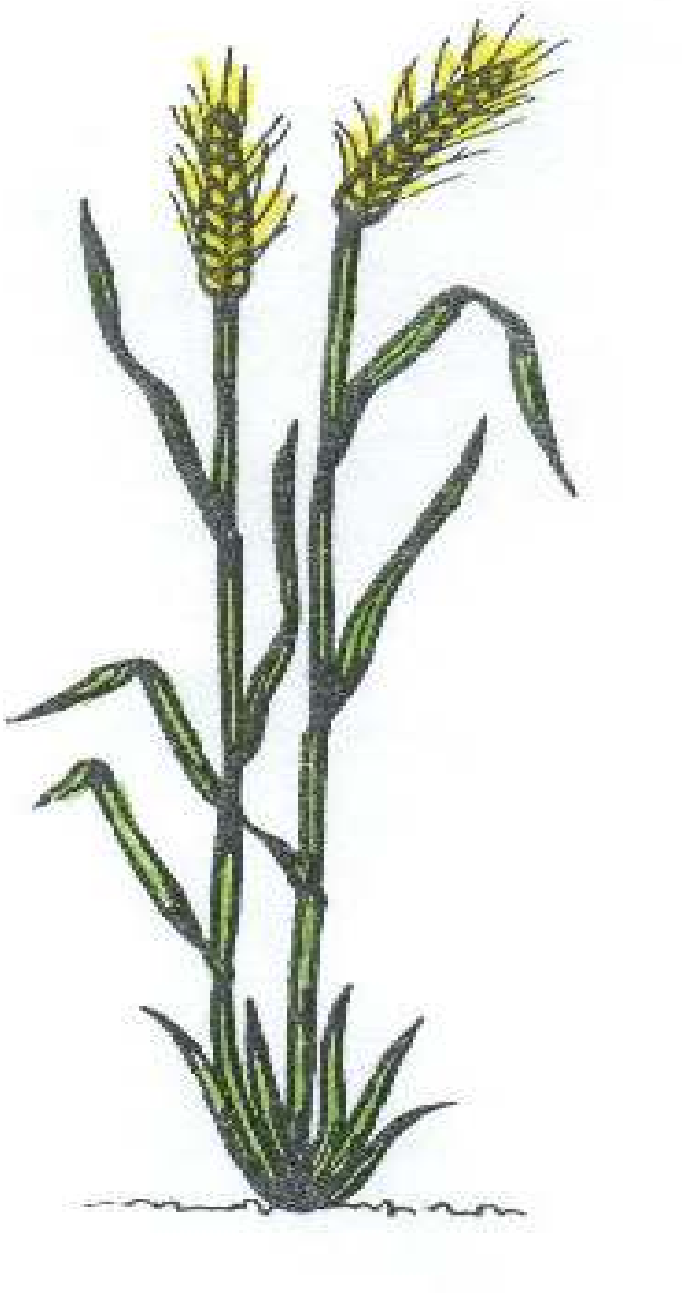
2005 Small Grain Research Report

Colorado State University Cooperative Extension

Putting Knowledge to Work

San Luis Valley Area



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Small Grain Variety Performance Trials
San Luis Valley Research Center
Center, Colorado, 2005

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Summary

Each year small grain variety performance tests are conducted at the San Luis Valley Research Center to identify varieties of wheat, barley, oats and canola that are productive and adapted for commercial production in the San Luis Valley. Our irrigation wells at the Research Center produced adequate water this year; irrigation was not a problem and yields of wheat, barley, and oats were very high this year.

The 2005 season can be characterized near normal; not so warm and dry as '02, 03 or '04. Heading dates were not as early as recent years, about normal. Grain yields in the soft white spring (SWS) wheat trial were about as good they have ever been, averaging 164.3 bu/acre. Grain yields in the hard red spring (HRS) and durum wheat trial were about 10 bu/acre more than last year, averaging 138.5 bu/acre. Grain yields in the barley trial were good, but lower than last year; averaging 144.7 bu/acre. The oat variety performance trial produced fairly good yields, averaging 153.5 bu/acre.

Introduction and Objectives

Small grain trials include wheat, barley and oats have been produced in the San Luis Valley for many years. Oat acreage has greatly declined from historically highs; however, oats are grown on 27,000 acres in 2004, mostly harvested for hay or for alfalfa cover crop seedings. Wheat and barley are still very important Valley crops, although acreage varies depending on the wheat price and maybe irrigation reductions because of the drought. Wheat acreage has generally ranged from 23,000 to 34,000; the acreage depending on price. Drought has reduced wheat acreage to only 10,500 harvested acres in 2004. Malt barley acreage is dominated by Coors contracts with a small acreage of other malt barley or feed barley varieties. Wheat types also vary with demand and grower preferences. Durum acreage is increased this year because of the contract price. SWS acreage varies with price; the dominant market being in Denver. HRS acreage also varies and the winter wheat acreage is very small. The objective of this research was to evaluate variety and experimental lines performance under high-yield center pivot conditions in the San Luis Valley.

Materials and Methods

These field research studies were conducted at the San Luis Valley Research Center or on the neighboring farms. All wheat, barley, and oat trials were located at the Research Center whereas the canola trial was on Worley Seed about 6 miles away. The trials were conducted as a randomized complete block design with four replications. This means all varieties were planted on the same day, irrigated and otherwise treated the same all season and all plots were also harvested the same. Plots are planted to 35 foot lengths and trimmed at harvest to about 30 foot. Nine rows are planted in 8-inch rows which make a plot 6 feet wide. Unless the plots are severely lodged, only the middle 7 rows (4.7 feet) are harvested with the Hege combine.

Entry fees are solicited for privately owned varieties. Wheat yields are corrected to 12% moisture and 60 lbs/bushel. For barley, yields are corrected to 48 lbs/bushel and oats are corrected to 38 lbs/bushel. Canola is reported as pounds per acre at 10% moisture. Wheat protein and hardness are determined by the wheat breeding program at Colorado State University. Malt barley protein and screenings are tested at the Coors Brewing Co. office in Monte Vista.

Table 1. Soft white spring wheat variety performance trial at Center [1] in 2005.
Merlin A. Dillon, Area Extension Agronomist.

Variety	Grain Yield [2]	Bushel Weight	Heading Date [3]	Grain Moisture	Plant Height	Grain Protein
	bu/ac	lbs/bu	(June)	%	in.	%
IDO599	172.3 a	62.1	23.8	12.2	38.1	10.3
Alturas	171.3 a	62.6	28.0	11.7	36.9	9.5
IDO563	169.3 ab	61.9	23.3	12.5	37.2	9.7
IDO630	155.9 bc	61.1	29.3	11.4	36.0	10.1
Centennial	152.6 c	63.7	24.8	11.4	33.3	10.4
Trial Average	**164.3**	**62.3**	**25.8**	**11.8**	**36.3**	**10.0**
LSD, .10	**9.2**	**0.50**	**1.35**	**1.10**	**1.49**	**NS**
CV, %	**4.45**	**0.63**	**4.2**	**2.2**	**3.3**	**4.0**

[1] **San Luis Valley Research Center, Center, CO. Grain yield based on 60 lbs/bushel and 12 % moisture.**
[2] **Tukey's Test: yields followed by the same letters are not statistically different.**
[3] **Days after June 1.**

Site Information:
Date Planted: April 13
Irrigation: center pivot
Herbicide: Express + MCP
Nitrogen: 75 lb/ac + 30 lb/ac fertigation
Date Harvested: September 7
Seed Rate: 120 lbs/acre
Row Spacing: 8-inch
Plot Size: 6 ft. x 35'; 9 rows planted 8 inches apart

Comments:

Vegetative growth this year was excellent without the usual plant lodging. Weather in July was mostly dry producing little leaf disease compared to some wetter years. Relatively dry weather allowed good grain fill and high bushel weights and produced exceptionally high grain yields.

The trial averaged 164 bushels per acre and ranged from 153 to 172 bu/acre. The high yield group included IDO599, Alturas and IDO563. All varieties yielded more than Centennial this year. Some experimentals have a chance to be named and replace Centennial. Centennial has been the dominant soft white variety grown here for 15 years.

With more vigorous vegetative growth; however, some of these lines may show weaker straw and lodge more than Centennial. Lodging would reduce the harvested yield since these trials are harvested standing. Centennial is still the recommended soft white variety.

Protein content averaged 10.0%. With the excellent yields, high protein was not a problem this year.

Comments on Table 2 (2-Year Average):

There was no lodging in this trial in either 2004 or 2005 (Table 2 below). Conditions were good for grain yield both years, but yields were better in 2005. Leaf diseases from wet weather were minimal both years providing excellent bushel weight.

Some varieties have outperformed Centennial the last two years. IDO599 and Alturas, were included in the high yield group both years. IDO599 experimental has the best 2-year average yield. Alturas and IDO563 also have slightly higher yield than does Centennial. Alturas and IDO599 produced significantly better yield than Centennial in 2004. All three varieties produced significantly more yield than Centennial in 2005.

All three new varieties are taller and probably will lodge more than Centennial when lodging is a problem.

Other data shows that Centennial had slightly better bushel weight. IDO563 had the earliest maturity

followed by IDO599. Grain moisture was not much different. Alturas produced the lowest protein which might be an advantage.

Table 2. Two Year Averages (2004-05), Soft white spring wheat variety performance trial at Center [1].

Variety	Grain Yield bushels per acre			Bushel Weight	Heading Date [3]	Grain Moisture	Plant Height	Grain Protein
	2005	2004	2- Yr	lbs/bu	(June)	%	in.	%
IDO599	172.3	142.4	157.4	61.6	25.8	11.7	36.6	9.8
Alturas	171.3	136.8	154.1	62.0	30.5	11.6	34.5	9.0
IDO563	169.3	129.8	149.6	61.8	22.9	12.1	35.7	9.5
Centennial	152.6	135.4	144.0	63.0	26.1	11.3	33.1	9.7
Trial Average	**164.3**	**136.3**	**150.3**	**61.8**	**27.2**	**11.9**	**35.0**	**9.5**

[1] San Luis Valley Research Center, Center, CO. Grain yield based on 60 lbs/bushel and 12 % moisture.
[3] Days after June 1.

Comments on 4-Year Average (Table 3):

Alturas has slightly higher yield than Centennial for this four year average. ID563 has outyielded Centennial significantly some years but the 4-yr. average is nearly equal. Centennial and ID563 have better than average bushel weight, earlier heading and shorter height. Alturas is average height and average lodging. Centennial has less than average lodging.

Table 3. Four Year Averages (2001-05), Soft white spring wheat variety performance trial at Center [1].

Variety	Grain Yield	Bushel Weight	Heading Date [3]	Plant Height	Grain Protein[4]
	bu/ac	lbs/bu	(June)	in.	%
Alturas	144.1	60.1	31.1	38.8	10.2
Centennial	140.9	61.5	27.5	36.6	10.5
ID 563	140.8	61.3	23.5	37.7	10.3
Trial Average	**141.0**	**60.2**	**29.3**	**38.7**	**10.4**

[1] San Luis Valley Research Center, Center, CO. Grain yield based on 60 lbs/bushel and 12 % moisture.
[3] Days after June 1.
[4] 3-year average for grain protein, 2001,2004,2005.

Table 4. Hard spring wheat variety performance trial at Center [1] in 2005.
Merlin A. Dillon, Area Extension Agronomist, SLV Research Center.

Variety	Wheat Type[2]	Grain Yield [3]	Bushel Weight	Heading Date [4]	Grain Moisture	Plant Height	Grain Protein
		bu/ac	lbs/bu	(June)	%	in.	%
Plata	HWS	156.4 a	63.3	32.3	11.0	30.9	10.1
Lolo	HWS	155.5 a	60.2	32.5	16.0	36.0	10.6
IDO593	HRS	153.7 ab	61.1	28.3	13.1	32.4	11.1
ID 377s	HWS	150.2 abc	62.0	31.0	14.3	35.1	10.8
Jerome	HRS	146.0 abc	60.9	28.3	14.1	35.1	11.5
Blanca Grande	HWS	144.1 bcd	64.2	27.3	10.7	30.0	11.4
Lochsa	HWS	142.9 bcd	60.8	31.5	12.4	35.1	10.9
Pristine	HWS	142.1 cd	63.1	26.8	12.8	34.2	12.0
Oslo	HRS	140.4 cde	61.0	29.0	12.1	34.2	10.7
Centennial	SWS	134.8 def	62.1	30.3	13.7	32.7	10.2
Matt	Durum	133.8 def	60.5	27.8	12.6	32.7	11.3
Snowcrest	HWS	133.0 def	62.4	27.3	10.3	27.6	10.7
Cavalier	HRS	130.7 ef	61.9	27.5	10.4	27.9	12.0
98S0113-20	HRS	123.6 fg	63.1	29.8	11.4	33.0	13.0
Yecora Rojo	HRS	117.1 gh	62.7	25.5	10.7	24.3	12.0
WB881	Durum	111.1 h	59.8	29.5	14.8	29.7	11.7
Trial Average		**138.5**	**61.8**	**29.0**	**12.5**	**31.9**	**11.2**
LSD, .10		**10.7**	**0.83**	**0.90**	**1.02**	**1.79**	**0.93**
CV %		**6.5**	**1.1**	**2.6**	**6.9**	**4.7**	**7.0**

[1] **San Luis Valley Research Center, Center, CO. Grain yield based on 60 lbs/bushel and 12 % moisture.**
[2] **Wheat Types: SWS is soft white spring; HWS is hard white spring; HRS is hard red spring wheat.**
[3] **Tukey's Test: yields followed by the same letters are not statistically different.**
[4] **Days after June 1.**

Site Information:

Previous Crop: potatoes
Date Planted: April 21
Irrigation: center pivot
Herbicide: MCP + Express
Nitrogen: 100 lbs/ac preplant + 30 lbs/acre fertigation
Date Harvested: September 6
Seed Rate: 120 lbs/acre except durum at 150 lbs/acre
Row Spacing: 8-inch
Plot Size: 6 ft. x 35'; 9 rows planted 8 inches apart

Comments:

Vegetative growth was slow; this trial did not look good in the early season but came on strong later in the season and produced great yields. Variability was fairly low meaning the trial is repeatable..

The top yield group this year included five hard red spring or hard white spring varieties: Plata a HWS from Resource Seeds, Lolo an Idaho HWS, IDO593 an experimental HRS, ID377s (dual purpose) HWS from Idaho, and a new HRS release from Idaho named Jerome.

Six of the top eight varieties were hard white spring wheats. This kind of yield potential in hard white wheats provides an opportunity for SLV growers to produce this new wheat class. Growers should always make sure they have a market before planting hard white spring and make sure the product is segregated from all other wheat classes.

Grain protein content was very low; protein should be 13%. The protein could have been higher if any nitrogen had been applied after heading. It was not. A combination of good yields with limited nitrogen and a total lack of late applied nitrogen did not allow for high protein content. All varieties were treated the same; however, and comparisons should be valid.

Table 5. Three and 5-Year Averages, hard spring wheat variety performance trial at Center[1] , 2001 – 2005.

Variety	*Wheat Type*	*Grain Yield[2]*		*Bushel Weight*	*Heading Date[3]*	*Plant Height*	*Grain Protein*
		bu/ac		lbs/bu	(June)	inches	%
		3 yr	5 yr	3 yr	3 yr	3 yr	3 yr
Lolo	HWS	142.4	135.5	61.8	30.1	36.9	11.3
ID377s	HWS	140.9	130.4	61.5	28.7	37.1	11.6
Centennial	SWS	140.2	138.3	62.1	27.8	34.6	10.8
IDO593	HRS	140.1	---	60.9	26.4	34.4	11.8
Jerome	HRS	137.7	---	61.7	26.1	36.1	12.1
Oslo	HRS	135.9	127.4	61.3	25.8	36.0	11.7
WB881	DURUM	116.1	113.6	61.2	26.1	32.9	12.5
Yecora Rojo	HRS	114.6	110.8	61.5	23.3	26.2	12.6
Average		131.0	122.9	61.6	26.9	34.0	12.0

[1]/ San Luis Valley Research Center, Center, CO. Grain yield based on 60 lbs/bushel and 12% moisture.

[2]/ Yield based on 12% moisture and 60 lbs/bushel.

[3]/ Days after June 1; measuring maturity.

Comments:

Lolo, a hard white spring wheat, has yielded every bit as well as any hard red spring wheats. Lolo is tall, but shows better straw strength compared to ID377s, a dual purpose hard white.

Jerome, a new HRS release from Idaho, has yielded as well as Oslo. Jerome is just about the same maturity and height as Oslo and may have slightly better protein content.

Table 6. 2005 Irrigated spring barley variety performance trial at Center[1].

Merlin A. Dillon, Area Extension Agent, Agronomy, SLV Research Center, Center, CO.

Variety	Source	Grain Yield [2]	Bushel Weight	Heading Date[5/]	Grain Moisture	Plant Height	Plant Lodging	Grain Protein	Grain Color	Grain[4] Screen
		bu/ac	lbs/bu	(June)	%	inches%	%	%		%
Ab 13449	ARS	172.7	50.8	15.0	13.9	39.3	0.0	9.1	68	1.6
CO-O36-25	Coors	167.2	51.7	29.0	15.0	31.5	0.0	9.9	64	1.4
Eslick	Montana	166.7	52.6	20.8	13.9	30.9	10.0	10.4	70	0.5
Comarque	Colo Seed	162.6	53.4	24.5	14.7	27.0	0.0	10.0	62	0.7
Baronesse	ARS	162.2	52.9	22.3	14.3	31.5	2.5	10.2	62	0.5
01ST-1758	ARS	161.7	52.8	21.3	13.9	31.2	1.3	10.0	62	0.6
D02-08-3322	Coors	159.8	51.9	29.3	14.4	27.3	0.0	9.6	62	0.5
Alexis	RG C	157.8	53.9	26.8	14.6	29.4	0.0	10.4	61	0.7
C 69	Coors	157.3	51.7	25.5	15.3	26.4	0.0	9.4	63	0.6
Mt 960101	Montana	156.3	52.2	22.5	14.4	33.9	5.0	10.0	66	0.9
Lacey	Cargill	150.2	51.6	17.5	14.1	38.7	2.5	10.3	70	1.1
C 14	Coors	149.7	52.9	17.8	15.4	27.0	0.0	10.8	71	0.7
Triumph	Colo Seed	148.4	52.7	25.5	14.6	28.2	0.0	9.8	70	0.9
Copeland	Cargill	148.0	52.6	25.3	14.5	37.2	0.0	10.6	81	0.2
C 37	Coors	146.6	52.6	23.3	14.8	27.3	0.0	10.2	58	0.4
Burton	ARS	143.6	51.7	24.5	15.0	33.0	0.0	10.1	73	0.7
01ST-1587	ARS	140.9	52.8	20.3	14.4	32.7	0.0	9.9	66	0.5
Metcalfe	Cargill	140.7	53.4	22.5	14.5	34.8	3.8	10.8	81	0.4
Creel	ARS	140.5	52.0	23.3	15.0	32.4	0.0	10.4	73	0.6
Haxby	Montana	139.9	52.1	20.5	14.1	35.1	1.3	10.3	68	0.6
Metcalfe	MV CO-	139.3	52.5	21.8	14.6	33.3	0.0	10.8	81	0.4
Harrington	Canada	138.1	53.3	23.0	14.1	33.6	15.0	10.6	78	0.6
Mt 910189	Montana	137.9	53.5	19.3	14.8	32.4	18.8	11.1	74	0.4
Ab 11993	ARS	137.5	50.8	11.5	14.5	37.2	0.0	10.2	62	1.3
Drummond	Cargill	134.0	49.9	19.0	13.9	40.2	0.0	10.8	73	1.0
Mt 970116	Montana	131.2	53.2	18.8	15.2	35.1	2.5	10.9	75	0.5
Robust	Cargill	127.6	53.1	18.0	15.0	41.4	3.8	11.3	74	1.6
Conlon	Cargill	112.2	51.9	14.0	14.6	36.9	0.0	12.0	78	0.2
Trial Average		144.9	52.0	20.7	14.6	33.2	2.8	10.6	68.0	0.67
LSD, .10[3]		10.9	.91	1.2	.92	2.1	9.5	.53	5.1	.38
CV, %		6.4	1.5	5.0	5.3	5.5	301	4.3	6.5	47.5

[1] Trial conducted at the San Luis Valley Research Center, 0249 E Road 9 North, Center, CO.
[2] Yield based on 48 lbs/bu and 12% moisture.
[3] Means must differ more than LSD or variety yields are not different.
[4] Grain screenings: percent that falls through 6/64 inch screen.
[5] Days after June 1.

Site Information:

Soil Type: Norte gravelly sandy loam
Previous Crop: potatoes
Planted: April 6
Fertilizer: Nitrogen; 70 #/ac dry preplant + 30 #/ac fertigation
Irrigation: center pivot irrigation = ET.
Herbicide: Bronate at 1.6 pt/acre mostly missed plot area
Harvest: August 22,23,24

Comments:

** Cargill Malt entered 18 other varieties in this trial; however, the results are proprietary.

** Grain yields were very good, ranging from 105.5 - 172.7 bu/acre. Statistical precision was great as indicated by the

CV = 6.4%. LSD at 10% was only 10.9 bu/acre.

** Plots were weedy as the chemigation started after passing the barley plot area.

** Color readings may be skewed by maturity; early maturing varieties stayed in the field after maturity. Data may be of some interest to you. Color ranged from 40 - 81.

** Bushel weight differences are noticeable between 2-row and 6-row barleys. Range = 47.8 - 53.5 lbs/bushel.

** Heading dates vary from June 10 - June 29.

** Grain moisture could be skewed by harvesting three days before all was finished; small rain squalls ran us out of the field Monday, Tuesday and also Wednesday.

** Plant height varies from 26 - 41 inches.

** Lodging was low considering the height of some entries; higher nitrogen rates would have increased plant lodging and impacted yield of some taller entries.

**Protein was low ranging from 9.1 - 13.2%. Higher protein was associated with lower yielding entries.

** Screening % was very low; definitely reduced by running samples over grain cleaner with too much air.

Malt Barley Variety Comments:

Five varieties made up the top yield group this year; these include:

Ab13449 experimental feed barley from USDA-ARS, Aberdeen, Idaho;
CO-036-25 experimental malt barley from Coors Brewing;
Eslick two row barley from Montana State University;
Comarque two row feed barley;
Baronesse two row feed barley from Idaho.

Other varieties with very good grain yields included Alexis and Coors C69 malt barleys, Mt 960101 experimental, Lacey from North Dakota, and C14 from Coors.

Table 7. Three-year irrigated spring barley variety performance trial at Center[1], 2005.

Merlin A. Dillon, Area Extension Agronomist, SLV Research Center, Center, CO.

Variety	Grain Yield [2] 3 yr	Grain Yield [2] 5 yr	Grain Yield [2] 8 yr	Bushel Weight	Heading Date	Plant Height	Plant Lodging	Grain Protein	Grain [3] Screen
	bu/acre			lbs/bu	(June)	inches	%	%	%
Ab 13449	180.2	163.1	--	48.7	17.2	41.8	10.3	9.3	4.3
Baronesse	169.7	--	--	52.2	25.5	36.8	6.8	9.7	1.4
Moravian 14	165.9	159.4	146.3	52.3	19.6	30.0	1.0	10.6	2.0
Ab 11993	164.4	--	--	50.1	18.8	39.4	0.0	10.0	2.8
Ab 12362	163.2	--	--	49.5	19.2	42.3	9.7	9.7	2.9
Creel	160.7	164.8	159.8	50.6	24.8	39.2	1.0	9.9	4.7
Garnet	152.8	144.1	137.6	51.9	24.2	39.6	21.8	10.6	1.5
Burton	148.8	--	--	51.6	28.4	38.2	11.0	10.1	1.1
Trial Mean	161.7	153.4	145.6	50.8	24.6	36.2	5.9	10.2	2.3

[1] Trial conducted at the San Luis Valley Research Center, 0249 E Road 9 North, Center, CO.

[2] Yield based on 48 lbs/bu and 12% moisture.

[3] Grain screenings: percent that falls through 6/64 inch screen.

Comments: ARS Aberdeen experimental, Ab 11993, produced the highest 3-year average followed by several others with 160+ bu/acre. Baronesse is one variety with almost 170 bu/acre average. Ab 11993, Creel and Moravian 14 have 5-year average yields near 160 bu/acre. Moravian 14 and Baronesse are leaders for bushel weight. Ab 13449, Ab 11993, Ab 12362, and Moravian 14 are among the earliest maturing. Moravian 14 was the shortest variety. Moravian 14, Ab 11993 and Creel were the most resistant to lodging.

Table 8. Oat variety performance trial at Center[1] in 2005.

Merlin A. Dillon, Area Extension Agent, Agronomy, SLV Research Center.

Variety	*Grain Yield*[2]	*Bushel Weight*	*Heading Date*[4]	*Plant Height*	*Forage Yield*
	bu/ac[3]	lbs/bu	(June)	inches	T/acre
Powell	182.6 a	38.6	29.3	41.4	4.6
Maverick	177.1 a	40.4	29.0	41.4	4.3
Monida	170.0 a	38.9	28.3	47.7	4.7
Lamont (HL)	152.9 ab	46.4	31.8	47.7	--
Monico	135.8 b	41.0	25.0	43.2	4.6
Rio Grande	130.0 b	38.2	22.8	39.6	4.5
Provena (HL)	126.4 b	48.0	31.0	41.7	--
Test Average	153.5	41.6	28.1	43.2	4.5
LSD $_{10\%}$	18.1	1.3	1.1	3.4	NS
C.V. %	9.6	2.5	3.2	6.4	8.0

[1] **Trial conducted at SLV Research Center, 0249 E Road 9North, Center, CO**
[2] **Tukey's Test; yields followed by the same letter are not statistically different.**
[3] **Yield based on 38 lbs/bu and 12% moisture.**
[4] **Date 50% of the plants headed; days after June 1.**
(HL) indicates hulless oat varieties

Site Information:

Date Planted: April 7 **Date Harvested: August 30**
Irrigation: center pivot **Seed Rate: 80 lbs/ac**
Herbicide: Bronate @ 1.6 pt/ac* **Nitrogen: 50 lbs/acre preplant + 30 lb/ac sprinkler**
* Plots were missed by this center pivot application; hence, a late boot application of ExpressXP + MCP.was applied.

Comments:

A fairly low nitrogen application and growing conditions did not cause lodging this year. The lack of lodging may benefit taller varieties such as Monida which lodge more. The trial had some poor areas that seemed to affect more than just one variety. This reduced the precision of the trial, making the CV% and LSD higher.

Powell, Maverick and Monida produced the highest yields this year. Monico yielded less than expected this year.

Hulless varieties produced excellent bushel weight. Besides the hulless varieties, Maverick and Maverick produced exceptionally good bushel weights. Rio Grande was the earliest heading variety followed by Monico. Rio Grande, Powell, Maverick and Provena were the shortest height.

This trial again shows that hay tonnage does not relate directly to plant height. Powell is one of the shorter varieties but produced high hay tonnage. Also, Rio Grande is even shorter but produced 4.5 ton/acre. Maverick is one of the shorter varieties (best lodging resistance) and produces excellent grain yield. Even though forage yield differences were not statistically different, Maverick may produce less hay tonnage than the best varieties. Monico is a little taller than Maverick and less resistant to lodging; however, it produced an excellent forage yield, 4.6 tons/acre.

Table 9. 5-Year Averages (2001-05), Oat variety performance trial at Center [1].

Variety	Grain Yield		Bushel Weight	Heading Date [3]	Plant Height	Plant Lodging	Forage Yield
	bu/acre		lbs/bu	(June)	in.	%	ton/acre
	5 yr	7 yr	5 yr	5 yr	5 yr	4 yr	4 yr
Powell	189.3	189.7	38.5	33.3	42.1	37.8	4.1
Maverick	187.9	189.2	39.7	32.1	41.8	10.7	4.2
Monida	185.3	183.3	38.7	33.9	46.4	47.7	4.3
Monico	179.8	183.7	40.5	29.6	46.5	24.5	4.2
Rio Grande	168.2	168.7	39.2	28.2	41.3	30.6	3.9
Lamont (HL)	153.3	---	45.4	35.6	44.5	20.3	---
Provena (HL)	122.7	---	46.8	34.3	39.6	12.2	---
Trial Average	**168.5**	**171.3**	**40.4**	**32.5**	**43.6**	**24.2**	**4.1**

[1] San Luis Valley Research Center, Center, CO. Grain yield based on 60 lbs/bushel and 12 % moisture.
[3] Days after June 1.

Comments:

The primary advantage for Maverick is lodging resistance; it had 11% lodged vs. 38% for Powell and 48% for Monida. Powell produced slightly more grain yield than Maverick followed by Monida. Variety differences in forage yield over 4 years were very small. Only Rio Grande showed lesser forage yield.

Maverick is a new variety recently released by Idaho, Montana, and Colorado. It produced excellent grain yields; average maturity; short plant height; excellent lodging resistance and average hay tonnage.

Monico is also a new variety. It produced only slightly less grain yield than the top three varieties. It also has more lodging resistance than Powell or Monida. Monico produced the best bushel weight and was earlier heading than most varieties. It produced average forage tonnage.

Monida is the most commonly planted variety in the San Luis Valley. In these trials, it produced excellent grain yields, average bushel weight, medium-late maturity, tall plant height, very high lodging and average tonnage.

Hulless varieties, Lamont and Provena, produced excellent bushel weight. This is characteristic of varieties harvested without the hull. Grain yields, however, were considerably less than other oat varieties.

Foundation seed Maverick is available from SLV Research Center. Registered or certified seed of Maverick and Monico is also available locally.

Table 10. Canola variety performance trial in 2005 Randomized, replicated On-Farm trial located on Worley Seed Farm, 8 N on Rio Grande County Road 4 E.
Merlin Dillon, Area Extension Agent, Agronomy, San Luis Valley Research Center, Center, CO. Trial sponsored by Blue Sun Biodiesel, Ft. Collins, CO

Variety [1]		Grain Yield [2]	Bushel Weight	Flower Date [3]	Grain Moisture	Oil Content
		lbs/ac	lbs/bu	(July)	%	%
HyClass 905	7	3399	36.2	13.5	7.3	
45H21	2	3352	40.1	10.5	6.5	
Hyola 401	1	3200	37.9	8.5	6.5	
HyClass 767	8	3193	35.0	10.3	7.3	
45H72	4	3185	40.6	11.8	7.3	
HyClass 712	9	3168	35.3	13.5	6.5	
45H25	3	3117	37.9	11.8	7.2	
PHI-05-03	6	2963	37.9	8.0	9.1	
PHI-05-02	5	2922	41.1	10.4	7.5	
BSX-42095	11	2887	37.0	12.3	6.4	
Blue-01-01	10	2558	34.4	6.7	7.5	
Trial Average		**3086**	**37.6**	**10.7**	**7.2**	
LSD, .10		**NS**	**NS**	**2.4**	**NS**	
CV %		**12.6**	**11.6**	**18.5**	**17.9**	

[1] Mustard varieties include: Blue-01-001 and _____
[2] Yield differences are not statistically significant.
[3] Days after July 1 that 50% plants flowered; measures maturity.

Site Information:
Trial Location: 8 north on Rio Grande County Road 4E.
Previous Crop: potatoes
Date Planted: May 13 **Date Harvested:** September 27
Irrigation: center pivot **Seed Rate**: 10 lbs/acre
Herbicide: None **Row Spacing:** 8-inch
Nitrogen: ____ lbs/acre **Plot Size**: 6 ft. x 35'; 9 rows planted 8 inches apart

Comments:
This trial emerged poorly; starting out with a fairly light stand. Some plots had entirely too few plants and were not harvested. Even though the stand was thin, most plots filled in adequately and these plots were harvested. The yield average, 3086 lbs/acre was only slightly less than last year. Variability was higher this year and variety differences were nonsignificant.

Table 11. 2-year average (2004-05) canola variety performance trial at Center, CO.

Variety [1]	Grain Yield [2]	Bushel Weight	Flower Date [3]	Grain Moisture	Oil Content
	lbs/ac	lbs/bu	(July)	%	%
HyClass 905	3163	41.8	16.3	14.8	
Hyola 401	3392	43.9	10.0	8.1	
Blue-01-01	2706	42.3	8.9	8.9	
Average	3140	43.4	12.4	9.4	..

[1]/ Blue-01-01 is a mustard variety.
[2]/ Pounds per acre at 10% moisture.
[3] / July date 50% of plants were flowered; a measure of maturity.

Comments:

Only three varieties were included both years.

The mustard variety Blue-01-01, yielded less than either canola variety. Blue-01-01 flowered earlier than either canola variety. The two canola varieties yielded similarly for 2004-05. Hyola 401 flowered earlier than HyClass 905 and the grain moisture was lower too.

These two years of field trials show that canola is a very productive crop in the San Luis Valley. Yields and production costs in the San Luis Valley are very competitive. That said; growers need at least 12 cents per pound to break even.

Colorado State University Cooperative Extension

Putting Knowledge to Work