

Western Colorado Alfalfa Variety Performance Test at Fruita 2004

The 2004 results of Colorado State University's alfalfa variety performance test at Fruita are presented in this report. Plots were planted fall 2001 and the 2004 data are for the third year of the three-year testing period. Results for 2002, 2003, and 2004 are presented in Tables 1, 2, and 3, respectively. Alfalfa stands were excellent and plots were very weed-free throughout the entire testing period. The field was furrow-irrigated using siphon tubes.

Summer 2002 in western Colorado was hot and dry which made for good haymaking conditions and alfalfa yields overall were good. The average growing season for Fruita is 181 days. The 2002 growing season was short at only 159 frost-free days. In 2003, there were 27 days during the summer with temperatures above 100EF. Sixteen of the 27 days were consecutively above 100EF.

Haymaking conditions during 2004 were good and alfalfa yields were also good. Summer 2004 was mild compared to 2003. In contrast to 2003, there were only two days during 2004 in which temperatures exceeded 100EF; yet, the growing season during 2004 was considerably longer than in 2003. The 2004 growing season was 207 days compared to 182 days for the 2003 growing season.

Table 1. Forage yields of 15 alfalfa varieties at the Western Colorado Research Center at Fruita in 2002.¹

Variety	Brand/Source	1 st Cut	2 nd Cut	3 rd Cut	4 th Cut	2002
		May 29	July 2	Aug 23	Oct 8	Total ²
		----- tons/acre ³ -----				
Sendero	Allied Seed, L.L.C.	2.38	2.38	2.85	1.56	9.17
FG 3R139	J.R. Simplot Co.	2.45	2.37	2.81	1.54	9.16
Select	IFA	2.28	2.37	2.91	1.54	9.10
DU 201	Great Plains Research Co., Inc.	2.40	2.20	2.77	1.67	9.03
WL 327	W-L Research	2.58	2.37	2.63	1.46	9.03
Goliath	Allied Seed, L.L.C.	2.38	2.34	2.79	1.51	9.01
WL 342	W-L Research	2.55	2.36	2.47	1.53	8.91
Ameristand 403T	America's Alfalfa	2.65	2.19	2.64	1.32	8.80
HybriForceJ400	Dairyland Seed	2.46	2.05	2.64	1.50	8.64
Pawnee	Midwest Seed Genetics	2.45	2.27	2.52	1.40	8.64
Dagger+EV	AgriPro	2.26	2.19	2.65	1.52	8.62
Mountaineer	Croplan Genetics	2.21	2.32	2.61	1.45	8.59
Journey Brand 204 Hybrid	Dairyland Seed	2.34	2.06	2.67	1.49	8.56
Enhancer	Sharp Bros. Seed Co.	2.35	1.97	2.63	1.53	8.49
FR 9802	Great Plains Research Co., Inc.	2.33	1.70	2.38	1.54	7.94
Average		2.41	2.21	2.66	1.50	8.78
CV (%)		7.69	4.88	6.30	5.09	4.32
LSD (0.05)		NS	0.16	0.24	0.11	0.54

¹Seeded 6 September 2001 at 15 lbs/acre.

²Table is arranged by decreasing, 2002 total yield.

³Yields were calculated on an air-dry basis.

Last spring frost - May 9, 2002; first fall frost - October 15, 2002. Frost-free days for 2002 - 159 days (28EF base).

Fertilizer: 324 lbs P₂O₅/acre and 68 lbs N/acre broadcast as 11-52-0 on August 30, 2001 and plowed down prior to planting. Applied Select at 8 oz/acre on 8 October 2001 for weed control.

Table 2. Forage yields of 15 alfalfa varieties at the Western Colorado Research Center at Fruita in 2003.

Variety	Brand/Source	1 st Cut	2 nd Cut	3 rd Cut	4 th Cut	2003	2-yr
		May 28	July 8	Aug 19	Oct 7	Total	Total ¹
		----- tons/acre ² -----					
FG 3R139	J.R. Simplot Co.	3.06	2.17	2.32	1.14	8.70	17.86
Select	IFA	3.02	2.13	2.35	1.14	8.64	17.74
Mountaineer	Croplan Genetics	3.10	2.02	2.20	1.13	8.46	17.04
Goliath	Allied Seed, L.L.C.	3.08	2.00	2.20	1.08	8.36	17.38
WL 327	W-L Research	3.10	2.06	2.14	1.05	8.35	17.38
DU 201	Great Plains Res. Co., Inc.	2.92	2.01	2.21	1.15	8.29	17.32
FR 9802	Great Plains Res Co., Inc.	3.19	1.86	2.04	0.97	8.05	15.99
Dagger+EV	AgriPro	2.91	1.94	2.15	1.02	8.01	16.63
WL 342	W-L Research	2.86	1.94	2.14	1.04	7.98	16.89
Pawnee	Midwest Seed Genetics	2.81	1.97	2.13	1.04	7.95	16.59
Ameristand 403T	America=s Alfalfa	2.90	1.92	2.07	0.94	7.82	16.62
Journey Brand 204 Hybrid	Dairyland Seed	2.76	1.86	2.10	1.08	7.81	16.37
Enhancer	Sharp Bros. Seed Co.	2.78	1.91	2.08	1.02	7.79	16.28
Sendero	Allied Seed, L.L.C.	2.48	1.94	2.15	1.22	7.78	16.95
HybriForceJ400	Dairyland Seed	2.73	1.78	2.04	1.01	7.56	16.21
Average		2.91	1.97	2.16	1.07	8.10	16.88
CV (%)		8.4	5.9	4.6	7.2	4.2	3.6
LSD (0.05)		0.35	0.17	0.14	0.11	0.49	0.88

¹Table is arranged by decreasing, 2003 total yield.

²Yields were calculated on an air-dry basis.

Last spring frost - April 16, 2003; first fall frost - October 15, 2003. Frost-free days for 2003 - 182 days (28EF base).

For weed control in 2003, Sencor 4F was applied at 1 quart/acre in 22 gallons water/acre at 25 psi on January 22, 2003.

Table 3. Forage yields of 15 alfalfa varieties at the Western Colorado Research Center at Fruita in 2004.

Variety	Brand/Source	1 st Cut	2 nd Cut	3 rd Cut	4 th Cut	2004	3-yr
		May 28	July 8	Aug 19	Oct 7	Total	Total ¹
		----- tons/acre ² -----					
FG 3R139	J.R. Simplot Co.	2.82	2.18	2.34	1.70	9.04	26.90
Select	IFA	2.66	2.19	2.28	1.66	8.79	26.53
Goliath	Allied Seed, L.L.C.	2.72	2.14	2.21	1.65	8.72	26.09
WL 327	W-L Research	2.52	2.10	2.17	1.67	8.46	25.84
Mountaineer	Croplan Genetics	2.84	2.14	2.18	1.62	8.78	25.83
DU 201	Great Plains Research Co., Inc.	2.19	2.07	2.13	1.57	7.96	25.28
Sendero	Allied Seed, L.L.C.	2.05	2.10	2.25	1.59	7.99	24.93
WL 342	W-L Research	2.32	1.93	2.10	1.55	7.89	24.78
Pawnee	Midwest Seed Genetics	2.24	2.07	2.14	1.66	8.10	24.68
Dagger+EV	AgriPro	2.16	2.08	2.05	1.63	7.91	24.54

Ameristand 403T	America=s Alfalfa	2.10	1.86	1.98	1.44	7.38	24.00
FR 9802	Great Plains Research Co., Inc	2.43	1.94	1.99	1.60	7.96	23.95
Enhancer	Sharp Bros. Seed Co.	1.94	1.81	1.93	1.54	7.23	23.51
Journey Brand 204 Hybrid	Dairyland Seed	1.90	1.71	1.96	1.56	7.13	23.50
HybriForce™400	Dairyland Seed	1.92	1.75	2.03	1.54	7.24	23.45
Average		2.32	2.00	2.12	1.60	8.04	24.92
CV (%)		4.94	5.09	5.22	6.99	3.89	3.36
LSD (0.05)		0.16	0.14	0.16	NS	0.45	1.20

¹Table is arranged by decreasing, 3-year total yield.

²Yields were calculated on an air-dry basis.

Elevation: 4584 feet. Average annual precipitation is 8.4 inches. Average frost-free days is 181 days. Last spring frost - March 30, 2004; first fall frost - October 23, 2004. Frost-free days for 2004 - 207 days (28EF base).

For weed control in 2004, Sencor 4F was applied at 1 quart/acre in 20 gallons water/acre at 25 psi on March 5, 2004. Soil series: Youngston clay loam.

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Forage yields of 32 alfalfa varieties at the Arkansas Valley Research Center in 2004¹

Entry/Variety	Brand/Source	1st Cut	2nd Cut	3rd Cut	4th Cut	2004 ²
		25-May	20-Jul	18-Aug	18-Oct	Total
		tons/acre ³				
VL02*	Great Plains Research Co.	3.18	2.45	1.11	0.79	7.52
45098	Cal/West	2.61	2.76	0.97	1.05	7.39
Masterpiece	J.R. Simplot	2.91	2.47	1.07	0.93	7.37
WL 327	W-L Research	2.57	2.70	1.03	0.96	7.25
DS311 Hyb	Dairyland Seed Co.	2.49	2.69	1.11	0.94	7.23
6530	Garst	2.55	2.89	1.03	0.76	7.23
HybriForce-420/Wet	Dairyland Seed Co.	2.82	2.55	0.99	0.84	7.20
4M124	Croplan Genetics	2.78	2.45	1.04	0.86	7.13
6420	Garst	2.55	2.75	0.98	0.84	7.12
4M125	Syngenta Int'l AG	2.45	2.58	1.02	1.06	7.11
DS307 Hyb	Dairyland Seed Co.	2.61	2.63	1.05	0.81	7.11
Arapaho	Dairyland Seed Co.	2.68	2.46	1.04	0.87	7.05
Bullseye	Target Seed	2.91	2.38	1.03	0.72	7.04
Evermore	Allied Seed	2.66	2.39	1.00	0.93	6.98
Abundance	Sharp Bros. Seed Co.	2.70	2.49	0.96	0.82	6.97
55H05	Pioneer Hi-Bred Int'l	2.54	2.31	1.11	1.00	6.96
Rebel	Target Seed	2.64	2.39	1.05	0.87	6.95
FSG 505	Allied Seed	2.52	2.50	0.97	0.95	6.95
05009	Cal/West	2.55	2.46	1.09	0.81	6.90
05073	Cal/West	2.51	2.45	1.02	0.90	6.88
Goliath	Allied Seed	2.67	2.50	0.89	0.78	6.85
Baralfa53HR	Barenbrug USA	2.56	2.51	0.89	0.83	6.79
Reward II	PGI Alfalfa	2.46	2.44	1.03	0.82	6.75
FSG 406	Allied Seed	2.44	2.38	1.04	0.87	6.73
15029	Cal/West	2.42	2.45	0.98	0.82	6.67
Lahontan	USDA/NV	2.42	2.54	0.90	0.80	6.66
Baralfa42IQ	Barenbrug USA	2.52	2.58	0.89	0.65	6.63
Rugged	Target Seed	2.32	2.64	0.93	0.73	6.61
DS304 Hyb	Dairyland Seed Co.	2.44	2.23	1.02	0.91	6.61
Expedition	Syngenta Int'l AG	2.33	2.49	0.95	0.84	6.60
WL 357 HQ	W-L Research	2.26	2.31	1.00	0.89	6.46
25035	Cal/West	2.06	2.39	0.94	0.74	6.13
Average		2.57	2.51	1.00	0.86	6.93
LSD _(0.05)		0.26	0.21	0.16	NS**	0.49

¹Trial conducted at the Arkansas Valley Research Center.

²Table is arranged by decreasing, 2004 total yield.

³Yield is on air-dry basis.

* Certified seed of VLO2 will be sold in the spring of 2005 as CimarronVL400.

**NS: Differences among entries are not significant at 95% probability ($\alpha=0.05$).

Site information:

Planted: 08/26/03

October 28, 2002: 156 lb P₂O₅ + 33 lb N/acre as 11-52-0

March 10, 2004: Pursuit @ 0.0625 a.i./acre

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San Luis Valley Alfalfa Variety Trial at Center

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The 2002-2004 results of Colorado State University's alfalfa variety performance trial at Center are presented here. Plots were planted in June 2000 and the 2004 data are the third full year of the three-year testing period. Since only two harvests were taken in 2001, this data is not reported. Three full years' data include 2002-2004. Results for 2004 by cutting are presented in [Table 1](#); yearly total results for 2002-2004 are presented in [Table 2](#).

Alfalfa stands were excellent with few weeds throughout the testing period. The plots were center pivot irrigated at the Sherrel Mix farm (Rio Grande County Roads 8N & 1 W), two miles from the Research Center.

Summer 2002 was hot and dry which made for good haymaking conditions. The entire summer was dry and there was no rain damage. The first cutting was early, the second cutting was not rained on, and the third cutting was larger than normal because of the warm season. Yields were exceptionally high, averaging 7.0 tons per acre. Twelve varieties were significantly higher yielding than the other varieties in 2002 ([Table 2](#)).

Summer 2003 was not quite as warm and dry as 2002. The first cutting was early, the second cutting received some showers and the third cutting yield was lower yielding than in 2002. Twenty four varieties averaged 5.7 tons per acre ([Table 2](#)). 2003 total yield differences were not significantly different.

Summer 2004 started warmer than normal and the first cutting was earlier than normal. The summer of 2004 was much cooler than the previous two years. The cooler weather reduced the third cutting yield and total yield compared to the previous two years ([Table 1](#)). The average yield was 5.5 tons per acre. Eight varieties yielded significantly higher than the other varieties in 2004 and also were significantly higher yielding in the first and third cuttings.

Results averaged over several years are more useful, more important than single year results. The three-year average yields are shown in Table 2. Thirteen of 24 varieties produced high yields when averaged for all 3 years. These did not include the control varieties Vernal and Ranger. The high yield varieties included WL 327, DK 143, FG 3R139, Pro Gro, Baralfa 42IQ, Select, Pioneer 53V08, WL 325HQ, Magnum V, Geneva, Abound, DK 142, and Columbia 2000. The high yield varieties included newer, improved disease and insect resistant varieties already being grown by progressive growers in the San Luis Valley.

Table 1. Forage yields of 24 alfalfa varieties at the San Luis Valley¹ in 2004.

		1 st Cut	2 nd Cut	3 rd Cut	Total ³	3-yr
Variety	Brand/Source	June 16	July 24	Sept 21	2004	Average
-----tons/acre ² -----						
DK 143	DeKalb	2.6	2.2	1.2	6.0	5.1
FG 3R139	Forage Genetics	2.6	2.1	1.3	6.0	5.1
WL 327	WL Research	2.5	2.1	1.3	5.9	5.1
Geneva	Novartis	2.4	2.2	1.2	5.8	5.0
Baralfa 42IQ	Barenbrug	2.5	2.1	1.2	5.8	5.0
WL 325 HQ	WL Research	2.6	2.0	1.2	5.8	5.0
Select	Forage Genetics	2.4	2.0	1.3	5.7	5.0
Pro Gro	M.B.S., Inc.	2.4	2.1	1.2	5.7	5.1
53V08	Pioneer	2.3	2.2	1.2	5.7	5.0
Abound	Asgrow	2.3	2.1	1.2	5.6	4.9
Magnum V	Dairyland	2.3	2.1	1.2	5.6	5.0
DK 142	DeKalb	2.3	2.0	1.2	5.5	4.9
Columbia 2000	Public	2.3	2.0	1.1	5.5	4.9
Award	Asgrow	2.3	2.1	1.1	5.5	4.8
FG 4200	Forage Genetics	2.3	1.9	1.2	5.5	4.7
DK 134	DeKalb	2.3	2.0	1.1	5.4	4.7
54Q53	Pioneer	2.3	1.9	1.2	5.4	4.7
Aspire	Asgrow	2.3	2.0	1.1	5.4	4.7
AmeriStand 201	ABI Alfalfa	2.3	2.0	1.0	5.3	4.6
WL 232 HQ	WL Research	2.2	2.0	1.1	5.3	4.7
Ranger	USDA-NE AES	2.1	2.2	0.9	5.2	4.8
Gold Plus	M.B.S., Inc.	2.4	1.8	1.1	5.2	4.5
HybriForce TM 400	Dairyland	2.1	1.9	1.1	5.1	4.6
Vernal	USDA-WI AES	2.1	2.0	0.8	4.9	4.5
Average		2.3	2.1	1.1	5.5	4.9
CV(%)		8.3	10.1	10.5	6.7	5.0
LSD(0.10)		0.2	NS	0.1	0.4	0.3

¹Trial conducted on the Sherrel Mix farm, Rio Grande County Roads 8N & 1 W; seeded at 16 lbs/acre on 6/16/2000.

²Yields calculated on oven-dry basis.

³Table is arranged by decreasing, 2004 Total yield

Site Information:

Elevation = 7700 ft.

Average annual precipitation = 6.92 inches.

Average frost-free days = 88days (32 0 F).

Average last spring frost - June 10; average first fall frost - September 6.

Soil Series: Norte gravelly sandy loam.

Table 2. Three Year Alfalfa Variety Performance Trial Results, San Luis Valley¹, 2002-2004.

Variety	Brand/Source	Total 2002	Total 2003	Total 2004	3-yr Average ³
-----tons/acre ² -----					
WL 327	WL Research	7.4	5.9	5.9	5.1
DK 143	DeKalb	7.1	6.0	6.0	5.1
FG 3R139	Forage Genetics	7.2	5.9	6.0	5.1
Pro Gro	M.B.S., Inc.	7.3	5.6	5.7	5.1
Baralfa 42IQ	Barenbrug	7.1	5.8	5.8	5.0
Select	Forage Genetics	7.3	5.9	5.7	5.0
53V08	Pioneer	7.1	5.8	5.7	5.0
WL 325 HQ	WL Research	7.2	5.8	5.8	5.0
Magnum V	Dairyland	7.2	6.1	5.6	5.0
Geneva	Novartis	7.0	5.9	5.8	5.0
Abound	Asgrow	7.1	5.8	5.6	4.9
DK 142	DeKalb	7.1	5.8	5.5	4.9
Columbia 2000	Public	7.1	5.7	5.5	4.9
Award	Asgrow	6.7	5.5	5.5	4.8
Ranger	USDA-NE AES	6.9	5.5	5.2	4.8
Aspire	Asgrow	6.8	5.5	5.4	4.7
DK 134	DeKalb	6.9	5.5	5.4	4.7
FG 4200	Forage Genetics	6.8	5.5	5.5	4.7
54Q53	Pioneer	6.8	5.7	5.4	4.7
WL 232 HQ	WL Research	6.9	5.5	5.3	4.7
HybriForce TM 400	Dairyland	6.8	5.6	5.1	4.6
AmeriStand 201	ABI Alfalfa	6.5	5.1	5.3	4.6
Gold Plus	M.B.S., Inc.	6.5	5.0	5.2	4.5
Vernal	USDA-WI AES	6.6	5.6	4.9	4.5
Average		7.0	5.7	5.5	4.9
CV(%)		4.6	8.3	6.7	5.0
LSD(0 .10)		0.4	NS	0.4	0.3

¹Trial conducted on the Sherrel Mix farm, Rio Grande County Roads 8N & 1W; seeded at 16 lbs/acre on 6/16/2000.

²Yields calculated on oven-dry basis.

³Table is arranged by decreasing, 3-yr average yield.

Forage Yields of 20 Alfalfa Varieties at the Southwestern Colorado Research Center at Yellow Jacket in 2000-2004

Mark Stack, Abdel Berrada, and Tom Hooten

Summary

The alfalfa variety trial was planted in 2000 and evaluated over a four-year period. In the establishment year, a planting date of June 2 was too late to allow for more than one cutting. In 2001, the first full year, the alfalfa trial averaged 8.25 tons/acre. This relatively high yield may be attributed to the new stand and harvesting only one cutting the previous year. In 2002, the alfalfa was damaged by unusual cold spring temperatures. The first cutting yield of 1.65 tons/acre was below average. As a result, the total yield for [2002](#) was only 5.85 tons/acre. In [2003](#), the alfalfa variety trial averaged 6.14 tons/acre for three cuttings notwithstanding an army cutworm infestation and a late summer hailstorm. The combined 4-year total yield (2001, [2002](#), [2003](#), and 2004) for each alfalfa variety shows that the 12 highest yielding varieties were not statistically different. There were significant yield differences for each cutting and for each year except for the second cutting in 2001. Ranger, the check variety, was the lowest yielding variety in each year.

Introduction and Objectives

Alfalfa variety performance tests under local conditions provide growers with information to assist them in selecting varieties for their own farm. Variety tests also provide seed companies, seed dealers, and consultants with information to evaluate and recommend varieties.

In southwestern Colorado, alfalfa is the main crop in terms of acreage, production, and cash value. In 2001, 86,000 acres of alfalfa were harvested in the five counties of southwestern Colorado (Archuleta, Dolores, La Plata, Montezuma, and San Miguel). Approximately 85% of this acreage was irrigated. The majority of the irrigated areas are served by older water delivery systems. The Dolores Project, a pressurized irrigation system developed by the Bureau of Reclamation, supplies irrigation water to the Dove Creek/Yellow Jacket area and to the Ute Mountain Ute Indian Reservation. The average growing season is 120 to 160 days with annual precipitation of 16 inches. One-half of the precipitation is received as snow with June being the driest month. The major soil series is Wetherill clay loam with a water holding capacity of 1.8 to 2.0 inches/foot and soil organic matter content of 1%. The soils are generally low in phosphorus and high in potassium. The elevation where alfalfa is produced ranges from 5,500 ft. to over 7,000 ft.

Average irrigated alfalfa yields in 2001 ranged from 2.60 tons/acre in Archuleta County to 4.35 tons/acre for Montezuma County. The Dolores Project lands in the Dove Creek/Yellow Jacket area averaged 4.20 tons/acre in 2001.

There are usually three cuttings per year: June, late July, and September. Alfalfa varieties recommended have dormancy ratings of 3 to 5 in most areas. The primary insects and diseases in the area are pea aphids, thrips, crown and root rots, and alfalfa weevils in the lower elevation

areas. The interaction between stem nematodes and root and crown rots is receiving increased attention in the area.

The winters of 2001-02 and 2002-03 were extremely dry with below average snowpack in the mountains. The record low stream runoffs resulted in limited irrigation water supplies in southwestern Colorado. The dry soil moisture conditions going into the growing season and a shortage of irrigation water made it difficult for area growers to meet the water requirements of the alfalfa crop. Most growers had enough irrigation water for only one or two cuttings each year. The Southwestern Colorado Research Center was able to reallocate water from other crops to provide adequate water for the alfalfa variety trial during this period.

Alfalfa hay quality in southwestern Colorado is good to excellent due to dry weather and relatively few disease and insect problems. The older irrigated areas of southwestern Colorado produce alfalfa targeted either for their own livestock operations or for livestock operations in the Four Corners area. A significant market for alfalfa hay has been developed with members of the nearby Indian tribes. A majority of the alfalfa produced under the Dolores Project is marketed to dairies in the southwestern United States.

Materials and Methods

The alfalfa variety trial was planted on June 2, 2000. A randomized complete block design with four replications was used for the trial. The trial was seeded with a Kincaid cone planter at 20 lbs/acre. A Carter Forage Plot Harvester (sickle-bar) was used to harvest the plots. Pursuit herbicide was used in the seeding year to achieve a weed-free stand. A good to excellent alfalfa stand was obtained. Phosphate fertilizer (200 lbs P₂O₅/acre) was broadcast in 2001. Mustang Max insecticide was applied on April 11, 2003 to control a severe army cutworm infestation. A wheel-line irrigation system and sprinklers with a single nozzle (40 ft. spacing) was used to irrigate the variety trial. Wheel-line moves were 60 ft. initially. This spacing was modified in 2002 and a spreader nozzle was added to improve irrigation efficiency. Irrigation water applied per acre in 2001, 2002, 2003, and 2004 was 19.5, 30.0, 34.5, and 27.0 inches, respectively. Precipitation for 2001, 2002, 2003, and 2004 was 10.0, 8.5, 8.7, and 15 inches, respectively.

Results and Discussion

Only one cutting was made in the seeding year due to the late planting date. The results for 2000 are not included in this report due to high variability in the data caused by hot and dry conditions during the summer. The average yield for the initial cutting in 2000 was 1.71 tons/acre.

In 2001, the average yield for all three cuttings was 8.25 tons/acre. This relative high yield for the area may be due to the new stand and harvesting only one cutting during the establishment year. The results are shown in Table 1.

In [2002](#) the variety trial averaged 5.85 tons/acre with a first cutting average of 1.65 tons/acre (Table 2). The alfalfa trial was damaged by cold weather in April and early May. On April 21, the temperature dropped to 21.9 °F. The alfalfa never recovered from the freeze damage and the first cutting yields were well below average. The high variability (CV%) for the first and second

cuttings may be primarily due to lack of winter moisture, freeze damage, and poor uniformity of irrigation water application. To improve the irrigation water uniformity, the wheel-line moves were shortened to 40 ft. after the first cutting and a spreader nozzle was added for the third cutting. This practice was continued in 2003 and 2004.

Table 3 shows the 2003 and the 3-year combined yield totals. The varieties are ranked in descending order by total yield. In 2003, the average yield was 6.14 tons/acre. The high variability in the third cutting was due to a severe hailstorm on September 9. It is estimated that the third cutting yield was reduced by 50% due to leaf loss and broken stems.

In 2004 the variety trial averaged 6.81 tons/acre (Table 4).

The combined 4-year total yield (2001, 2002, 2003, and 2004) for each alfalfa variety shows that the 12 highest yielding varieties were not statistically different at the 0.30 significance level. There were significant differences for each cutting and total yields for each year except for the second cutting in 2001. Ranger, the check variety, was the lowest yielding variety in each year.

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References

Colorado Agricultural Statistics Service. 2003. Colorado agricultural statistics. Nat'l Agric. Statistics Service and Colorado Dep. of Agric., Lakewood, CO.

Table 4. Forage yields of 20 alfalfa varieties at Yellow Jacket in 2004.¹

		1st Cut	2nd Cut	3rd Cut	2004	4-Yr
Variety	Brand/Source	6/10/04	8/4/04	10/15/04	Total	Total
-----tons/acre ² -----						
ZG 9650A*	ABI Alfalfa	3.47	2.37	1.28	7.12	28.48
Millennia	IFA	3.37	2.37	1.36	7.12	28.31
Baralfa 54	Barenbrug USA	3.53	2.28	1.15	6.96	28.21
Forecast 1001	Dairyland Seed Co.	3.49	2.46	1.31	7.26	28.13
Magnum V	Dairyland Seed Co.	3.31	2.29	1.18	6.78	28.04
WL 327	Germain's Seed	3.20	2.36	1.35	6.91	28.03
Pro Gro	MBS Genetics	3.41	2.36	1.24	7.00	27.78
DK 134	DeKalb	3.26	2.30	1.28	6.84	27.75
Focus HSN	Arkansas Valley Seeds	3.31	2.27	1.24	6.83	27.63
Geneva	Novartis Seeds	3.52	2.42	1.40	7.33	27.55

DK 142	DeKalb	3.27	2.27	1.27	6.82	27.48
DK 143	DeKalb	3.49	2.28	1.25	7.01	27.47
Award	Asgrow Seed Co.	3.41	2.28	1.26	6.95	27.24
Archer II	America's Alfalfa	3.31	2.25	1.21	6.77	26.94
Aspire	Asgrow Seed Co.	3.12	2.19	1.31	6.63	26.90
AmeriGraze 401+Z	America's Alfalfa	3.21	2.31	1.31	6.83	26.22
ZX 9652*	ABI Alfalfa	3.07	2.24	1.19	6.50	25.99
Abound	Asgrow Seed Co.	3.28	2.24	1.20	6.73	25.83
WL 325HQ	Germain's Seed	3.18	2.11	1.08	6.37	25.69
Ranger	Public	2.88	1.89	0.68	5.45	21.27
Average		3.30	2.28	1.23	6.81	27.05
CV%		6.40	4.94	7.15	4.55	5.23
LSD _(0.30)		0.16	0.08	0.06	0.23	1.05

¹Trial conducted at the southwestern Colorado Research Center, seeded 2 June 2000.

²Yields were calculated on an oven-dry basis and adjusted to 12% moisture.

*Indicates experimental entry.