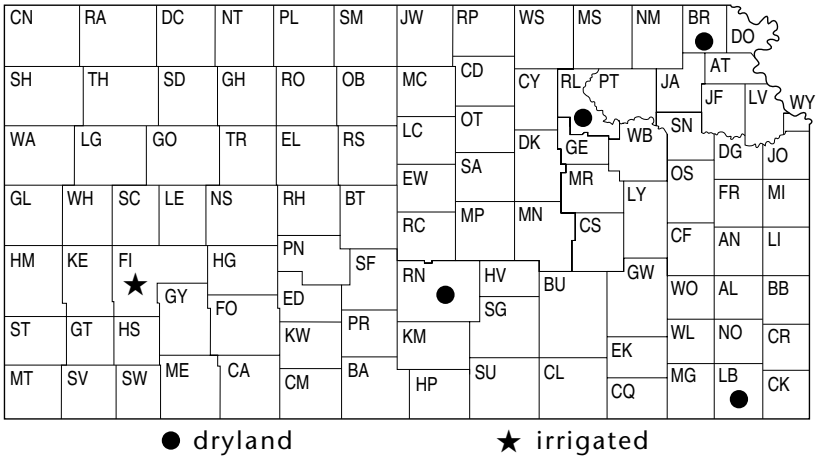
1997

KANSAS PERFORMANCE TESTS WITH

ALFALFA VARIETIES



Report of Progress 802
Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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Contribution No. 98-252-S from the Kansas Agricultural Experiment Station.

1997 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 usually is 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 North Central Kansas Experiment Field near Belleville because of stand establishment problems or delays in 1995 and 1996. The other testing sites include the Southwest Research-Extension Center at Garden City, the Southeast Agricultural Research Center at Parsons, the South Central Kansas Experiment Field near Hutchinson, 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^2) 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, as 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

The 1997 harvest started earlier than last year but fell behind when rainfall delayed completion. Later cuttings reflected a similar pattern (Figure 1). Rainfall amounts and distribution were favorable for alfalfa production across southeastern, south central, and western Kansas. Topsoil moisture was surplus or adequate for much of the season, but periods of low topsoil moisture occurred in May, July, and September (Figure 2). Localized areas in northeast and north central Kansas were dry for most of the summer, limiting alfalfa production. (From Crop-Weather reports, Kansas Agricultural Statistics, Topeka).

Insect populations were active during the entire season. An army cutworm alert in early March was prompted by treatment-level infestations in south central and southwest Kansas. Blue alfalfa aphids, pea aphids, and alfalfa weevils reached damaging levels along the border with Oklahoma in late March and early April. Freezing temperatures in late April reduced populations dramatically. Aphid and weevil populations remained low through early summer. Potato leafhoppers caused heavy damage in June and July in fields scattered across the state. Leafhoppers and aphids were observed in alfalfa fields as late as mid-October. (From Cooperative Economic Insect Survey, Kansas Department of Agriculture).

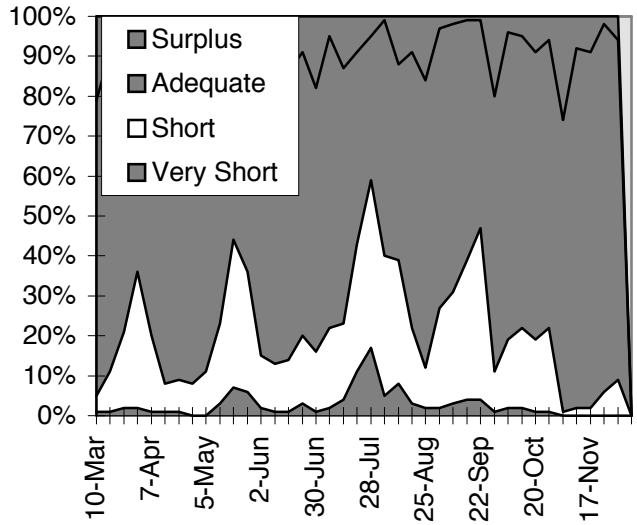

Figure 2. Statewide topsoil moisture status.

Foliar diseases increased in incidence and severity during April and eventually caused defoliation in many fields in early May. Spring black stem and Lepto leaf spot caused the most damage. East central, southeast, and south central Kansas were affected most severely. As usual, foliar diseases were of minor importance

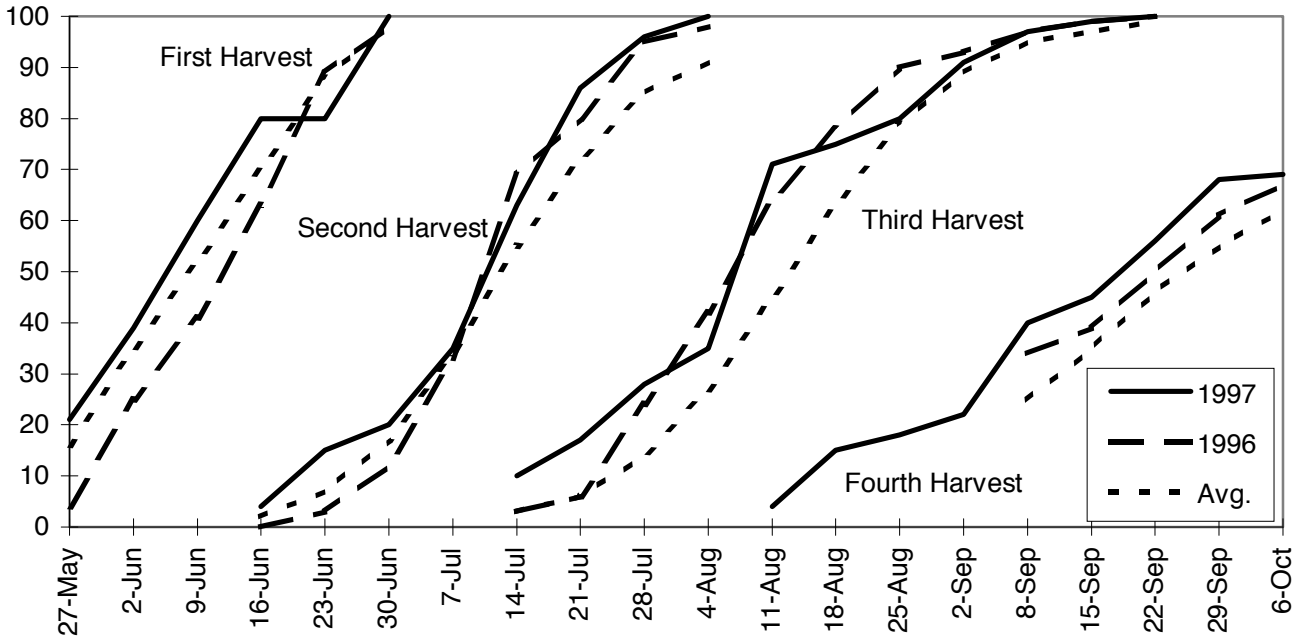

Figure 1. Statewide alfalfa harvest progress.

after the first harvest. (From Plant Disease Survey Reports, Kansas Department of Agriculture).

The November 10 Kansas Agricultural Statistics report predicted total 1997 alfalfa hay production of 3.66 million tons from 850,000 acres. This is up from 3.44 million tons produced from 800,000 acres in 1996. The predicted average yield of 4.3 tons per acre equals the 1996 average yield.

For those interested in accessing crop performance testing information electronically, try our World Wide Web site: http://www.ksu.edu/kscpt. The information contained in this publication and more are available for viewing or downloading. Contact Kraig Roozeboom for alfalfa test information on disk or via e-mail. Text and tables can be sent in a variety of formats (e.g., ASCII, Excel, dBase).

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 1997 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, 1995-1997.

		Plant Height inches			Forage Yield tons/acre Dry Matter								
					1997								
BRAND	NAME	6-6	7-17	8-29	6-6	7-17	8-29	Total	1996 Total	1995 Total	95-97 Total	Total, 15% Moist.	95-97 Total, % of Mean
Released Cultivars													
Hoegemeyer	Green Field	26	24	20	2.41	1.71	1.85	5.97	5.72	3.77	15.46	18.19	106
DeKalb	DK 133	26	24	21	2.53	1.77	1.77	6.08	5.45	3.90	15.43	18.15	106
America's Alfalfa	Innovator+Z	25	26	22	2.27	1.69	1.47	5.43	5.36	4.44	15.23	17.92	104
W-L Research	WL 323	25	26	22	2.36	1.57	1.51	5.44	5.12	4.66	15.22	17.91	104
DeKalb	DK 127	24	27	19	2.64	1.54	1.63	5.81	5.19	4.03	15.03	17.68	103
Northrup King	Rushmore	27	24	20	2.52	1.75	1.51	5.78	5.09	4.16	15.03	17.68	103
Ohlde (M/W Gen)	Magnum IV	26	26	20	2.62	1.63	1.74	5.99	5.35	3.66	15.00	17.65	103
Garst	645	25	27	23	2.56	1.50	1.21	5.27	4.97	4.68	14.92	17.55	102
Star	Asset	26	27	19	2.31	1.57	1.59	5.47	5.07	4.28	14.82	17.44	102
America's Alfalfa	Total+Z	27	26	22	2.32	1.69	1.63	5.64	5.20	3.92	14.76	17.36	101
NC+	Sierra	27	26	22	2.40	1.54	1.68	5.62	5.29	3.83	14.74	17.34	101
Pioneer	5454	29	26	20	2.67	1.39	1.64	5.70	4.98	3.93	14.61	17.19	100
AgriPro	Demand	25	26	19	2.33	1.61	1.78	5.71	5.14	3.68	14.53	17.09	100
AgriPro	Depend+EV	26	27	22	2.18	1.49	1.45	5.11	5.12	4.19	14.42	16.96	99
NE AES & USDA	Perry	28	26	20	2.54	1.45	1.58	5.58	4.90	3.64	14.12	16.61	97
Star	A-100	24	25	20	2.24	1.50	1.66	5.41	5.05	3.61	14.07	16.55	97
Cargill	Sterling	26	27	21	2.48	1.52	1.36	5.36	5.04	2.91	13.31	15.66	91
KS AES & USDA	Kanza	26	26	21	2.28	1.31	1.41	5.00	4.93	3.38	13.31	15.66	91
KS AES & USDA	Riley	26	28	22	2.05	1.35	1.38	4.78	4.76	3.40	12.94	15.22	89
Summary Statistics													
Average	Average	26	26	21	2.41	1.56	1.57	5.53	5.15	3.90	14.58	17.15	100
LSD(0.05)	LSD(0.05)	3	3	3	0.25	0.12	0.17	0.30	0.35	0.51	0.69	0.81	5
LSD(0.20)	LSD(0.20)	2	2	2	0.16	0.08	0.11	0.20	0.23	0.33	0.45	0.53	3
CV(%)	CV(%)	9	9	9	7.41	5.56	7.84	3.84	4.81	9.20	3.34	--	--
MCV(%)	MCV(%)	12	13	13	10.52	7.90	11.10	5.45	6.80	13.08	4.73	4.73	5

LOCATION: Northeast Kansas
Site: Cornbelt Experiment Field
County: Brown
Town: Powhattan
Soil: Grundy silty clay loam

ESTABLISHMENT:
9/16/94 ; RCBD, 4 reps
Plots 5'x20'; 4'x20' harvested
15 lb seed/acre

1997 FERTILIZATION:
None; Soil test:
P: 51 lb/acre;
K: 350 lb/acre

1997 PEST CONTROL:
None needed

1997 CONDITIONS:
Very dry weather following the first cutting limited crop development, regrowth, and yield. All cuttings were made at 20% bloom. No differences in growth stage were observed for any variety at any cutting.

TABLE 2. RILEY CO. ALFALFA PERFORMANCE TEST RESULTS, 1995-1997.

BRAND	NAME	Plant Height inches	Forage Yield tons/acre Dry Matter 1997						1996	1995	95-97	95-97 Total, 15%	95-97 Total, % of
		10-20	5-21	6-18	7-15	8-14	9-23	Total	Total	Total	Total	Moist.	Mean
Released Cultivars													
Garst	630	13	2.91	2.21	2.60	2.42	1.15	11.29	7.68	7.47	26.44	31.11	106
Ohlde (M/W Gen)	Magnum IV	13	2.92	2.47	2.81	2.14	1.03	11.37	7.61	7.05	26.03	30.62	105
Ciba	Ciba 2444	11	2.76	2.27	2.95	2.13	1.09	11.20	7.66	7.00	25.86	30.42	104
Hobart Seed	SuperCuts	13	2.76	2.33	2.91	2.25	1.01	11.26	7.05	7.34	25.65	30.18	103
Cal/West	OK49	15	2.69	2.18	2.61	2.23	1.13	10.84	7.53	7.26	25.63	30.15	103
Star	Asset	15	2.80	2.31	2.72	2.30	1.16	11.29	6.74	7.52	25.55	30.06	103
W-L Research	WL 323	15	2.53	2.16	2.58	2.64	1.05	10.96	6.68	7.61	25.25	29.71	102
America's Alfalfa	Archer	16	2.55	2.27	2.71	1.97	1.22	10.72	7.52	6.97	25.21	29.66	102
DSS	Reward	13	2.66	2.07	2.57	2.11	1.05	10.46	7.52	7.10	25.08	29.51	101
KS AES & USDA	Riley	12	2.64	2.05	2.94	2.24	1.04	10.91	6.64	7.42	24.97	29.38	101
Cargill	Crown II	14	2.69	2.27	2.36	2.12	1.00	10.44	6.87	7.54	24.85	29.24	100
America's Alfalfa	Aggressor	13	2.82	2.26	2.66	1.88	0.99	10.61	7.25	6.91	24.77	29.14	100
NE AES & USDA	Perry	12	2.74	2.16	2.79	2.05	1.03	10.77	6.58	7.28	24.63	28.98	99
Garst	645	12	2.84	2.32	2.57	1.95	1.01	10.69	6.77	7.14	24.60	28.94	99
Mycogen	TMF Generation	12	2.69	2.29	2.74	2.16	0.91	10.79	6.66	7.04	24.49	28.81	99
KS AES & USDA	Kanza	13	2.60	2.10	2.79	1.99	1.01	10.49	7.02	6.94	24.45	28.76	98
DeKalb	DK 133	14	2.54	2.03	2.45	2.10	1.00	10.12	6.97	7.26	24.35	28.65	98
Star	A-100	15	2.56	2.42	2.38	2.23	1.13	10.72	6.34	7.28	24.34	28.64	98
America's Alfalfa	Apollo Supreme	12	2.78	2.27	2.55	2.06	0.91	10.57	6.72	6.81	24.10	28.35	97
W-L Research	WL 322 HQ	12	2.74	2.18	2.66	2.22	0.88	10.68	6.99	6.27	23.94	28.16	96
Northrup King	Fortress	14	2.40	2.20	2.38	1.82	1.08	9.88	6.29	6.45	22.62	26.61	91
Experimental Strains													
Pioneer	90W3PR1 Exp	14	3.02	2.27	2.72	2.13	1.07	11.21	8.06	8.12	27.39	32.22	110
ABI	ABI 9142	13	2.81	2.32	2.91	1.97	1.06	11.07	7.18	7.74	25.99	30.58	105
Pioneer	91I12PJ1 Exp	15	2.71	2.20	2.87	2.46	1.19	11.43	7.46	6.68	25.57	30.08	103
MBS	PGI3212 Exp	14	2.80	2.24	2.67	2.47	1.10	11.28	7.35	6.77	25.40	29.88	102
ABI	ABI 9141 Exp	12	2.87	2.41	2.90	1.97	1.09	11.24	7.10	6.82	25.16	29.60	101
Pioneer	91CO2PR1 Exp	13	2.82	2.18	2.95	2.03	1.03	11.01	7.13	6.77	24.91	29.31	100
ABI	ABI 923DD Exp	12	2.76	2.23	2.80	2.32	0.92	11.03	7.00	6.51	24.54	28.87	99
Cal/West	1346 Exp	11	2.71	2.25	2.40	1.87	0.95	10.18	7.33	6.50	24.01	28.25	97
Pioneer	91CO1PR1 Exp	13	2.65	2.17	2.35	1.93	1.00	10.10	7.60	6.30	24.00	28.24	97
Cal/West	1344 Exp	11	2.58	2.09	2.37	2.24	0.92	10.20	6.68	6.96	23.84	28.05	96
Pioneer	88C2PI2 Exp	14	2.50	2.11	2.45	1.95	1.10	10.11	7.07	6.45	23.63	27.80	95
MBS	PGI3392 Exp	12	2.65	2.08	2.35	2.03	0.92	10.03	6.80	6.78	23.61	27.78	95
Cal/West	1469 Exp	13	2.57	2.13	2.18	2.16	0.95	9.99	7.17	6.44	23.60	27.76	95
Summary Statistics													
Average	Average	13	2.71	2.22	2.63	2.13	1.04	10.73	7.10	7.00	24.83	29.21	100
LSD(0.05)	LSD(0.05)	1	0.14	0.15	0.34	0.35	0.09	0.65	0.34	0.60	1.03	1.21	4
LSD(0.20)	LSD(0.20)	1	0.11	0.12	0.26	0.28	0.07	0.43	0.22	0.46	0.67	0.79	3
CV(%)	CV(%)	9	4.44	5.89	11.08	14.18	7.54	4.31	3.45	7.27	2.94	--	--
MCV(%)	MCV(%)	9	5.22	6.92	13.02	16.67	8.82	6.10	4.79	8.57	4.15	4.15	4

LOCATION: Northeast Kansas
Site: Agronomy North Farm
County: Riley
Town: Manhattan
Soil: Smolan silt loam

ESTABLISHMENT:
3/17/94 ; RCBD, 4 reps
Plots 3'x12'; 3'x12' harvested
15 lb seed/acre

1997 FERTILIZATION:
April; 0-180-180

1997 PEST CONTROL:
Insecticide after first cutting to control weevils and leaf hoppers.

1997 CONDITIONS:
Cool, moist conditions in early summer resulted in good yields from second and third cuttings. The last cutting was taken before the first killing frost.

TABLE 3. LABETTE CO. ALFALFA PERFORMANCE TEST RESULTS, 1995-1997.

		Forage Yield tons/acre Dry Matter										
		1997									Total, 15%	95-97 Total, % of
BRAND	NAME	5-12	6-25	7-28	9-10	11-4	Total	1996 Total	1995 Total	95-97 Total	Moist.	Mean
Released Cultivars												
Hobart Seed	SuperCuts	2.59	2.51	1.60	1.26	1.17	9.13	4.98	3.48	17.59	20.69	104
America's Alfalfa	Total+Z	2.57	2.56	1.44	1.16	1.11	8.84	5.28	3.22	17.34	20.40	103
AgriPro	Depend+EV	2.66	2.56	1.53	1.27	1.28	9.30	4.79	3.23	17.32	20.38	103
DeKalb	DK 133	2.56	2.58	1.47	1.15	1.15	8.91	5.10	3.27	17.28	20.33	103
Mycogen	TMF Generation	2.73	2.58	1.55	1.17	1.15	9.18	4.94	3.13	17.25	20.29	102
America's Alfalfa	Affinity+Z	2.65	2.60	1.56	1.23	1.10	9.14	4.83	3.16	17.13	20.15	102
W-L Research	WL 323	2.44	2.57	1.47	1.15	1.14	8.77	4.92	3.24	16.93	19.92	100
Great Plains	Haygrazer	2.67	2.59	1.47	1.28	1.21	9.22	4.82	2.86	16.90	19.88	100
Ohlde (M/W Gen)	Magnum IV	2.57	2.36	1.38	1.29	1.33	8.93	5.19	2.74	16.86	19.84	100
W-L Research	WL 252 HQ	2.58	2.68	1.36	1.20	1.05	8.87	4.82	3.14	16.83	19.80	100
America's Alfalfa	Innovator+Z	2.38	2.52	1.47	1.21	1.10	8.68	4.62	3.42	16.72	19.67	99
DeKalb	DK 127	2.60	2.60	1.38	1.22	1.16	8.96	4.53	3.09	16.58	19.51	98
Northrup King	Rushmore	2.44	2.52	1.44	1.16	1.11	8.67	4.78	3.06	16.51	19.42	98
NE AES & USDA	Perry	2.50	2.38	1.47	1.16	1.07	8.58	4.75	2.75	16.08	18.92	95
KS AES & USDA	Riley	2.49	2.50	1.52	1.16	1.02	8.69	4.72	2.57	15.98	18.80	95
KS AES & USDA	Kanza	2.39	2.49	1.35	1.11	0.95	8.29	4.89	2.54	15.72	18.49	93
Experimental Strains												
ABI	ABI 9141 Exp	2.53	2.66	1.50	1.34	1.19	9.22	5.01	3.29	17.52	20.61	104
Forage Genetics	3T26 Exp	2.49	2.45	1.58	1.16	1.10	8.78	4.61	3.22	16.61	19.54	99
Summary Statistics												
Average	Average	2.55	2.54	1.47	1.21	1.13	8.90	4.88	3.07	16.85	19.82	100
LSD(0.05)	LSD(0.05)	NS	NS	NS	0.08	0.10	0.41	NS	0.35	0.68	0.80	4
LSD(0.20)	LSD(0.20)	0.22	0.17	0.15	0.08	0.10	0.27	0.28	0.23	0.44	0.52	3
CV(%)	CV(%)	7.24	5.79	8.49	5.57	7.67	3.25	6.21	--	2.85	--	--
MCV(%)	MCV(%)	NS	NS	NS	6.61	8.85	4.60	NS	11.40	4.04	4.04	4

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

1997 FERTILIZATION:
March; 0-60-200

1997 PEST CONTROL:
No pesticides, although some pea aphids were present at first cutting

1997 CONDITIONS:
Rainfall distribution was favorable for the entire season. Peas aphids were present at the first cutting, but they didn't appear to reach damaging levels.

TABLE 4. RENO CO. ALFALFA PERFORMANCE TEST RESULTS, 1997.

BRAND	NAME	Plant Height inches 6-7	Plant Height inches 7-10	Plant Height inches 9-3	Stand % 9-3	Forage Yield tons/acre 1997 Dry Matter 6-7	7-10	9-3	Total	Total, 15% Moist.	1997 Total, % of Mean
Released Cultivars											
Mycogen	TMF Generation	23	15	10	100	2.37	1.84	0.92	5.13	6.04	108
Allied	Spur	21	15	12	100	2.26	1.94	0.92	5.12	6.02	108
W-L Research	WL 324	21	15	10	100	2.27	1.74	1.03	5.04	5.93	106
Casterline	ProGro 424	23	15	10	100	2.31	1.63	1.04	4.98	5.86	105
Garst	645	21	14	10	100	2.27	1.71	0.99	4.97	5.85	105
Great Plains	Key	22	16	11	100	2.17	1.76	1.04	4.97	5.85	105
Star	Asset	23	15	11	100	2.23	1.74	0.90	4.87	5.73	103
Star	A-100	22	16	11	96	2.16	1.78	0.93	4.87	5.73	103
W-L Research	WL 325 HQ	20	15	11	100	1.93	1.86	1.04	4.83	5.68	102
Mycogen	TMF Multiplier II	23	16	10	99	2.24	1.70	0.87	4.81	5.66	101
America's Alfalfa	Affinity+Z	23	15	10	100	2.27	1.54	0.99	4.80	5.65	101
Great Plains	Haygrazer	23	14	10	100	2.26	1.56	0.98	4.80	5.65	101
Ohlde (M/W Gen)	Magnum IV	24	16	10	100	2.16	1.71	0.93	4.80	5.65	101
DeKalb	DK 127	22	16	10	100	2.17	1.70	0.91	4.78	5.62	101
W-L Research	WL 414	19	16	11	99	1.79	1.92	1.02	4.73	5.56	100
AgriPro	Depend+EV	20	16	11	100	2.08	1.72	0.92	4.72	5.55	100
America's Alfalfa	Archer	21	16	12	100	2.10	1.59	1.00	4.69	5.52	99
KS AES & USDA	Riley	22	14	10	100	2.21	1.52	0.95	4.68	5.51	99
Allied	Excalibur II	23	16	11	100	2.04	1.67	0.96	4.67	5.49	99
W-L Research	WL 252 HQ	20	15	10	99	1.97	1.74	0.94	4.65	5.47	98
Sharp	AlfaLeaf II	21	17	10	100	2.01	1.73	0.86	4.60	5.41	97
NE AES & USDA	Perry	23	15	10	99	2.11	1.62	0.85	4.58	5.39	97
Sharp	Shamrock	22	16	12	98	1.89	1.66	1.02	4.57	5.38	96
Allied	Stamina	19	16	10	100	1.78	1.72	0.98	4.48	5.27	95
KS AES & USDA	Kanza	22	16	11	100	1.89	1.57	0.89	4.35	5.12	92
W-L Research	Ace	21	15	11	98	1.94	1.42	0.90	4.26	5.01	90
Experimental Strains											
Cal/West	C/W 5440 Exp	21	15	11	100	2.18	1.55	0.98	4.71	5.54	99
Cal/West	C/W 5406 Exp	20	15	11	100	1.91	1.80	0.92	4.63	5.45	98
Cal/West	C/W 4429 Exp	20	14	12	100	2.03	1.61	0.98	4.62	5.44	97
Summary Statistics											
Average	Average	22	15	11	100	2.10	1.69	0.95	4.74	5.58	100
LSD(0.05)	LSD(0.05)	1	2	NS	NS	0.18	0.20	NS	0.35	0.41	7
LSD(0.20)	LSD(0.20)	1	1	NS	NS	0.14	0.15	0.09	0.23	0.27	5
CV(%)	CV(%)	6	9	11	2	7.46	9.90	10.13	5.25	--	--
MCV(%)	MCV(%)	7	11	NS	NS	8.79	11.66	NS	7.38	7.38	7

LOCATION: South Central Kansas
Site: South Central Experiment Field
County: Reno
Town: Hutchinson
Soil: Ost silt loam

ESTABLISHMENT:
9/1/96 ; RCBD, 4 reps
Plots 5'x20, 3x20' harvested
18 lb seed/acre

1997 FERTILIZATION:
75-40-0 before planting.

1997 PEST CONTROL:
Herbicide to control grasses at planting. Furadan for alfalfa weevil in April.

1997 CONDITIONS:
Early spring and July were drier than normal. Regrowth after the second cutting was slow, eliminating the opportunity for a fourth harvest.

TABLE 5. FINNEY CO. IRRIGATED ALFALFA PERFORMANCE TEST RESULTS, 1997.

		Forage Yield tons/acre						
		1997 Dry Matter					Total, 15%	1997 Total, % of
BRAND	NAME	6-6	7-1	8-2	9-24	Total	Moist.	Mean
Released Cultivars								
W-L Research	WL 414	3.37	2.41	2.04	1.80	9.62	11.32	106
W-L Research	WL 324	3.54	2.36	1.93	1.63	9.46	11.13	104
Allied	Stamina	3.55	2.39	1.82	1.58	9.34	10.99	103
Mycogen	TMF Multiplier II	3.67	2.34	1.75	1.53	9.29	10.93	102
Garst	645	3.34	2.42	1.89	1.57	9.22	10.85	101
Sharp	AlfaLeaf II	3.50	2.35	1.80	1.57	9.22	10.85	101
KS AES & USDA	Riley	3.49	2.39	1.78	1.55	9.21	10.84	101
W-L Research	WL 325 HQ	3.56	2.32	1.75	1.58	9.21	10.84	101
Star	A-100	3.64	2.28	1.66	1.59	9.17	10.79	101
Cargill	Big Horn	3.52	2.38	1.70	1.55	9.15	10.76	101
Allied	Spur	3.51	2.35	1.75	1.53	9.14	10.75	100
W-L Research	WL 323	3.52	2.31	1.78	1.53	9.14	10.75	100
DeKalb	DK 127	3.47	2.25	1.81	1.59	9.12	10.73	100
Casterline	ProGro 424	3.43	2.28	1.78	1.59	9.08	10.68	100
DSS	Enhancer	3.35	2.13	1.88	1.66	9.02	10.61	99
Sharp	Shamrock	3.68	2.23	1.64	1.47	9.02	10.61	99
Golden Harvest	GH-755	3.39	2.18	1.83	1.59	8.99	10.58	99
W-L Research	Ace	3.39	2.33	1.66	1.55	8.93	10.51	98
Garst	630	3.29	2.21	1.73	1.58	8.81	10.36	97
NE AES & USDA	Perry	3.51	2.26	1.63	1.40	8.80	10.35	97
Golden Harvest	GH-766	3.48	2.26	1.60	1.44	8.78	10.33	96
Jerry Weaver Seeds	Magnum III	3.34	2.16	1.66	1.55	8.71	10.25	96
Star	Asset	3.35	2.16	1.68	1.50	8.69	10.22	95
DeKalb	DK 133	3.46	2.11	1.62	1.49	8.68	10.21	95
Sharp	Sure	3.35	2.22	1.64	1.47	8.68	10.21	95
Allied	Excalibur II	3.24	2.15	1.69	1.51	8.59	10.11	94
KS AES & USDA	Kanza	2.95	2.04	1.61	1.53	8.13	9.56	89
Experimental Strains								
Cal/West	C/W 5406 Exp	3.68	2.45	2.05	1.71	9.89	11.64	109
DSS	DSS 5211X Exp	3.57	2.39	1.99	1.76	9.71	11.42	107
Cal/West	C/W 4598 Exp	3.48	2.44	1.91	1.73	9.56	11.25	105
Cal/West	C/W 5440 Exp	3.48	2.47	1.91	1.69	9.55	11.24	105
Cal/West	C/W 4429 Exp	3.46	2.36	1.87	1.68	9.37	11.02	103
DSS	DSS 5106X Exp	3.39	2.22	1.77	1.63	9.01	10.60	99
Summary Statistics								
Average	Average	3.45	2.29	1.78	1.58	9.10	10.71	100
LSD(0.05)	LSD(0.05)	0.17	0.12	0.07	0.06	0.27	0.32	3
LSD(0.20)	LSD(0.20)	0.13	0.09	0.06	0.05	0.17	0.20	2
CV(%)	CV(%)	4.13	4.29	3.40	3.19	2.09	--	--
MCV(%)	MCV(%)	4.86	5.04	3.98	3.75	2.95	2.95	3

LOCATION: Southwest Kansas
Site: Southwest Res.-Ext. Center
County: Finney
Town: Garden City
Soil: Keith silt loam

ESTABLISHMENT:
8/29/96 ; RCBD, 4 reps
Plots 3'x20'; 3'x20' harvested
32 lb seed/acre

1997 FERTILIZATION:
August, 1996; 22-64-0

1997 PEST CONTROL:
None needed

1997 CONDITIONS:
Cool temperatures and above-normal rainfall minimized the need for irrigation. Insect and disease problems were minimal.

Appendix: Entrants and entries in 1997 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 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	-	-

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	-	-
Robust	5	R	R	H	R	R	R	R	M	R	-	R	M

Allied

800-813-5025

Allied Seed Cooperative
P.O. Box 94J
Angola, IN 46703

	1	2	3	4	5	6	7	8	9	10	11	12	13
Excalibur II	-	-	-	-	-	-	-	-	-	-	-	-	-
Spur	4	H	R	H	H	H	R	H	-	M	R	-	M
Stamina	4	H	R	H	H	H	H	H	-	H	R	-	H

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	-	-

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	-	-	-	-	-	-	-	-	-	-	-	-	-
C/W 4429 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
C/W 4598 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
C/W 5406 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
C/W 5440 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
OK49	-	-	-	-	-	-	-	-	-	-	-	-	-

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	High 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 1997 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

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
Big Horn	4	H	R	H	H	H	R	R	H	R	H	-	-
Crown II	3	H	R	H	H	H	M	R	-	-	-	-	-
Sterling	2	H	R	H	H	H	R	R	-	-	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

,

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

DSS

316-275-2359

Drussel Seed and Supply
2197 W. Parallel Road
Garden City, KS 67846

	1	2	3	4	5	6	7	8	9	10	11	12	13
DSS 5106X Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
DSS 5211X Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
Enhancer	4	H	R	H	R	H	R	-	-	-	M	-	-
Reward	4	H	R	H	R	H	R	H	M	M	M	-	-

DeKalb

815-758-9323

DeKalb Plant Genetics Corp.
3100 Sycamore Rd.
DeKalb, IL 60115

	1	2	3	4	5	6	7	8	9	10	11	12	13
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	-	-

Forage Genetics

608-786-2121

Forage Genetics
N 5292 South Gills Coulee Rd.
West Salem, WI 54669

	1	2	3	4	5	6	7	8	9	10	11	12	13
3T26 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-

Garst

608-249-8977

Garst Seed Co.
P.O. Box 7790
Madison, WI 53707-7790

	1	2	3	4	5	6	7	8	9	10	11	12	13
630	4	H	M	R	M	R	M	R	M	M	-	-	-
645	3	H	R	R	H	H	M	R	-	M	M	-	-

Golden Harvest

800-228-9906

J.C. Robinson Seed Co.
100 J.C. Robinson Blvd.
P.O. Box A
Waterloo, NE 68069

	1	2	3	4	5	6	7	8	9	10	11	12	13
GH-755	4	H	R	H	H	H	R	R	R	R	R	-	-
GH-766	3	H	R	H	H	H	R	R	-	R	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	High 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 1997 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

Great Plains 919-362-1583

Great Plains Research Co.,Inc.
3624 Kildaire Farm Rd.
Apex, NC 27502

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

Hobart Seed 800-866-6074

Hobart Seed
530 S. Main
Hobart, OK 73651

	1	2	3	4	5	6	7	8	9	10	11	12	13
SuperCuts	4	H	H	H	H	H	-	R	-	L	R	-	-

Hoegemeyer 402-654-3399

Hoegemeyer Hybrids
1755 Hoegemeyer Rd.
Hooper, NE 68031-2125

	1	2	3	4	5	6	7	8	9	10	11	12	13
Green Field	3	H	R	H	H	H	-	H	-	-	R	-	-

Jerry Weaver Seeds

Jerry Weaver Seeds
3743 County Rd. S.
Admire, KS 66833

	1	2	3	4	5	6	7	8	9	10	11	12	13
Magnum III	4	R	M	R	M	R	M	R	M	M	L	-	-

KS AES & USDA 785-532-6115

KSU - Foundation Seed
2200 Kimball Ave.
Manhattan, KS 66502

	1	2	3	4	5	6	7	8	9	10	11	12	13
Kanza	-	-	-	-	-	-	-	-	-	-	-	-	-
Riley	4	H	L	-	M	-	H	H	-	-	-	-	-

MBS 515-733-5274

MBS, Inc.
225 West 1st St.
Story City, IA 50248-1657

	1	2	3	4	5	6	7	8	9	10	11	12	13
PGI3212 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
PGI3392 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-

Mycogen 800-321-2867

Mycogen Seeds
P.O. Box 21428
St. Paul, MN 55121-1428

	1	2	3	4	5	6	7	8	9	10	11	12	13
TMF Generation	4	H	H	H	H	H	-	R	-	-	R	-	-
TMF Multiplier II	-	-	-	-	-	-	-	-	-	-	-	-	-

NC+ 402-467-2517

NC+ Hybrids
P.O. Box 4408
1300 N. 79th
Lincoln, NE 68504

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

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	High 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 1997 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

NE AES & USDA

402-472-4290

Foundation Seed Division
University of Nebraska-Lincoln
3115 North 70th
Lincoln, NE 68507-2104

	1	2	3	4	5	6	7	8	9	10	11	12	13
Perry	3	R	-	-	L	-	M	R	-	-	-	-	-

Northrup King

316-543-2707

Novartis Seeds, Inc.
1060 Wheatland
Buhler, KS 67522

	1	2	3	4	5	6	7	8	9	10	11	12	13
Fortress	4	R	R	R	-	H	H	R	-	H	-	-	-
Rushmore	4	H	R	H	H	H	H	R	-	-	H	-	-

Ohlde (M/W Gen)

785-692-4555

Ohlde Seed Farms
Midwest Seed Genetics
1577 4th Rd
Palmer, KS 66962

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

Pioneer

515-270-3342

Pioneer Hi-Bred Intl., Inc.
Box 287
7305 NW 62nd
Johnston, IA 50131

	1	2	3	4	5	6	7	8	9	10	11	12	13
5454	4	R	M	H	H	H	R	R	-	M	L	-	-
88C2PI2 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
90W3PR1 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
91CO1PR1 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
91CO2PR1 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-
91I12PJ1 Exp	-	-	-	-	-	-	-	-	-	-	-	-	-

Sharp

316-398-2231

Sharp Bros. Seed Company
Box 140
Healy, KS 67850

	1	2	3	4	5	6	7	8	9	10	11	12	13
AlfaLeaf II	4	R	R	H	H	H	R	H	-	R	R	-	-
Shamrock	-	-	-	-	-	-	-	-	-	-	-	-	-
Sure	-	-	-	-	-	-	-	-	-	-	-	-	-

Star

785-346-5447

Star Seed
101 Industrial Ave.
Osborne, KS 67473

	1	2	3	4	5	6	7	8	9	10	11	12	13
A-100	-	-	-	-	-	-	-	-	-	-	-	-	-
Asset	4	H	R	R	R	H	R	R	-	-	M	-	-

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	High 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 1997 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

W-L Research 608-882-4100

W-L Research, Inc.
8701 Hwy. 14
Evansville, WI 53536-8752

	1	2	3	4	5	6	7	8	9	10	11	12	13
Ace	4	H	R	H	H	H	M	R	R	H	R	-	-
WL 252 HQ	2	H	R	H	H	H	M	R	L	R	L	-	-
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	-	-
WL 324	3	H	R	H	H	H	R	H	-	M	H	-	-
WL 325 HQ	3	H	R	H	H	H	R	R	M	R	R	-	-
WL 414	6	R	R	H	R	H	H	H	H	R	-	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	High 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.

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.

Excerpts from the

UNIVERSITY RESEARCH POLICY AGREEMENT WITH COOPERATING SEED COMPANIES*

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.

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NOTE: Trade names are used to identify products. No endorsement is intended, nor is any criticism implied of similar products not named.

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