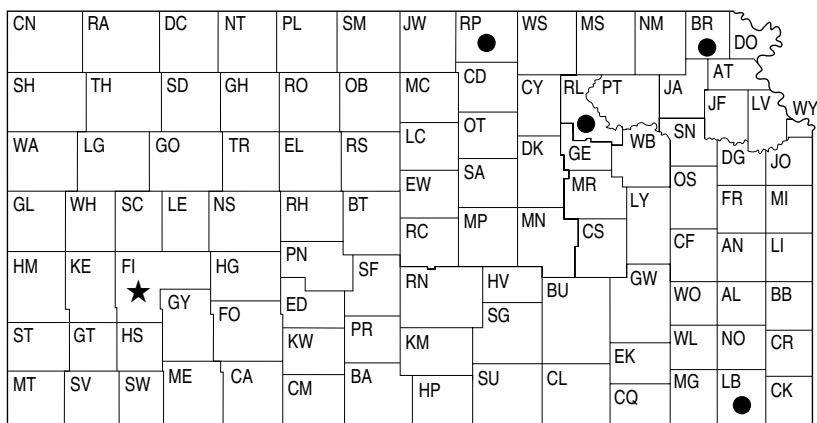





  
**1996**
  
 KANSAS PERFORMANCE TESTS WITH
   
**ALFALFA**
  
**VARIETIES**



● dryland                      ★ irrigated

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# 1996 KANSAS ALFALFA PERFORMANCE TESTS

## INTRODUCTION

### TEST OBJECTIVES AND PROCEDURES

The Kansas Agricultural Experiment Station established an official alfalfa performance testing program in 1980 to provide Kansas growers with unbiased performance comparisons on alfalfa varieties marketed in the state. Each year, private companies are asked to enter varieties voluntarily at the locations slated for establishment that year. Announcements and entry forms are mailed to private companies in June for entry in fall-seeded tests. Companies enter varieties of their choice and pay entry fees to cover part of the costs of conducting the tests. Most tests are planted in mid-August or September; however, the Southeast Kansas test is usually planted in the spring. Individual tests are conducted for a minimum of 3 or 4 years. New tests are established during the final production year of the previous test.

Alfalfa tests are currently in progress at 7 locations around the state. This year, no results are included from the Sandyland Experiment Field near St. John or the South Central Kansas Experiment Field near Hutchinson because of stand establishment problems or delays in 1995. The other testing sites include the Southwest Research-Extension Center at Garden City, the Southeast Agricultural Research Center at Parsons, the North Central Kansas Experiment Field near Belleville, the Cornbelt Experiment Field near Powhattan, and the Agronomy North Farm at Manhattan.

Descriptive information is presented with the results for each test (Tables 1-5). This information, including soil type, establishment methods, fertilization, pest control, irrigation, harvest dates, and growing conditions unique to that location, can help explain test and/or variety performance.

FORAGE YIELDS were estimated by harvesting four replications of each variety with a plot

harvester. The amount of forage produced from a specific area (35-80 ft<sup>2</sup>) was weighed, and a subsample was taken to determine moisture content. This information was used to convert the plot weights to tons of dry matter per acre for each cutting, the season total, and the total for each previous season as presented in Tables 1-5. The forage yield over the lifetime of a particular test is presented as the total tons of dry matter produced per acre, the total tons of 15% moisture hay, and as a percentage of the test average.

At the bottom of each column, the Least Significant Difference (LSD) is listed at the 0.05 and 0.20 levels. These values indicate how large a difference is needed to be confident that one variety is superior to another. Differences between varieties that are equal to or greater than the 0.05 LSD have a 1 in 20 chance of not being real. Differences equal to or greater than the 0.20 LSD have a 1 in 5 chance of not being real.

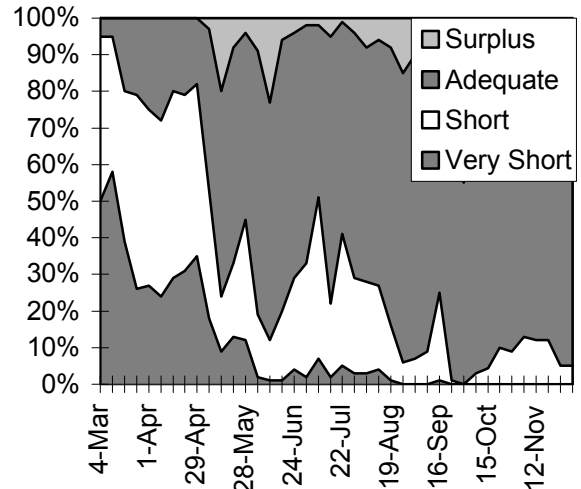
The Coefficient of Variability (CV) provides an estimate of the consistency of the results of a particular test. In these tests, CV's below 10% generally indicate reliable, uniform data, whereas CV's of 10-15% are not uncommon and generally indicate that the data are acceptable for rough comparisons. Tests with CV's over 15% may still be useful, but variety comparisons lack precision.

The Mean Coefficient of Variability (MCV) is similar to the CV in that it serves as an indicator of test precision. The MCV is calculated by dividing the 0.05 LSD by the test mean (average) and multiplying by 100. The MCV reveals the percent difference required to detect differences between varieties with 95% confidence. Many alfalfa breeders and testers agree that tests with MCV values greater than 10% are of no benefit.

### 1996 STATEWIDE GROWING CONDITIONS

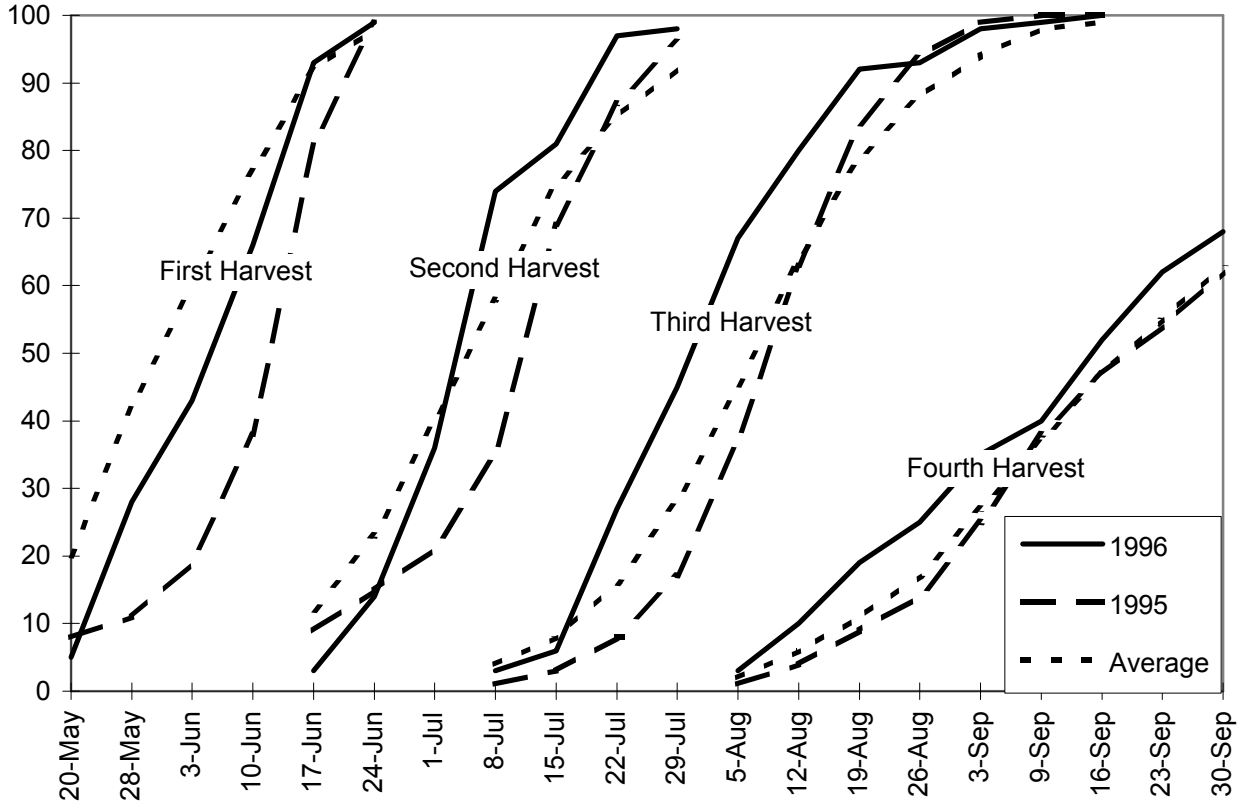
Topsoil moisture was short or very short across much of the state in early spring (Figure 1). May rains delayed first harvest by several days compared to average (Figure 2). Subsequent harvests tended to progress faster than average. Favorable rainfall distribution during July and August provided sufficient moisture for high yields from second and third harvests in much of the state. (From Crop-Weather reports, Kansas Agricultural Statistics, Topeka).

Insect numbers and damage were lower than usual in 1996. Alfalfa weevils seldom built up to damaging levels, even in areas where they typically cause serious problems. Cool, dry, early-spring weather may have inhibited alfalfa weevil development, but several aphid species flourished. Producers in north central Oklahoma were forced to treat some fields for blue alfalfa aphids in April. Some southern Kansas producers also found high populations of pea aphids and spotted alfalfa aphids in April. Relatively high aphid populations moved to northern fields during May. Potato leafhopper



**Figure 1. Statewide topsoil moisture status.**

populations may have been inhibited by the relatively cool, wet weather in July and August and caused less damage than normal. Striped blister beetles were found in alfalfa fields from early July through September. Various caterpillar species often were found in newly seeded fields



**Figure 2. Statewide alfalfa harvest progress.**

in the fall, but didn't appear to cause as much damage as usual. (From Cooperative Economic Insect Survey Reports, Kansas Department of Agriculture).

Dry, cool weather minimized early-season disease problems. Low levels of spring black stem were noted in east central fields in May. Pathologists also found some alfalfa mosaic virus in central Kansas fields early in the season. Most of the alfalfa acreage appeared to be relatively disease free during the rest of the growing season. (From Plant Disease Survey Reports, Kansas Department of Agriculture).

The November 12 Kansas Agricultural Statistics report predicted total 1996 alfalfa production of 3.66 million tons from 850,000 acres. This is up from 3.23 million tons produced from the same acreage in 1995. The predicted average yield of 4.3 tons per acre exceeds the 1995 average yield by half a ton.

#### **VARIETY CHARACTERIZATION**

For variety selection, producers should consider the performance of a variety in each of the current tests where it appears, its performance over time and locations relative to familiar or check varieties, and the disease and insect

resistance characteristics that are potentially important in their situation. Tables 1-5 contain updated yield data from individual tests currently in progress. The appendix contains additional descriptive information and marketing contacts for all varieties included in the 1996 Kansas Alfalfa Performance Tests. Fall dormancy, disease resistance, and insect resistance ratings were provided by developers of each variety and were reviewed by the Association of Official Seed Certifying Agencies (AOSCA), National Alfalfa Variety Review Board (NAVRB). The Certified Alfalfa Seed Council uses that information to publish its annual Fall Dormancy & Pest Resistance Ratings for Alfalfa Varieties, which was used as the source of the information in the appendix.

Fall dormancy values are based on the fall canopy height measured in Minnesota. Dormancy values often are related to the speed of regrowth. The rapid regrowth types have higher values, and the slower regrowth types have lower values.

#### **ACKNOWLEDGMENTS**

*Cooperation of Research Center and Experiment Field personnel who furnished land and performed many or all of the field operations is sincerely appreciated.*

**TABLE 1. BROWN CO. ALFALFA PERFORMANCE TEST RESULTS, 1995-1996.**

BRAND	NAME	Plant Height inches			Forage Yield						95-96 Total, 15% Moist.	95-96 Total, % of Mean
					tons/acre							
		6-14 7-28 9-8			Dry Matter			1995 Total	95-96 Total			
					1996	1995	95-96					
6-14	7-28	9-8	6-14	7-28	9-8	Total	Total	Total				
<b>Released Cultivars</b>												
America's Alfalfa	Innovator+Z	32	20	22	2.27	1.64	1.45	5.36	4.44	9.80	11.53	108
W-L Research	WL 323	30	20	23	2.21	1.62	1.29	5.12	4.66	9.78	11.51	108
Garst	645	28	22	22	2.17	1.62	1.18	4.97	4.68	9.65	11.35	107
Hoegemeyer	Green Field	29	21	22	2.20	1.74	1.78	5.72	3.77	9.49	11.16	105
DeKalb	DK 133	30	18	23	2.21	1.69	1.55	5.45	3.90	9.35	11.00	103
Star	Asset	32	20	22	2.26	1.63	1.18	5.07	4.28	9.35	11.00	103
AgriPro	Depend+EV	29	19	21	2.19	1.67	1.26	5.12	4.19	9.31	10.95	103
Northrup King	Rushmore	31	21	22	2.23	1.66	1.20	5.09	4.16	9.25	10.88	102
DeKalb	DK 127	31	20	20	2.23	1.60	1.36	5.19	4.03	9.22	10.85	102
America's Alfalfa	Total+Z	28	23	21	2.17	1.72	1.31	5.20	3.92	9.12	10.73	101
NC+	Sierra	31	22	23	2.24	1.66	1.39	5.29	3.83	9.12	10.73	101
Ohlde (M/W Gen)	Magnum IV	32	22	22	2.26	1.73	1.36	5.35	3.66	9.01	10.60	100
Pioneer	5454	29	21	22	2.19	1.54	1.25	4.98	3.93	8.91	10.48	98
AgriPro	Demand	27	20	21	2.14	1.67	1.33	5.14	3.68	8.82	10.38	97
Star	A-100	31	22	22	2.24	1.51	1.30	5.05	3.61	8.66	10.19	96
NE AES & USDA	Perry	29	21	21	2.19	1.48	1.23	4.90	3.64	8.54	10.05	94
KS AES & USDA	Kanza	32	18	22	2.26	1.38	1.29	4.93	3.38	8.31	9.78	92
KS AES & USDA	Riley	28	18	20	2.18	1.48	1.10	4.76	3.40	8.16	9.60	90
Cargill	Sterling	28	18	21	2.16	1.51	1.37	5.04	2.91	7.95	9.35	88

**Summary Statistics**

Average	30	19	22	2.21	1.61	1.33	5.15	3.90	9.05	10.65	100
LSD(0.05)	NS	NS	NS	NS	0.19	0.32	0.35	0.51	0.63	0.74	7
LSD(0.20)	3	2	2	0.06	0.12	0.21	0.23	0.33	0.41	0.48	4
CV(%)	9	13	10	3.09	8.44	16.83	4.81	9.20	--	--	--
MCV(%)	NS	NS	NS	NS	11.80	24.06	6.80	13.08	6.96	6.95	7

<p><b>LOCATION:</b> Northeast Kansas  <b>Site:</b> Cornbelt Experiment Field  <b>County:</b> Brown  <b>Town:</b> Powhattan  <b>Soil:</b> Grundy silty clay loam</p> <p><b>ESTABLISHMENT:</b>            9/16/94 ; RCBD, 4 reps            Plots 5'x20'; 4'x20' harvested            15 lb seed/acre</p>	<p><b>1996 FERTILIZATION:</b>            None; Soil test:            P: 51 lb/acre;            K: 350 lb/acre</p> <p><b>1996 PEST CONTROL:</b>            None needed</p>	<p><b>1996 CONDITIONS:</b>            The first cutting was delayed because of wet weather. All varieties were at roughly 60% bloom by the time the first cutting could be taken.</p>
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**TABLE 2. RILEY CO. ALFALFA PERFORMANCE TEST RESULTS, 1995-1996.**

BRAND	NAME	Plant Height inches			Forage Yield									95-96 Total, Total, 15% Moist, % of Mean	
					tons/acre										
					Dry Matter						Total				
					5-21	6-18	7-15	8-14	9-23	Total	1995	95-96	Total		
<b>Released Cultivars</b>															
Garst	630	27	21	16	3.00	1.42	1.13	0.97	1.16	7.68	7.47	15.15	17.82	107	
Cal/West	OK49	26	22	19	2.68	1.43	1.23	1.04	1.15	7.53	7.26	14.79	17.40	105	
Ciba	Ciba 2444	25	21	15	2.81	1.34	1.19	0.96	1.36	7.66	7.00	14.66	17.25	104	
Ohlde (M/W Gen)	Magnum IV	26	20	16	2.79	1.47	1.16	0.93	1.26	7.61	7.05	14.66	17.25	104	
Drussel	Reward	25	21	17	2.75	1.28	1.16	0.91	1.42	7.52	7.10	14.62	17.20	104	
America's Alfalfa	Archer	25	21	18	2.49	1.59	1.19	0.94	1.31	7.52	6.97	14.49	17.05	103	
Cargill	Crown II	27	20	16	2.83	1.38	0.95	0.74	0.97	6.87	7.54	14.41	16.95	102	
Hobart Seed	SuperCuts	24	19	15	2.46	1.46	1.12	0.76	1.25	7.05	7.34	14.39	16.93	102	
W-L Research	WL 323	29	22	17	2.51	1.32	0.99	0.77	1.09	6.68	7.61	14.29	16.81	101	
Star	Asset	27	21	17	2.52	1.30	1.07	0.71	1.14	6.74	7.52	14.26	16.78	101	
DeKalb	DK 133	27	20	16	2.64	1.39	0.89	0.78	1.27	6.97	7.26	14.23	16.74	101	
America's Alfalfa	Aggressor	26	20	17	2.67	1.36	1.21	0.87	1.14	7.25	6.91	14.16	16.66	100	
KS AES & USDA	Riley	26	20	16	2.45	1.25	0.91	0.81	1.22	6.64	7.42	14.06	16.54	100	
KS AES & USDA	Kanza	27	21	18	2.60	1.36	1.16	0.82	1.08	7.02	6.94	13.96	16.42	99	
Garst	645	24	19	16	2.37	1.31	1.14	0.90	1.05	6.77	7.14	13.91	16.36	99	
NE AES & USDA	Perry	26	19	16	2.62	1.22	0.88	0.76	1.10	6.58	7.28	13.86	16.31	98	
Mycogen	TMF Generation	25	19	15	2.35	1.26	1.08	0.86	1.11	6.66	7.04	13.70	16.12	97	
Star	A-100	28	19	16	2.44	1.23	0.96	0.66	1.05	6.34	7.28	13.62	16.02	97	
America's Alfalfa	Apollo Supreme	24	20	15	2.61	1.23	1.03	0.78	1.07	6.72	6.81	13.53	15.92	96	
W-L Research	WL 322 HQ	23	20	16	2.58	1.35	1.13	0.81	1.12	6.99	6.27	13.26	15.60	94	
Northrup King	Fortress	26	20	17	2.40	1.18	1.06	0.67	0.98	6.29	6.45	12.74	14.99	90	
<b>Experimental Strains</b>															
Pioneer	90W3PR1 Exp	28	22	18	2.79	1.68	1.27	1.05	1.27	8.06	8.12	16.18	19.04	115	
ABI	ABI 9142	25	21	16	2.54	1.36	1.20	0.86	1.22	7.18	7.74	14.92	17.55	106	
Pioneer	91112PJ1 Exp	26	22	19	2.62	1.31	1.29	0.94	1.30	7.46	6.68	14.14	16.64	100	
MBS	PGI3212 Exp	26	21	16	2.61	1.45	1.08	0.97	1.24	7.35	6.77	14.12	16.61	100	
ABI	ABI 9141 Exp	23	20	15	2.58	1.45	1.09	0.85	1.13	7.10	6.82	13.92	16.38	99	
Pioneer	91CO1PR1 Exp	26	21	16	2.88	1.45	1.16	0.89	1.22	7.60	6.30	13.90	16.35	99	
Pioneer	91CO2PR1 Exp	25	20	17	2.70	1.45	1.05	0.82	1.11	7.13	6.77	13.90	16.35	99	
Cal/West	1346 Exp	24	19	16	2.68	1.40	1.16	0.86	1.23	7.33	6.50	13.83	16.27	98	
Cal/West	1344 Exp	25	18	14	2.45	1.22	1.12	0.91	0.98	6.68	6.96	13.64	16.05	97	
Cal/West	1469 Exp	25	20	16	2.61	1.37	1.12	0.96	1.11	7.17	6.44	13.61	16.01	97	
MBS	PGI3392 Exp	27	21	15	2.69	1.19	0.99	0.88	1.05	6.80	6.78	13.58	15.98	96	
Pioneer	88C2PI2 Exp	25	23	20	2.33	1.37	1.16	1.00	1.21	7.07	6.45	13.52	15.91	96	
ABI	ABI 923DD Exp	25	19	15	2.37	1.41	1.21	0.88	1.13	7.00	6.51	13.51	15.89	96	
<b>Summary Statistics</b>															
Average		26	20	16	2.60	1.36	1.11	0.87	1.16	7.10	7.00	14.10	16.59	100	
LSD(0.05)		2	1	2	0.18	0.10	0.12	0.13	0.14	0.34	0.60	0.80	0.94	6	
LSD(0.20)		2	1	1	0.13	0.09	0.09	0.09	0.09	0.22	0.46	0.52	0.61	4	
CV(%)		8	6	9	5.96	6.54	8.96	12.63	10.29	--	7.27	--	--	--	
MCV(%)		9	7	10	6.92	7.35	10.81	14.94	12.07	4.79	8.57	5.67	5.67	6	
<b>LOCATION:</b> Northeast Kansas <b>Site:</b> Agronomy North Farm <b>County:</b> Riley <b>Town:</b> Manhattan <b>Soil:</b> Smolan silt loam					<b>1996 FERTILIZATION:</b> April; 0-150-150  <b>1996 PEST CONTROL:</b> Insecticide after first cutting to control weevils. Herbicide after third cutting to control grasses.					<b>1996 CONDITIONS:</b> Very dry winter and early spring conditions may have limited first cutting yields somewhat. May rains enabled the test to regrow rapidly after the first cutting. Wet, cool conditions in July and August may have limited summer growth.					
<b>ESTABLISHMENT:</b> 3/17/94 ; RCBD, 4 reps Plots 3'x12'; 3'x12' harvested 15 lb seed/acre															

**TABLE 3. LABETTE CO. ALFALFA PERFORMANCE TEST RESULTS, 1995-1996.**

BRAND	NAME	Forage Yield							1995 Total	95-96 Total	Total, 15% Moist.	95-96 Total, % of Mean
		tons/acre										
		Dry Matter										
		1996										
		5-23	6-18	7-16	8-16	11-12	Total					
<b>Released Cultivars</b>												
America's Alfalfa	Total+Z	2.11	1.19	0.77	0.22	0.99	5.28	3.22	8.50	10.00	107	
Hobart Seed	SuperCuts	1.99	1.10	0.76	0.20	0.93	4.98	3.48	8.46	9.95	106	
DeKalb	DK 133	1.96	1.10	0.78	0.21	1.05	5.10	3.27	8.37	9.85	105	
W-L Research	WL 323	1.94	1.06	0.73	0.22	0.97	4.92	3.24	8.16	9.60	103	
Mycogen	TMF Generation	1.95	1.10	0.74	0.20	0.95	4.94	3.13	8.07	9.49	102	
America's Alfalfa	Innovator+Z	1.94	0.96	0.70	0.19	0.83	4.62	3.42	8.04	9.46	101	
AgriPro	Depend+EV	1.97	1.05	0.74	0.26	0.77	4.79	3.23	8.02	9.44	101	
America's Alfalfa	Affinity+Z	1.97	1.08	0.69	0.19	0.90	4.83	3.16	7.99	9.40	101	
W-L Research	WL 252 HQ	1.84	1.13	0.70	0.23	0.92	4.82	3.14	7.96	9.36	100	
Ohlde (M/W Gen)	Magnum IV	1.98	1.11	0.85	0.30	0.95	5.19	2.74	7.93	9.33	100	
Northrup King	Rushmore	1.89	1.08	0.69	0.20	0.92	4.78	3.06	7.84	9.22	99	
Great Plains	Haygrazer	1.88	1.03	0.71	0.26	0.94	4.82	2.86	7.68	9.04	97	
DeKalb	DK 127	1.91	0.99	0.62	0.15	0.86	4.53	3.09	7.62	8.96	96	
NE AES & USDA	Perry	2.05	0.86	0.68	0.24	0.92	4.75	2.75	7.50	8.82	94	
KS AES & USDA	Kanza	1.80	1.05	0.77	0.30	0.97	4.89	2.54	7.43	8.74	93	
KS AES & USDA	Riley	1.85	1.00	0.74	0.28	0.85	4.72	2.57	7.29	8.58	92	
<b>Experimental Strains</b>												
ABI	ABI 9141 Exp	1.87	1.04	0.87	0.26	0.97	5.01	3.29	8.30	9.76	104	
Forage Genetics	3T26 Exp	1.88	1.04	0.69	0.16	0.84	4.61	3.22	7.83	9.21	98	
<b>Summary Statistics</b>												
Average		1.94	1.06	0.73	0.23	0.92	4.88	3.07	7.95	9.35	100	
LSD(0.05)		NS	NS	NS	NS	0.12	NS	0.35	0.55	0.65	7	
LSD(0.20)		0.11	0.11	0.09	0.06	0.08	0.28	0.23	0.36	0.42	4	
CV(%)		6.02	11.64	13.17	29.32	9.77	6.21	--	--	--	--	
MCV(%)		NS	NS	NS	NS	13.04	NS	11.40	6.92	6.92	7	

**LOCATION:** Southeast Kansas  
**Site:** Southeast Ag. Research Center  
**County:** Labette  
**Town:** Mound Valley  
**Soil:** Parsons silty clay loam  
**ESTABLISHMENT:**  
 4/6/95 ; RCBD, 4 reps  
 Plots 5'x30'; 3'x20' harvested  
 15 lb seed/acre

**1996 FERTILIZATION:**  
 March; 0-60-200  
**1996 PEST CONTROL:**  
 No pesticides needed

**1996 CONDITIONS:**  
 Pest damage was minimal. Moisture was short most of the season, but dry conditions did not significantly reduce yields until the fourth cutting. Then no regrowth occurred until early-October rains provided adequate moisture. The 1st cutting was at 50% bloom, the 2nd at 25%, the 3rd and 4th at 10%, and the 5th was vegetative.



**TABLE 4. REPUBLIC CO. ALFALFA PERFORMANCE TEST RESULTS, 1993-1996.**

BRAND	NAME	Forage Yield									Total, 15% Moist.	93-96 Total, % of Mean
		tons/acre										
		Dry Matter					1995 Total	1994 Total	1993 Total	93-96 Total		
		6-11	7-11	8-1	9-30	Total						
<b>Released Cultivars</b>												
Garst	645	2.46	1.62	1.47	1.50	7.06	5.43	9.28	8.35	30.12	35.44	113
Johnston	Good as Gold	2.39	1.47	1.44	1.56	6.86	5.34	9.12	7.84	29.16	34.31	109
Cargill	Trident II	2.27	1.36	1.44	1.38	6.44	5.00	8.68	8.25	28.37	33.38	106
Sharp	Alfaleaf	2.19	1.01	1.31	1.37	5.88	4.84	9.04	8.61	28.37	33.38	106
Garst	630	2.21	1.69	1.83	1.45	7.17	4.89	8.32	7.92	28.30	33.29	106
Pioneer	5364	2.15	1.38	1.64	1.32	6.49	4.86	8.58	8.08	28.01	32.95	105
Cargill	Crown II	2.09	1.28	1.48	1.11	5.96	4.89	8.85	8.20	27.90	32.82	104
W-L Research	WL 320	1.66	1.45	1.55	1.01	5.67	4.92	8.90	7.66	27.15	31.94	102
DeKalb	DK 125	1.80	1.12	1.34	1.25	5.52	4.54	8.87	8.21	27.14	31.93	102
Wilbur-Ellis	Jewel	2.24	1.21	1.16	1.32	5.94	4.92	8.35	7.85	27.06	31.84	101
Germain's	Ogallala 633	2.09	1.17	1.34	1.26	5.86	4.78	8.25	7.83	26.72	31.44	100
Pioneer	5432	1.74	1.31	1.32	1.29	5.66	4.86	8.65	7.51	26.68	31.39	100
ABI	Venture	1.83	1.16	1.27	1.25	5.51	4.84	8.36	7.91	26.62	31.32	100
Northrup King	Viking 1	1.79	1.11	1.27	1.07	5.25	4.98	8.61	7.71	26.55	31.24	99
Star	A-100	1.75	1.09	1.29	1.52	5.65	4.71	8.41	7.70	26.47	31.14	99
Cal/West	OK49	1.91	1.21	1.21	0.91	5.23	4.76	8.67	7.45	26.11	30.72	98
America's Alfalfa	Apollo Supreme	1.85	1.32	1.21	1.21	5.59	4.86	8.49	7.12	26.06	30.66	98
W-L Research	WL 317	1.89	1.25	1.37	1.34	5.85	4.38	7.67	8.07	25.97	30.55	97
NE AES & USDA	Perry	2.10	1.00	1.47	0.91	5.48	4.85	8.12	7.40	25.85	30.41	97
Northrup King	MultiKing1	1.67	1.12	1.33	1.11	5.23	4.39	7.92	7.93	25.47	29.96	95
W-L Research	WL 322 HQ	1.76	1.28	1.30	1.11	5.45	4.48	8.02	7.08	25.03	29.45	94
Great Plains	Cimarron VR	1.46	0.84	1.18	0.87	4.36	4.44	8.05	7.53	24.38	28.68	91
KS AES & USDA	Riley	1.52	1.04	1.51	0.70	4.77	4.07	7.63	7.59	24.06	28.31	90
KS AES & USDA	Kanza	1.40	1.21	1.26	0.61	4.49	4.49	7.65	6.96	23.59	27.75	88
<b>Summary Statistics</b>												
Average		1.93	1.24	1.37	1.18	5.72	4.77	8.44	7.78	26.71	31.42	100
LSD(0.05)		0.26	0.25	0.23	0.23	0.70	0.53	0.78	0.79	1.55	1.82	6
LSD(0.20)		0.21	0.19	0.18	0.18	0.56	0.35	0.61	0.51	1.00	1.18	4
CV(%)		11.65	17.00	14.38	16.26	10.44	7.91	7.86	7.20	--	--	--
MCV(%)		13.47	20.16	16.79	19.49	12.24	11.11	9.24	10.15	5.80	5.79	6
<b>LOCATION:</b> North Central Kansas		<b>1996 FERTILIZATION:</b>					<b>1996 CONDITIONS:</b>					
Site: North Central Kansas Exp. Field		February; 0-45-0					Dry, cold, winter conditions caused some winterkill and stand thinning, increasing yield variability. Cool, wet conditions in May delayed the first harvest until early June. Although June was dry, rainfall was adequate in July and August. Above-normal rainfall in September delayed the last harvest for almost 3 weeks.					
County: Republic		<b>1996 PEST CONTROL:</b>										
Town: Belleville		None needed										
Soil: Crete silt loam												
<b>ESTABLISHMENT:</b>												
8/27/92 ; RCBD, 4 reps												
Plots 5'x30'; 3'x20' harvested												
18 lb seed/acre												

**TABLE 5. FINNEY CO. IRRIGATED ALFALFA PERFORMANCE TEST RESULTS, 1994-1996.**

BRAND	NAME	Forage Yield								Total, 15% Moist.	94-96 Total, % of Mean
		tons/acre									
		Dry Matter					1995 Total	1994 Total	94-96 Total		
		6-6	7-1	8-2	9-24	Total					
<b>Released Cultivars</b>											
Drussel	Reward	3.45	1.59	1.59	1.99	8.62	8.53	10.02	27.17	31.96	106
NC+	Jade	3.29	1.58	1.55	1.94	8.36	8.34	9.97	26.67	31.38	104
Mycogen	TMF Generation	3.23	1.37	1.50	1.82	7.92	8.64	9.78	26.34	30.99	103
America's Alfalfa	Aggressor	3.45	1.30	1.52	1.88	8.15	8.78	9.33	26.26	30.89	103
America's Alfalfa	Archer	3.07	1.60	1.51	2.04	8.22	8.32	9.72	26.26	30.89	103
Casterline	ProGro 424	3.27	1.48	1.47	1.66	7.88	8.22	10.05	26.15	30.76	102
Great Plains	Belmont	3.08	1.47	1.42	1.90	7.87	8.50	9.49	25.86	30.42	101
Great Plains	Key	3.14	1.36	1.37	1.89	7.76	8.41	9.66	25.83	30.39	101
America's Alfalfa	Apollo Supreme	3.21	1.46	1.57	1.83	8.07	8.39	9.35	25.81	30.36	101
Cal/West	OK49	3.18	1.52	1.58	1.84	8.12	8.07	9.49	25.68	30.21	100
MBS	More	3.07	1.33	1.44	1.82	7.66	8.56	9.42	25.64	30.16	100
Golden Harvest	GH-755	3.28	1.37	1.52	1.73	7.90	8.45	9.26	25.61	30.13	100
Great Plains	Cimarron VR	3.40	1.36	1.35	1.76	7.87	8.16	9.57	25.60	30.12	100
Ohide (M/W Gen)	Magnum IV	3.49	1.60	1.45	1.95	8.49	8.10	8.98	25.57	30.08	100
DeKalb	DK 133	3.00	1.45	1.40	1.77	7.62	8.07	9.80	25.49	29.99	100
W-L Research	WL 323	3.19	1.40	1.38	1.86	7.83	8.31	9.27	25.41	29.89	99
W-L Research	WL 322 HQ	3.06	1.56	1.53	1.69	7.84	8.50	8.83	25.17	29.61	98
Wilbur-Ellis	Jewel	3.03	1.37	1.33	1.76	7.49	8.38	9.30	25.17	29.61	98
KS AES & USDA	Riley	2.85	1.34	1.39	1.83	7.41	8.15	9.36	24.92	29.32	97
NE AES & USDA	Perry	3.09	1.35	1.42	1.73	7.59	8.18	9.08	24.85	29.24	97
Northrup King	Fortress	3.07	1.38	1.44	1.73	7.62	7.87	9.18	24.67	29.02	96
Sharp	Alfaleaf	2.88	1.32	1.33	1.88	7.41	8.14	9.00	24.55	28.88	96
KS AES & USDA	Kanza	3.21	1.36	1.34	1.72	7.63	7.90	8.43	23.96	28.19	94
Sharp	Shamrock	2.46	1.06	1.04	1.55	6.11	7.70	10.01	23.82	28.02	93
<b>Experimental Strains</b>											
MBS	PGI4372 Exp	3.27	1.62	1.64	2.06	8.59	8.81	9.93	27.33	32.15	107
Pioneer	90W3PR1 Exp	3.56	1.51	1.51	1.92	8.50	8.98	9.32	26.80	31.53	105
MBS	PGI4212 Exp	3.45	1.67	1.58	1.92	8.62	8.53	9.29	26.44	31.11	103
MBS	PGI9047 Exp	2.86	1.34	1.56	1.97	7.73	8.32	10.05	26.10	30.71	102
ABI	ABI 9045 Exp	3.16	1.42	1.30	1.83	7.71	8.66	9.72	26.09	30.69	102
Pioneer	91CO2PR1 Exp	3.10	1.60	1.64	2.04	8.38	8.44	8.99	25.81	30.36	101
Pioneer	91CO1PR1 Exp	3.28	1.47	1.67	1.89	8.31	7.99	9.26	25.56	30.07	100
Cal/West	2514 Exp	3.18	1.25	1.35	1.76	7.54	7.89	9.76	25.19	29.64	98
Pioneer	91112PJ1 Exp	3.14	1.58	1.53	1.75	8.00	8.11	8.84	24.95	29.35	97
Pioneer	88C2PI2 Exp	3.27	1.53	1.53	1.74	8.07	7.45	8.17	23.69	27.87	93
<b>Summary Statistics</b>											
Average		3.17	1.44	1.46	1.84	7.91	8.30	9.40	25.61	30.13	100
LSD(0.05)		0.34	0.11	0.14	0.15	0.51	0.36	0.64	1.01	1.19	4
LSD(0.20)		0.27	0.09	0.11	0.12	0.33	0.28	0.50	0.66	0.78	3
CV(%)		9.26	6.75	7.96	7.02	4.56	3.65	5.84	--	--	--
MCV(%)		10.72	7.64	9.59	8.15	6.45	4.34	6.81	3.94	3.95	4
<b>LOCATION:</b> Southwest Kansas <b>Site:</b> Southwest Res.-Ext. Center <b>County:</b> Finney <b>Town:</b> Garden City <b>Soil:</b> Keith silt loam		<b>1996 FERTILIZATION:</b> None					<b>1996 CONDITIONS:</b> Insects, diseases, and weather conditions imposed very little stress on this test in 1996. Wet, cool conditions delayed the first cutting until nearly half bloom. The second and third cuttings were harvested at one-tenth bloom.				
<b>ESTABLISHMENT:</b> 9/10/93 ; RCBD, 4 reps Plots 3'x20'; 3'x20' harvested 32 lb seed/acre		<b>1996 PEST CONTROL:</b> Herbicide in April to control grasses									

## Appendix: Entrants and entries in 1996 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

**ABI** 515-292-2432

ABI Alfalfa  
2316 259th St.  
Ames, IA 50014

	1	2	3	4	5	6	7	8	9	10	11	12	13
ABI 9045 Exp	4	H	H	H	H	H	R	H	-	M	R	-	-
ABI 9141 Exp	4	H	H	H	H	H	-	R	-	M	R	-	-
ABI 9142	4	H	R	H	H	H	-	R	-	M	R	-	-
ABI 923DD Exp	3	H	H	H	H	H	M	R	-	R	R	-	-
Venture	4	H	R	R	H	R	-	H	-	L	R	-	-

**Cal/West** 608-786-1554

Cal/West Seeds  
R.R. 1, Box 70  
West Salem, WI 54669

	1	2	3	4	5	6	7	8	9	10	11	12	13
1344 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
1346 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
1469 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
2514 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
OK49	-	-	-	-	-	-	-	-	-	-	-	-	-

**AgriPro**

Agripro Seeds, Inc.  
P.O. Box 2962  
Shawnee Mission, KS 66201-1362

	1	2	3	4	5	6	7	8	9	10	11	12	13
Demand	3	H	H	H	H	H	M	R	-	M	R	-	-
Depend+EV	4	H	H	H	H	H	M	R	S	M	R	-	-

**Cargill** 612-742-6743

Cargill Hybrid Seeds  
P.O. Box 5645  
Minneapolis, MN 55440

	1	2	3	4	5	6	7	8	9	10	11	12	13
Crown II	3	H	R	H	H	H	M	R	-	-	-	-	-
Sterling	2	H	R	H	H	H	R	R	-	-	R	-	-
Trident II	3	H	R	R	R	H	L	-	-	L	M	-	-

**America's Alfalfa** 913-384-4940

America's Alfalfa  
P.O. Box 2955  
6700 Antioch  
Shawnee Mission, KS 66201

	1	2	3	4	5	6	7	8	9	10	11	12	13
Affinity+Z	4	H	H	H	H	H	-	R	-	R	R	-	-
Aggressor	4	H	R	H	H	H	M	H	M	M	M	-	-
Apollo Supreme	4	H	R	H	H	R	-	H	-	-	-	-	-
Archer	5	M	M	H	R	R	H	H	R	R	-	-	R
Innovator+Z	3	H	H	H	H	H	M	R	S	R	R	-	-
Total+Z	3	H	H	H	H	H	M	R	S	M	R	-	-

**Casterline** 800-444-4137

Casterline Seeds, Inc.  
Box 1377  
1st & Maple  
Dodge City, KS 67801

	1	2	3	4	5	6	7	8	9	10	11	12	13
ProGro 424	4	H	R	H	R	H	R	R	M	-	M	-	-

**Ciba** 402-475-0897

Novartis Seeds  
201 Benton Court  
Lincoln, NE 68521

	1	2	3	4	5	6	7	8	9	10	11	12	13
Ciba 2444	3	H	R	H	H	H	-	M	-	M	R	-	-

Variety characterization codes:

- 1 = Fall dormancy rating
- 2 = Bacterial wilt
- 3 = Verticillium wilt
- 4 = Fusarium wilt
- 5 = Anthracnose race 1
- 6 = Phytophthora root rot
- 7 = Spotted alfalfa aphid
- 8 = Pea aphid
- 9 = Blue alfalfa aphid
- 10 = Stem nematode
- 11 = Aphanomyces root rot race 1
- 12 = Southern root knot nematode
- 13 = Northern root knot nematode

Fall dormancy ratings:

Check variety	Rating
Norseman	1
Vernal	2
Ranger	3
Saranac	4
DuPuits	5
Lahontan	6
Mesilla	7
Moapa 69	8
CUF 101	9

Pest resistance ratings:

Code	Resistance class	% Resistant plants
S	Susceptible	0-5%
L	Low resistance	6-14%
M	Moderate resistance	15-30%
R	Resistance	31-50%
H	Hight resistance	>50%
-	Not adequately tested	

Fall dormancy and disease and insect resistance ratings are from Alfalfa Varieties, a publication of the Certified Alfalfa Seed Council, or from developers of the varieties. Blank spaces indicate that the variety has not been adequately tested.

(continued)

## Appendix: Entrants and entries in 1996 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

<p><b>DeKalb</b> 815-758-9323 DeKalb Plant Genetics Corp. 3100 Sycamore Rd. DeKalb, IL 60115</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></td> </tr> <tr> <td>DK 125</td> <td>3 H R R H R M R - - - - -</td> </tr> <tr> <td>DK 127</td> <td>3 H R R H H H H - R H - R</td> </tr> <tr> <td>DK 133</td> <td>4 H R H H H R R - M R - -</td> </tr> </table> <p><b>Drussel</b> 316-275-2359 Drussel Seed and Supply 2197 W. Parallel Road Garden City, KS 67846</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></td> </tr> <tr> <td>Reward</td> <td>4 H R H R H R H M M M - -</td> </tr> </table> <p><b>Forage Genetics</b> 608-786-2121 Forage Genetics N 5292 South Gills Coulee Rd. West Salem, WI 54669</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></td> </tr> <tr> <td>3T26 Exp</td> <td>- - - - - - - - - - - - -</td> </tr> </table> <p><b>Garst</b> 800-831-6630 Garst Seed Co. 2369 330th St. Slater, IA 50244</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></td> </tr> <tr> <td>630</td> <td>4 H M R M R M R M M - - -</td> </tr> <tr> <td>645</td> <td>- - - - - - - - - - - - -</td> </tr> </table>		<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>	DK 125	3 H R R H R M R - - - - -	DK 127	3 H R R H H H H - R H - R	DK 133	4 H R H H H R R - M R - -		<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>	Reward	4 H R H R H R H M M M - -		<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>	3T26 Exp	- - - - - - - - - - - - -		<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>	630	4 H M R M R M R M M - - -	645	- - - - - - - - - - - - -	<p><b>Germain's</b> 913-674-2062 Germain's Seed Co. P.O. Box 373 Hill City, KS 67642</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></td> </tr> <tr> <td>Ogallala 633</td> <td>4 H R R H H H R - M M - -</td> </tr> </table> <p><b>Golden Harvest</b> 800-228-9906 J.C. Robinson Seed Co. 100 J.C. Robinson Blvd. P.O. Box A Waterloo, NE 68069</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></td> </tr> <tr> <td>GH-755</td> <td>4 H R H H H R R R R R - -</td> </tr> </table> <p><b>Great Plains</b> 919-362-1583 Great Plains Research Co., Inc. 3624 Kildaire Farm Rd. Apex, NC 27502</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></td> </tr> <tr> <td>Belmont</td> <td>4 H R H H R H H R R - - -</td> </tr> <tr> <td>Cimarron VR</td> <td>4 H R H H R H H M R M M -</td> </tr> <tr> <td>Haygrazer</td> <td>4 H R H R R R R - R M - -</td> </tr> <tr> <td>Key</td> <td>4 H H H H H H H M M M M -</td> </tr> </table> <p><b>Hobart Seed</b> 800-866-6074 Hobart Seed 530 S. Main Hobart, OK 73651</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></td> </tr> <tr> <td>SuperCuts</td> <td>4 H H H H H - R - L R - -</td> </tr> </table>		<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>	Ogallala 633	4 H R R H H H R - M M - -		<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>	GH-755	4 H R H H H R R R R R - -		<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>	Belmont	4 H R H H R H H R R - - -	Cimarron VR	4 H R H H R H H M R M M -	Haygrazer	4 H R H R R R R - R M - -	Key	4 H H H H H H H M M M M -		<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>	SuperCuts	4 H H H H H - R - L R - -
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Variety characterization codes:

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- 13 = Northern root knot nematode

Fall dormancy ratings:

<u>Check variety</u>	<u>Rating</u>
Norseman	1
Vernal	2
Ranger	3
Saranac	4
DuPuits	5
Lahontan	6
Mesilla	7
Moapa 69	8
CUF 101	9

Pest resistance ratings:

<u>Code</u>	<u>Resistance class</u>	<u>% Resistant plants</u>
S	Susceptible	0-5%
L	Low resistance	6-14%
M	Moderate resistance	15-30%
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-	Not adequately tested	

Fall dormancy and disease and insect resistance ratings are from Alfalfa Varieties, a publication of the Certified Alfalfa Seed Council, or from developers of the varieties. Blank spaces indicate that the variety has not been adequately tested.

(continued)

## Appendix: Entrants and entries in 1996 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

<p><b>Hoegemeyer</b> 402-654-3399                  Hoegemeyer Hybrids                  1755 Hoegemeyer Rd.                  Hooper, NE 68031-2125</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>Green Field 3 H R H H H - H - - R - -</p>	<p><b>Mycogen</b> 800-321-2867                  Mycogen Seeds                  P.O. Box 21428                  St. Paul, MN 55121-1428</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>TMF Generation 4 H H H H H - R - - R - -</p>
<p><b>Johnston</b> 405-233-5800                  Johnston Seed Co.                  P.O. Box 1392                  Enid, OK 73702</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>Good as Gold 4 H R H R H R H M - L - -</p>	<p><b>NC+</b> 402-467-2517                  NC+ Hybrids                  P.O. Box 4408                  1300 N. 79th                  Lincoln, NE 68504</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>Jade 4 H R R R H M - - - - -                  Sierra 3 H R H R H R - L M M - M</p>
<p><b>KS AES &amp; USDA</b> 913-532-6115                  KSU - Foundation Seed                  2200 Kimball Ave.                  Manhattan, KS 66502</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>Kanza - - - - - - - - - - - -                  Riley 4 H L - M - H H - - - - -</p>	<p><b>NE AES &amp; USDA</b> 402-472-4290                  Foundation Seed Division                  University of Nebraska-Lincoln                  3115 North 70th                  Lincoln, NE 68507-2104</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>Perry 3 R - - L - M R - - - - -</p>
<p><b>MBS</b> 515-733-5274                  MBS, Inc.                  225 West 1st St.                  Story City, IA 50248-1657</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>More - - - - - - - - - - - -                  PGI3212 Exp - - - - - - - - - - - -                  PGI3392 Exp - - - - - - - - - - - -                  PGI4212 Exp - - - - - - - - - - - -                  PGI4372 Exp - - - - - - - - - - - -                  PGI9047 Exp - - - - - - - - - - - -</p>	<p><b>Northrup King</b> 316-543-2707                  NORVARTIS SEEDS INC                  1060 Wheatland                  Buhler, KS 67522</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>Fortress 4 R R R - H H R - H - - -                  MultiKing1 3 H R H R R M M - M - - -                  Rushmore 4 H R H H H H R - - H - -                  Viking 1 2 R H H R R - M M - - - -</p>

Variety characterization codes:

- 1 = Fall dormancy rating
- 2 = Bacterial wilt
- 3 = Verticillium wilt
- 4 = Fusarium wilt
- 5 = Anthracnose race 1
- 6 = Phytophthora root rot
- 7 = Spotted alfalfa aphid
- 8 = Pea aphid
- 9 = Blue alfalfa aphid
- 10 = Stem nematode
- 11 = Aphanomyces root rot race 1
- 12 = Southern root knot nematode
- 13 = Northern root knot nematode

Fall dormancy ratings:

<u>Check variety</u>	<u>Rating</u>
Norseman	1
Vernal	2
Ranger	3
Saranac	4
DuPuits	5
Lahontan	6
Mesilla	7
Moapa 69	8
CUF 101	9

Pest resistance ratings:

<u>Code</u>	<u>Resistance class</u>	<u>% Resistant plants</u>
S	Susceptible	0-5%
L	Low resistance	6-14%
M	Moderate resistance	15-30%
R	Resistance	31-50%
H	Hight resistance	>50%
-	Not adequately tested	

Fall dormancy and disease and insect resistance ratings are from Alfalfa Varieties, a publication of the Certified Alfalfa Seed Council, or from developers of the varieties. Blank spaces indicate that the variety has not been adequately tested.

(continued)

## Appendix: Entrants and entries in 1996 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

<p><b>Ohlde (MW Gen)</b>                      913-692-4555</p> <p>Ohlde Seed Farms Midwest Seed Genetics Box 63 RR 1 Palmer, KS 66962</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>Magnum IV            4 H R H R H M - M R M - M</p>	<p><b>Star</b>                                      913-346-5447</p> <p>Star Seed 101 Industrial Ave. Osborne, KS 67473</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>A-100                                      - - - - - - - - - - - - - - - Asset                                        4 H R R R H R R - - M - -</p>
<p><b>Pioneer</b>                                515-270-3342</p> <p>Pioneer Hi-Bred Intl., Inc. Box 287 7305 NW 62nd Johnston, IA 50131</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>5364                                        4 R M R M M H H - R - - - 5432                                        4 H R H - M H R - M - - - 5454                                        4 R M H H H R R - M L - - 88C2PI2 Exp                              - - - - - - - - - - - - - - - 90W3PR1 Exp                              - - - - - - - - - - - - - - - 91CO1PR1 Exp                             - - - - - - - - - - - - - - - 91CO2PR1 Exp                             - - - - - - - - - - - - - - - 91I12PJ1 Exp                              - - - - - - - - - - - - - - -</p>	<p><b>W-L Research</b>                        608-882-4100</p> <p>W-L Research, Inc. 8701 Hwy. 14 Evansville, WI 53536-8752</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>WL 252 HQ                                2 H R H H H M R L R L - - WL 317                                      3 H R H R H R H - R - - M WL 320                                      4 R M R M R R M M M - - - WL 322 HQ                                4 H R H M R H H R L - - L WL 323                                      4 H R H H H M R - H R - -</p>
<p><b>Sharp</b>                                    316-398-2231</p> <p>Sharp Bros. Seed Company Box 140 Healy, KS 67850</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>Alfaleaf                                    4 H R R R H R R - - M - - Shamrock                                 - - - - - - - - - - - - - - -</p>	<p><b>Wilbur-Ellis</b>                            719-336-2226</p> <p>Wilbur-Ellis P.O. Box 1017 Lamar, CO 81052</p> <p style="text-align: center;"><u>1 2 3 4 5 6 7 8 9 10 11 12 13</u></p> <p>Jewel                                        4 H R R R H R R - - M - -</p>

<u>Variety characterization codes:</u>	<u>Fall dormancy ratings:</u>	<u>Pest resistance ratings:</u>
1 = Fall dormancy rating	<u>Check variety</u> <u>Rating</u>	<u>Code</u> <u>Resistance class</u> <u>% Resistant plants</u>
2 = Bacterial wilt	Norseman              1	S      Susceptible                      0-5%
3 = Verticillium wilt	Vernal                    2	L      Low resistance                    6-14%
4 = Fusarium wilt	Ranger                  3	M      Moderate resistance              15-30%
5 = Anthracnose race 1	Saranac                  4	R      Resistance                        31-50%
6 = Phytophthora root rot	DuPuits                  5	H      Hight resistance                  >50%
7 = Spotted alfalfa aphid	Lahontan                6	-      Not adequately tested
8 = Pea aphid	Mesilla                  7	
9 = Blue alfalfa aphid	Moapa 69                8	
10 = Stem nematode	CUF 101                 9	
11 = Aphanomyces root rot race 1		
12 = Southern root knot nematode		
13 = Northern root knot nematode		

Fall dormancy and disease and insect resistance ratings are from Alfalfa Varieties, a publication of the Certified Alfalfa Seed Council, or from developers of the varieties. Blank spaces indicate that the variety has not been adequately tested.

## ELECTRONIC ACCESS

For those interested in accessing crop performance testing information electronically, try visiting our World Wide Web site. Most of the information contained in this publication is available for viewing or downloading. The URL is <http://www.ksu.edu/kscpt>.

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Permission is hereby given to Kansas State University to test our varieties and/or hybrids designated on the attached entry forms in the manner indicated on the test announcement. I understand that all results from Kansas crop performance tests belong to the University and to the public and shall be controlled by the University so as to produce the greatest benefit to the public. It is further agreed that the name of the University shall not be used by the company in any commercial advertising either in regard to this agreement or any other related matter.

## CONTRIBUTORS

### MAIN STATION, MANHATTAN

**Kraig Roozeboom, Associate Agronomist (Senior Author)**

### RESEARCH CENTERS

**Joe Moyer, Parsons**  
**Merle Witt, Garden City**

### EXPERIMENT FIELDS

**W. Barney Gordon, Scandia**  
**Brian Marsh, Powhattan**

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Agricultural Experiment Station Kansas State University , Manhattan 66506-4008

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