

## Soft white spring wheat variety performance trial at Center<sup>1</sup> in 2004.

Variety	Grain Yield <sup>2</sup>	Bushel Weight	Heading Date <sup>3</sup>	Grain Moisture	Plant Height	Grain Protein
	bu/ac	lbs/bu	(June)	%	in.	%
IDO599	142.4	61.1	27.8	11.2	35.1	9.2
Alturas	136.8	61.3	33.0	11.5	32.1	8.5
Blanca	136.7	59.6	32.3	13.9	33.9	8.9
Centennial	135.4	62.2	27.3	11.2	32.9	9.0
IDO563	129.8	61.6	22.5	11.7	34.2	9.2
<b>Average</b>	<b>136.3</b>	<b>61.2</b>	<b>28.6</b>	<b>11.9</b>	<b>33.6</b>	<b>9.0</b>
LSD <sub>(0.10)</sub>	5.8	0.7	0.9	0.6	1.7	0.4
CV%	3.5	0.9	2.6	4.2	4.1	2.1

<sup>1</sup>Trial conducted at the San Luis Valley Research Center, Center, CO; seeded 4/15 and harvested 9/7.

<sup>2</sup>Grain yield based on 60 lbs/bushel and 12 % moisture.

<sup>3</sup>Days after June 1.

**Note:** There was no lodging in this trial. There was, however, a severe soil problem which affected most of the plot area; reducing tillering, stunting plant height, and reducing yield of all varieties. Two plots were much more severely affected and were discarded. The entire area must have been affected almost equally since the trial resulted in good yields and acceptable variability. The grain yield coefficient of variation (CV= 3.5) means it was a good trial; results should be similar if the trial were repeated.

### **Site Information:**

Irrigation: center pivot

Herbicide: Bronate @ 1 pt/ac

Nitrogen: 70lb/ac + 30 lb/ac May 25 + 30 lb/ac June 1  
planted 8 inches apart.

Seed Rate: 120 lbs/acre

Row Spacing: 8-inch

Plot Size: 6 ft. x 35'; 9 rows

**Comments:** IDO563 yield was disappointing again this year. After producing the highest yield in 2001, this line has not compared well in 2003 and 2004. It is not now looked on to replace Centennial. Possibly IDO599 might be a replacement; however, it is taller and might lodge more than Centennial. It needs to be tested more where lodging is a problem.

Note that Blanca produced a yield essentially equal to Centennial. This might be expected where lodging is not a problem. However, Centennial should be better than Blanca when lodging is a problem.

Protein was low for all varieties. Thousand kernel weight (not shown) indicated Alturas and Blanca had large seed; IDO 599 and IDO 563 had small seed.

## Hard spring wheat variety performance trial at Center<sup>1</sup> in 2004.

Variety	Wheat Type <sup>2</sup>	Grain Yield <sup>3</sup>	Bushel Weight	Heading Date <sup>4</sup>	Grain Moisture	Plant Height	Grain Protein
		bu/ac	lbs/bu	(June)	%	in.	%
Centennial	SWS	140.9	61.4	22.2	9.6	33.0	11.2
Lolo	HWS	135.4	62.1	24.3	9.8	33.9	12.4
Jerome	HRS	134.9	61.8	20.5	9.6	34.5	13.3
YU995-231W	HWS	130.9	61.9	18.5	9.4	25.5	13.6
Oslo	HRS	130.7	60.7	20.3	9.7	33.9	12.6
ID 377s	HWS	130.5	61.0	22.8	9.6	33.6	13.0
IDO597	HWS	127.7	59.8	23.5	9.3	33.6	13.4
Plata	HWS	125.0	59.5	25.5	9.1	30.6	13.2
IDO593	HRS	123.9	59.3	22.3	9.1	33.3	13.4
Nora	HRS	121.3	61.9	25.3	9.6	31.8	14.4
IDO592	HRS	120.0	59.3	22.0	9.1	33.3	13.2
WB 881	Durum	118.5	61.0	20.0	8.8	34.2	14.2
Winsome	HWS	117.7	57.7	31.3	8.9	31.5	12.4
XXX 1	Durum	113.4	60.7	17.0	9.5	32.7	14.1
Yecora Rojo	HRS	108.2	60.6	18.8	9.6	24.9	14.3
Pristine	HWS	98.8	62.3	17.8	10.2	32.1	15.2
XXX 2	Durum	97.8	60.0	17.0	8.7	31.2	15.0
<b>Average</b>		<b>122.1</b>	<b>60.6</b>	<b>21.7</b>	<b>9.4</b>	<b>32.0</b>	<b>13.5</b>
LSD <sub>(0.10)</sub>		6.7	0.8	2.2	0.5	1.8	0.9
CV%		4.6	0.9	7.1	3.4	4.0	3.8

<sup>1</sup>Trial located on adjacent to SLV Research Center, Selters Farm leased by Joe Barela; the field was planted to durum wheat; seeded 4/14 and harvested 9/8.

<sup>2</sup>Wheat Types: SWS is soft white spring; HWS is hard white spring; HRS is hard red spring wheat.

<sup>3</sup>Grain yield based on 60 lbs/bushel and 12 % moisture.

<sup>4</sup>Days after June 1.



	Brewin									
	g									
	Coors									
	Brewin									
C14	g	184.2	51.4	21.5	13.9	34.5	3	10.4	68	2.3
	ARS-									
Ab11993	Idaho	179.4	47.1	19.8	15.2	42.0	0	9.2	63	4.7
	ARS-									
Baronesse	Idaho	177.7	51.5	29.3	14.2	43.8	18	9.2	72	1.6
	ARS-									
	Coors									
	Brewin									
C65	g	173.9	49.2	38.3	22.7	31.8	0	9.7	54	1.4
	ARS-									
Garnet	Idaho	173.3	50.4	26.5	15.6	43.8	55	10.3	67	2.9
	ARS-									
Ab12362	Idaho	164.5	47.7	21.8	14.7	45.6	25	9.3	63	3.4
	ARS-									
Creel	Idaho	156.3	51.1	31.5	14.3	43.8	3	9.9	79	1.3
	ARS-									
Burton	Idaho	155.2	51.4	33.3	16.1	44.4	33	10.0	86	0.8
	ARS-									
	<b>Average</b>	<b>176.6</b>	<b>49.4</b>	<b>28.9</b>	<b>16.6</b>	<b>39.7</b>	<b>14.9</b>	<b>9.8</b>	<b>66.5</b>	<b>2.8</b>
	LSD <sub>(0.10)</sub>	13.1	0.95	1.7	1.9	1.8	14	0.5	4.4	1.7
	CV%	6.3	1.6	5.0	9.4	3.8	78	4.4	6.4	52.7

<sup>1</sup>Trial conducted at the San Luis Valley Research Center, 0249 E Road 9 North, Center, CO; planted 4/14 and harvested 8/11.

<sup>2</sup>Yield based on 48 lbs/bu and 12% moisture.

<sup>3</sup>Days after June 1.

<sup>4</sup>Grain screenings: percent that falls through 6/64 inch screen.

### **Site Information:**

Soil Type: Norte gravelly sandy loam

Irrigation: center pivot irrigation = ET

Previous Crop: potatoes

Herbicide: Bronate at 1 pt/acre

Fertilizer: Nitrogen; 75 #/ac dry preplant + 30 #/ac fertigation

**Comments:** Yields were very good with a top yield of 198 bu/ac and a test average of 177 bu/ac. Yields were quite consistent producing a low coefficient of variation (6.3 %) and fairly low LSD (13.1). Vegetative growth was excellent and produced enough growth that susceptible varieties lodged as much as 55%. This is valuable information; we need to know which varieties are susceptible or resistant to plant lodging. Many newer varieties have short, strong stalks and resist lodging.

Eight varieties made up the top yield group. This group includes C 69, which Coors Brewing intends to use for contract malting barley production next year. The group also included C 14 which Coors Brewing is currently using. The yield advantage for C 69 is expected to be greater than what we found here. Grain protein was not a problem for any varieties tested this year. Grain color was very good for this barley harvested standing. Screenings, often a problem for C 14, was not a problem this year. C 69 produced a lighter bushel weight than C 14 both this year and last year; however, since the seed is larger, screenings problems should be less than for C 14.

Burton, a new variety released in Idaho, is resistant to Russian Wheat Aphid.

## Nitrogen application rate and seeding rate affects on yield and agronomic characteristics of Coors C 69 malting barley at Center <sup>1</sup> in 2004.

<b>Nitrogen Rate</b>	<b>Seeding Rate</b>	<b>Grain Yield<sup>2</sup></b>	<b>Bushel Weight</b>	<b>Heading Date<sup>3</sup></b>	<b>Grain Moisture</b>	<b>Plant Height</b>	<b>Grain Screens</b>	<b>Grain Protein</b>
(lbs/ac)	(1000)	bu/ac	lbs/bu	(June)	%	in.	%	%
100	750	179.7	49.5	33.3	17.9	31.2	1.4	9.4
100	1000	175.2	49.0	32.8	18.4	31.2	1.7	9.6
100	1250	190.1	48.6	30.8	16.1	33.0	1.4	9.6
100	1500	190.7	49.4	30.5	15.7	31.9	1.1	9.6
	<b>Average</b>	<b>183.8</b>	<b>49.1</b>	<b>31.8</b>	<b>17.0</b>	<b>31.8</b>	<b>1.4</b>	<b>9.5</b>
130	750	194.7	50.0	31.5	16.7	33.0	1.7	9.5
130	1000	180.5	48.9	34.8	19.3	31.2	2.1	9.7
130	1250	202.5	49.3	33.0	17.1	32.7	1.8	9.9
130	1500	202.5	48.8	31.9	17.8	32.0	2.9	10.0
	<b>Average</b>	<b>194.6</b>	<b>49.3</b>	<b>32.8</b>	<b>17.7</b>	<b>32.2</b>	<b>2.1</b>	<b>9.7</b>
160	750	197.0	48.2	35.5	20.7	31.8	1.8	10.0
160	1000	201.7	49.2	34.5	19.1	31.8	1.8	10.1
160	1250	203.3	47.8	33.8	19.9	32.6	2.7	10.0
160	1500	213.5	48.8	32.3	16.8	34.1	3.1	10.5
	<b>Average</b>	<b>204.4</b>	<b>48.5</b>	<b>34.0</b>	<b>19.1</b>	<b>32.6</b>	<b>2.3</b>	<b>10.1</b>
<b>Overall Means of Nitrogen Rate and Seeding Rate</b>								
	750	190.5	49.2	33.4	18.4	32.0	1.6	9.6
	1000	185.9	49.0	34.0	18.9	31.4	1.8	9.8

	1250	198.5	49.0	32.5	17.7	32.8	1.9	9.8
	1500	202.3	48.6	31.6	16.8	32.7	2.4	10.1
100		183.8	49.1	31.8	17.0	31.8	1.4	9.5
130		194.6	49.3	32.8	17.7	32.2	2.1	9.7
160		204.4	48.5	34.0	19.1	32.6	2.3	10.1
<b>Overall Average</b>		<b>194.3</b>	<b>49.0</b>	<b>32.9</b>	<b>18.0</b>	<b>32.9</b>	<b>2.7</b>	<b>9.8</b>
<b>Statistical Significance N</b>		<b>.01</b>	<b>NS</b>	<b>.06</b>	<b>NS</b>	<b>NS</b>	<b>.04</b>	<b>.01</b>
<b>Statistical Significance S</b>		<b>.01</b>	<b>.05</b>	<b>.01</b>	<b>.02</b>	<b>.01</b>	<b>.10</b>	<b>NS</b>
<b>Statistical Significance N x S</b>		<b>.02</b>	<b>.01</b>	<b>.04</b>	<b>.03</b>	<b>.03</b>	<b>.10</b>	<b>NS</b>

<sup>1</sup>San Luis Valley Research Center, Center, CO; seeded 4/15 and harvested 8/23.

<sup>2</sup>Grain yield based on 60 lbs/bushel and 12 % moisture.

<sup>3</sup>Days after June 1.

### Site Information:

Irrigation: center pivot

Seed Rate: Variable treatment

Herbicide: Bronate @ 1 pt/ac

Nitrogen: 70 lbs/acre preplant + 30 lb/ac sprinkler

**Comments:** This trial was excellent; yields averaged 194 bu/ac and the yield CV was only 2.4%. C 69 yields generally increased with higher seeding rate and with higher nitrogen rate. Both nitrogen rate and seeding rate variables statistically affected grain yield. Additional nitrogen (besides 100 lbs/acre after potatoes) increased yield. Yield increased from 184 bu/ac to 195 bu/ac to 204 bu/ac, respectively. The low seed rates produced 191 and 186 bu/ac whereas the higher seed rates produced 199 and 202 bu/ac, respectively. Some affects of nitrogen rate and seeding rate are shown in the graphs below.

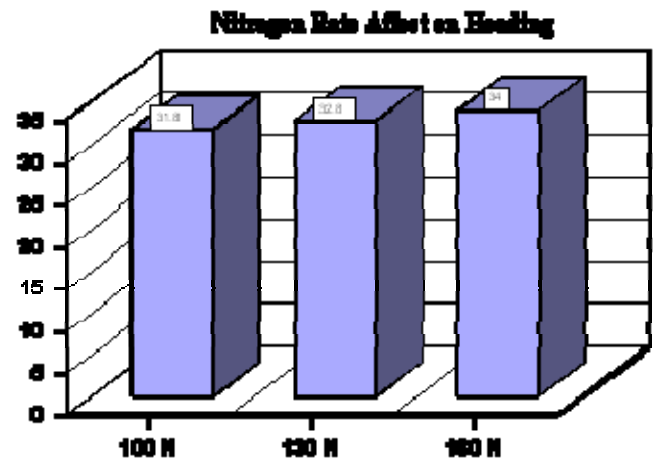
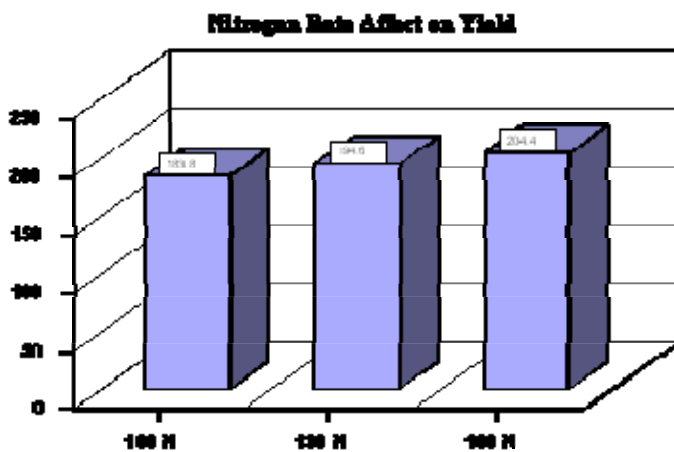


Fig. 1. Nitrogen added beyond that needed for C14 increased grain yield.

Fig. 2. Added nitrogen delayed heading date (days after June 1).

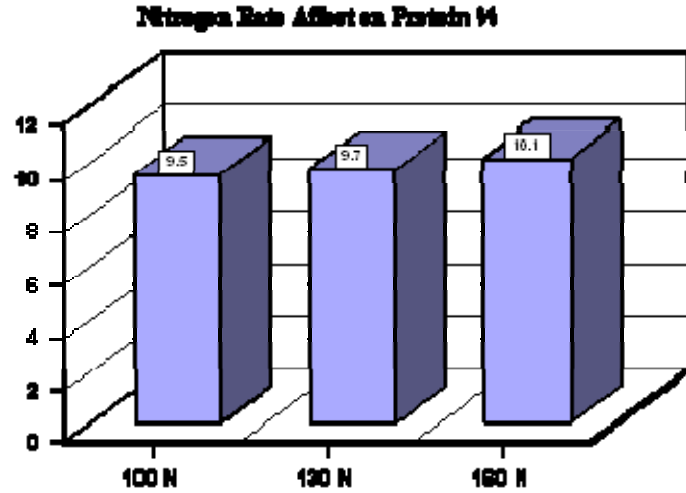
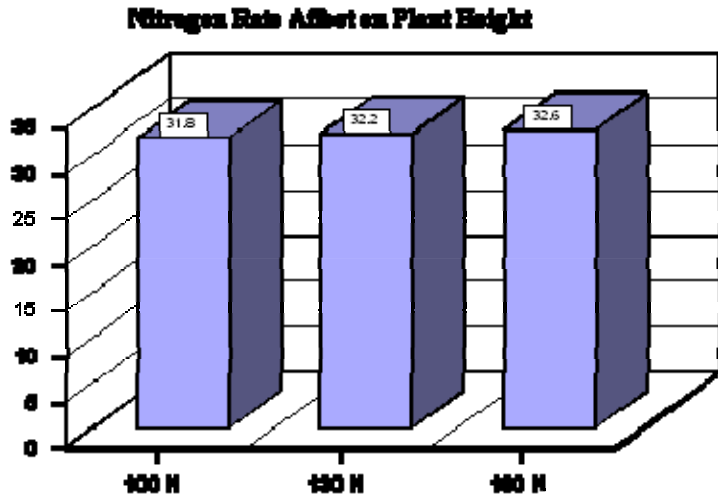


Fig. 3. Added nitrogen made plants grow taller.

Fig. 4. Added nitrogen increased grain protein content (%).

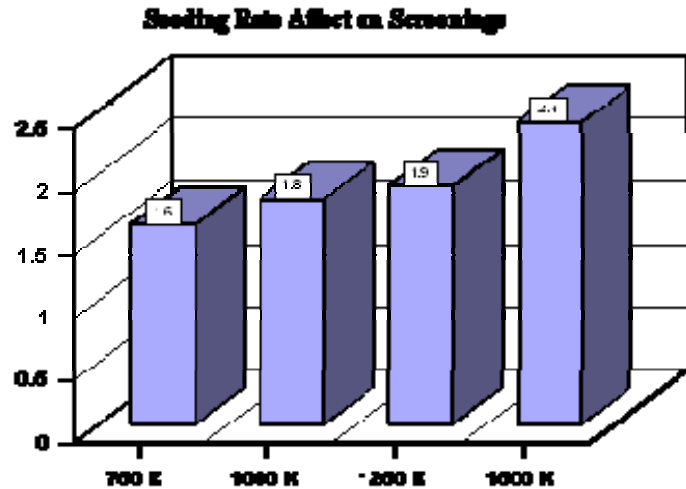
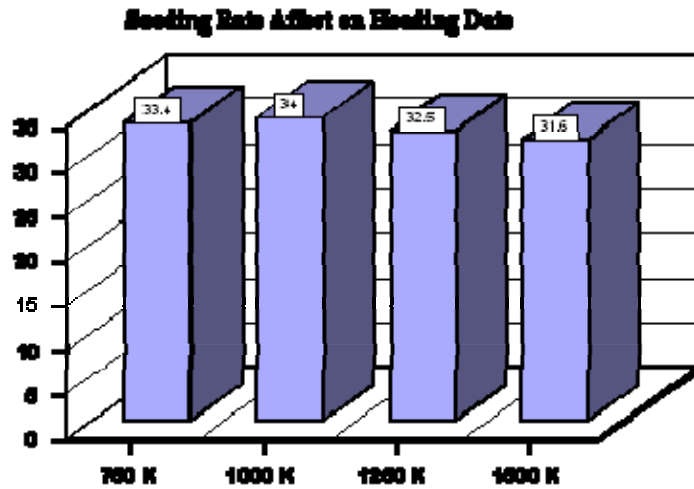


Fig. 5. Higher seeding rates made heading date earlier.

Fig. 6. Higher seeding rates increased grain screenings %; however, screenings were relatively low.<

## Oat variety performance trial at Center<sup>1</sup> in 2004.

Variety	Grain Yield <sup>2</sup>	Bushel Weight	Heading Date <sup>3</sup>	Plant Height	Plant Lodging
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	bu/ac <sup>3</sup>	lbs/bu	(June)	inches	%
Monida	173.8	35.7	34.0	38.7	20
Powell	172.3	37.6	33.8	33.3	3
Maverick	171.6	37.9	32.0	33.3	4
Monico	170.3	39.3	28.3	37.8	11
Rio Grande	158.9	39.3	26.3	37.8	1
Lamont (HL*)	130.8	46.5	34.0	37.2	0
Provena (HL*)	101.3	47.7	33.5	31.8	0
<b>Average</b>	<b>154.1</b>	<b>40.6</b>	<b>31.7</b>	<b>35.8</b>	<b>5.4</b>
LSD <sub>(0.10)</sub>	22.0	2.1	1.3	2.4	NS
CV%	11.7	4.2	3.4	5.6	208

<sup>1</sup>Trial conducted at SLV Research Center, 0249 E Road 9North, Center, CO; seeded 4/15 and harvested 8/30.

<sup>2</sup>Yield based on 38 lbs/bu and 12% moisture.

<sup>3</sup>Date 50% of the plants headed; days after June 1.

\*(HL) indicates hullless oat varieties

### **Site Information:**

Irrigation: center pivot

Seed Rate: Variable treatment

Herbicide: Bronate @ 1 pt/ac

Nitrogen: 70 lbs/acre preplant + 30 lb/ac sprinkler

**Comments:** This trial was severely affected by the same soil problem that affected the Soft White Trial and the Wheat Seeding Rate Trial. Yields were reduced by the problem which caused stunting and reduced tillering. The area was not affected uniformly since the trial resulted in fair yields and unacceptable variability. The grain yield coefficient of variation (CV= 11.7) was too high; results might not be similar if the trial were repeated.

This trial has five (5) varieties in the top yield group. It does not show any yield advantage for Monico or Maverick such as the last year's 5-year average. Monico, Maverick and Powell have a yield advantage in the 5-year yield average. Monico and Maverick have also shown heavier bushel weight, earlier heading date, shorter plant height, lower lodging percentage and equal forage yield.

Foundation seed of Maverick is available from Merlin Dillon, Area Extension Agronomist, San Luis Valley Research Center.

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## **Six (6) Year averages (1998-2004), oat variety performance trial in Center.**



Variety	Grain Yield	Bushel Weight	Heading Date <sup>1</sup>	Plant Height	Plant Lodging <sup>2</sup>	Forage Yield <sup>3</sup>
	bu/ac	lbs/bu	(June)	inches	%	tons/ac
Monico	191.7	40.7	30.3	46.3	32.6	4.0
Maverick	191.3	40.3	32.0	41.8	14.2	4.1
Powell	190.9	38.7	32.8	41.4	50.4	4.0
Monida	185.5	39.1	33.9	46.3	63.6	4.3
Rio Grande	175.2	39.8	21.9	40.0	40.7	3.7
<b>Average</b>	<b>173.4</b>	<b>40.2</b>	<b>31.7</b>	<b>42.3</b>	<b>32.3</b>	<b>4.0</b>

<sup>1</sup>Days after June 1.

<sup>2</sup>Plant lodging occurred only one year, 2002.

<sup>3</sup>Forage yield averaged for 3 years, 1999-2001.

**Comments:** This table shows results for six years testing at this location. Monico, Maverick and Powell have produced high grain yields each year. Monico and Maverick seem to have better bushel weight. Rio Grande is the earliest variety tested by far; however, other newer varieties yield more with less lodging. Rio Grande, Maverick and Powell have been the shortest height varieties; Monida and Monico have been the tallest. Maverick showed the least lodging followed by Monico. All varieties seemed to produce about the same forage yields in limited testing