

1999

KANSAS PERFORMANCE TESTS WITH

ALFALFA VARIETIES

REPORT OF PROGRESS 848

Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service

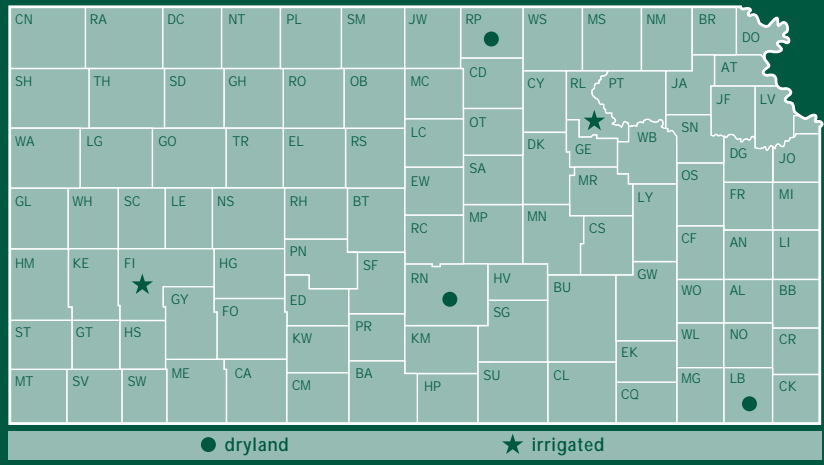
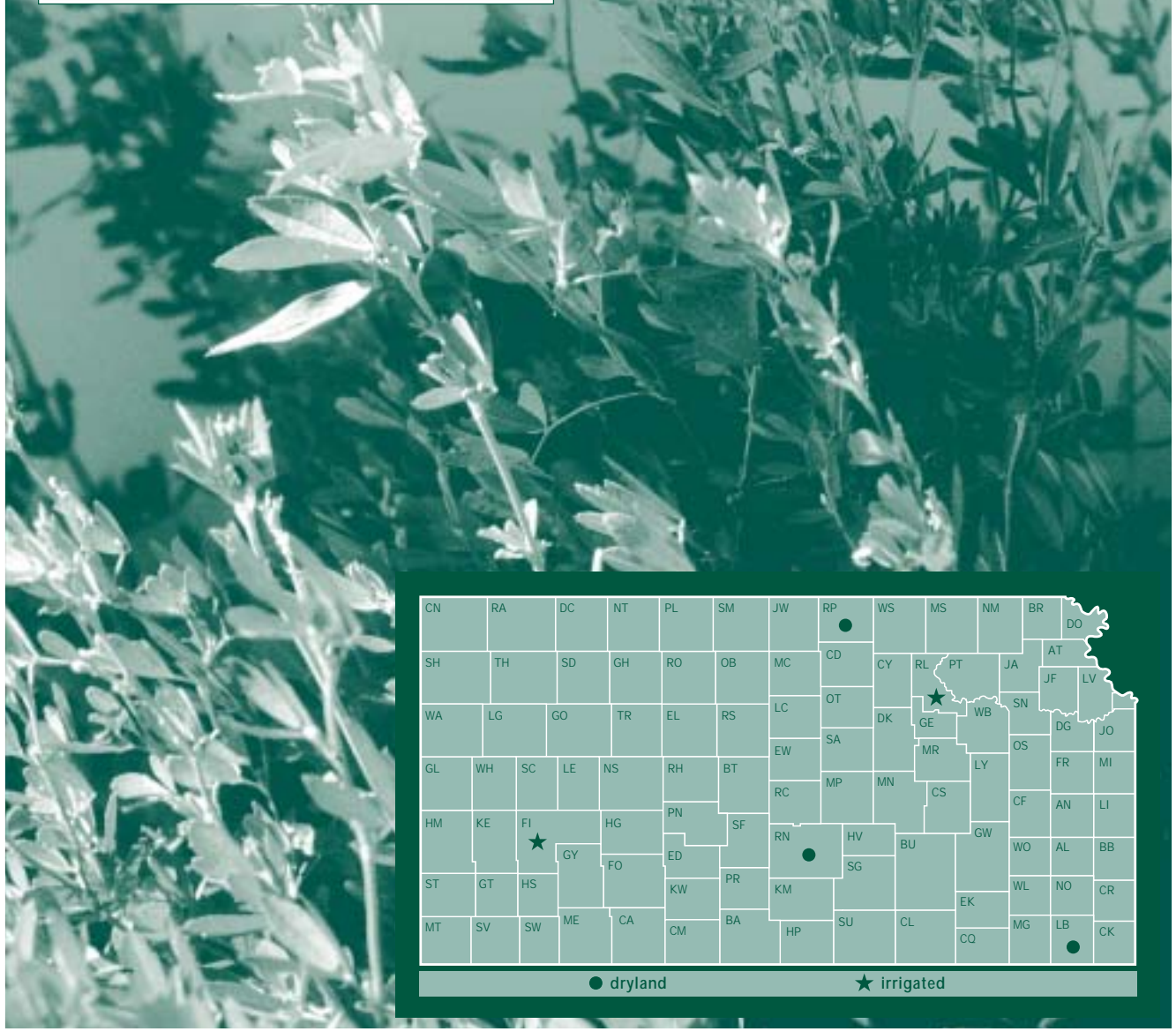


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1999 KANSAS ALFALFA PERFORMANCE TESTS

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 Cornbelt Experiment Field near Powhattan because of variability in first-year yields. 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 North Central Experiment Field near Belleville, and the Ashland Research Farm at Manhattan.

The Manhattan test was established as a "no insecticide" test to evaluate variety differences in resistance and/or tolerance to infestations of insect pests such as alfalfa weevil and potato leafhopper. The susceptible check variety, Ranger, was included as a basis for comparison.

Descriptive information is presented with the results for each test. 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 ft²) 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 little benefit.

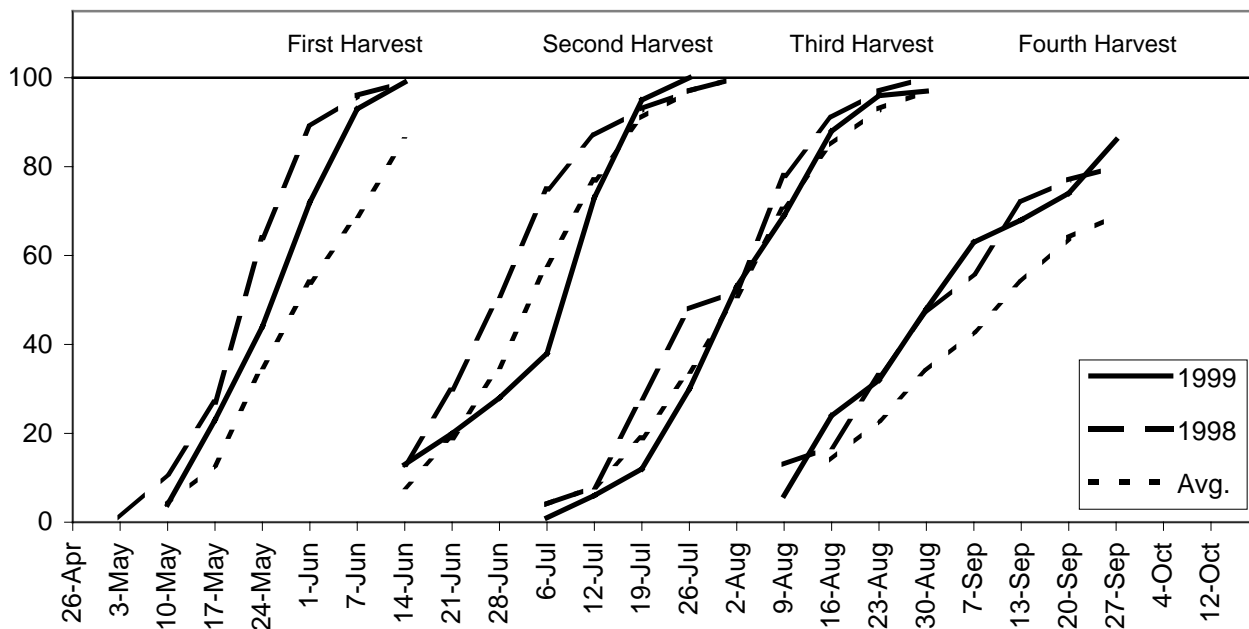


Figure 1. Progress of statewide alfalfa harvest.

1999 STATEWIDE GROWING CONDITIONS

The 1999 alfalfa crop was influenced heavily by temperature and rainfall extremes (Figures 1, 2, and 3). Heavy rains and relatively cool temperatures in May and June caused the first and second cuttings to be later than last year's. The second cutting was later than the 5-year average as well. Warm, dry conditions later in the summer speeded the third and fourth cuttings. Timing of the third cutting closely followed the 5-

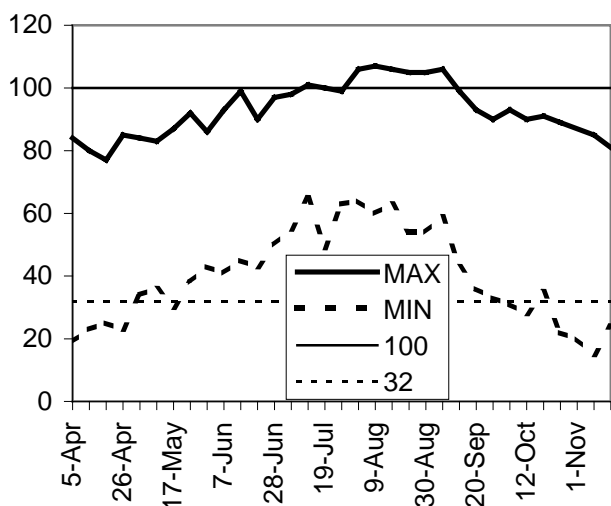


Figure 2. 1999 Kansas weekly maximum and minimum temperatures.

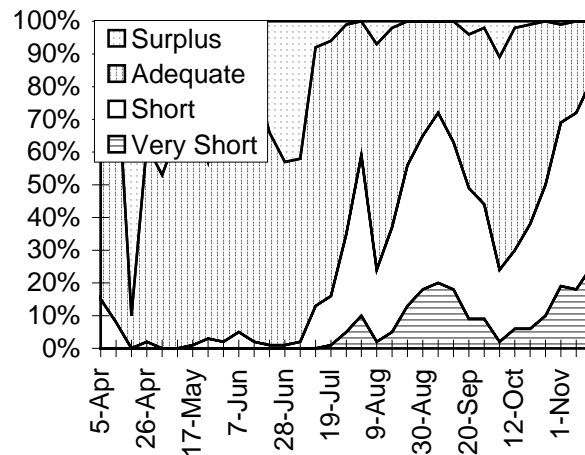


Figure 3. Status of statewide topsoil moisture.

year average. The fourth cutting closely followed the timing of that of 1998, both of which were several days earlier than the 5-year average. (From Crop-Weather reports, Kansas Agricultural Statistics, Topeka).

Most of the typical insect pests and a few less common insect pests appeared in alfalfa fields in 1999. Army cutworms caused severe damage in many fields in the western half of the state in February and March, especially on new plantings. Alfalfa weevils damaged several fields in south central Kansas in April, but their numbers appeared to decline substantially in May. Several

fields required insecticide treatments to control weevils, pea aphids, and blue alfalfa aphids. Cowpea aphids were present in some fields in central and western Kansas, occasionally at levels requiring control measures. Cowpea aphids had been found in Kansas only one other time and never at damaging levels before 1999. Potato leafhoppers caused severe stunting and yellowing in many fields across the state. Garden webworms appeared in some fields and may have caused damage to seedling alfalfa later in the season. (From Cooperative Economic Insect Survey reports, Kansas Department of Agriculture and Kansas Insect Newsletter, KSU Extension Entomology).

Alfalfa stands generally started out the season in good shape but were subjected to a wide range of diseases during the 1999 season. Heavy rains and cool temperatures early in the season promoted development of *Leptosphaerulina* (Lepto) leaf spot and spring black stem. Harvest delays provided additional time for these leaf- and stem-spotting diseases to develop. KSU nematologist Tim Todd confirmed an infestation of stem nematode in irrigated alfalfa in southwest Kansas. This pest has been found in south central Kansas for several years, but this was the first confirmed instance from southwest Kansas. The above-normal rainfall in June and July provided ideal conditions for summer blackstem, alfalfa rust, and *Phytophthora* root rot. Other diseases diagnosed in the KSU Plant Pathology Diagnostic Lab included alfalfa mosaic virus, *Verticillium* wilt, and crown rot. (From Plant Disease Alerts, KSU Department of Plant Pathology).

The November 10 Kansas Agricultural Statistics report predicted total 1999 alfalfa hay production of 3.9 million tons from 850,000 acres. This is down from 4.6 million tons produced from 1,000,000 acres in 1998. The predicted average yield of 4.6 tons per acre equaled the final 1998 average.

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 1999 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 Alfalfa 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. Companies submitting varieties for the tests provided ratings for some varieties not included in the Alfalfa Council publication.

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.

TABLE 1. RILEY CO. ALFALFA PERFORMANCE TEST RESULTS, 1999 - NO INSECTICIDES.

BRAND	NAME	Plant Height inches 7-8	Leaf Hopper Injury Rating 1-5* 7-8 9-10 Average			Forage Yield				
						tons/acre			1999 Total, 15% Moist.	1999 Total, % of Mean
						1999 Dry Matter				
7-8	9-10	Total	7-8	9-10	Total					
RELEASED CULTIVARS										
KS AES & USDA	Kanza	19	3.5	5.0	4.3	1.64	0.58	2.23	2.62	117
AgriPro	Feast+EV	18	3.0	5.0	4.0	1.48	0.63	2.11	2.48	110
AgriPro	Defense+EV	21	2.3	4.5	3.4	1.37	0.61	1.99	2.34	104
America's Alfalfa	Abilene+Z	21	2.8	5.0	3.9	1.36	0.62	1.99	2.34	104
NC+	Jade II	18	3.5	5.0	4.3	1.47	0.52	1.99	2.34	104
Garst	645II	20	2.5	5.0	3.8	1.32	0.64	1.97	2.32	103
Pioneer	54H69	22	2.0	4.0	3.0	1.21	0.76	1.97	2.32	103
W-L Research	ABT 400SCL	17	3.0	5.0	4.0	1.43	0.51	1.95	2.29	102
Novartis	Geneva	17	2.8	5.0	3.9	1.40	0.53	1.94	2.28	102
DeKalb	DK 131HG	21	2.0	3.8	2.9	1.29	0.62	1.93	2.27	101
NetSeeds	NetYield500	16	3.5	5.0	4.3	1.28	0.62	1.91	2.25	100
America's Alfalfa	Ameriguard 302+Z	20	2.3	4.3	3.3	1.30	0.50	1.80	2.12	94
AgriPro	Dagger+EV	20	3.0	5.0	4.0	1.27	0.46	1.73	2.04	91
NE AES & USDA	Perry	18	2.3	5.0	3.6	1.26	0.45	1.71	2.01	90
NE AES & USDA	Ranger	15	3.5	5.0	4.3	1.21	0.33	1.54	1.81	81
EXPERIMENTAL STRAINS										
ABI	ZH9844H	25	1.8	3.3	2.5	1.41	0.75	2.17	2.55	114
ABI	ZC9842A	20	2.5	4.8	3.6	1.40	0.62	2.02	2.38	106
ABI	ZG9840	18	2.5	5.0	3.8	1.41	0.54	1.96	2.31	103
America's Alfalfa	ZC9650	20	2.5	5.0	3.8	1.42	0.54	1.96	2.31	103
W-L Research	W326	18	3.8	5.0	4.4	1.38	0.57	1.96	2.31	103
ABI	ZC9841A	17	2.3	5.0	3.6	1.30	0.60	1.90	2.24	99
ABI	ZH9841H	22	2.0	3.0	2.5	1.20	0.62	1.83	2.15	96
ABI	ZC9851A	20	2.3	5.0	3.6	1.09	0.66	1.76	2.07	92
ABI	ZC9840A	19	2.3	5.0	3.6	1.17	0.58	1.75	2.06	92
KS AES & USDA	KS224	16	3.3	5.0	4.1	1.25	0.33	1.59	1.87	83
SUMMARY STATISTICS										
Average		19	2.7	4.7	3.7	1.33	0.57	1.91	2.25	100
LSD(0.05)		2	0.7	0.3	0.4	0.12	0.13	0.19	0.22	10
LSD(0.20)		2	0.5	0.2	0.3	0.09	0.10	0.15	0.18	8
CV(%)		11	20.6	4.9	8.1	7.52	19.00	8.60	8.60	9
MCV(%)		13	24.3	5.8	9.6	8.88	22.26	10.11	10.11	10

*NAAIC Leaf Hopper Resistance Ratings:

- 1 - No apparent injury
- 2 - Very minor stunting and yellowing
- 3 - Moderate stunting, yellowing is evident on 20-40% of leaves
- 4 - Significant injury; plants show significant stunting with yellowing on 40-60% of leaves
- 5 - Severe injury; plants show severe stunting, yellowing or reddening evident on 60-100% of leaves

<p>LOCATION: Northeast Kansas Site: Ashland Research Farm County: Riley Town: Manhattan Soil: Haynie very fine sand</p> <p>ESTABLISHMENT: 5/24/99; RCBD, 4 reps Plots 3'x15'; 3'x12' harvested 15 lb. seed/acre</p>	<p>1999 FERTILIZATION: 43-111-57 applied at planting</p> <p>1999 PEST CONTROL: Insect infestations were not controlled, so that inherent resistance to insects could be evaluated.</p>	<p>1999 CONDITIONS: Excessive moisture in spring delayed planting but was followed by a dry summer. The test was irrigated in mid and late summer only under conditions of high water stress. High leafhopper pressure reduced first-harvest yields and caused extreme stunting later in the summer. Plots were harvested at 10-20% bloom.</p>
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TABLE 2. REPUBLIC CO. ALFALFA PERFORMANCE TEST RESULTS, 1998-1999.

BRAND	NAME	Forage Yield						98-99 Total, 15% Moist.	98-99 Total, % of Mean
		tons/acre				1998 Total	98-99 Total		
		Dry Matter							
		1999							
6-1	7-2	8-16	Total						
Released Cultivars									
AgriPro	Dominator	3.76	2.67	1.98	8.41	6.44	14.85	17.47	110
DeKalb	DK 127	3.48	2.60	2.00	8.08	6.29	14.37	16.91	107
DeKalb	DK 142	3.39	2.72	1.87	7.98	6.28	14.26	16.78	106
Germaines	WL 324	3.60	2.74	1.52	7.86	6.21	14.07	16.55	104
Pioneer	5454	3.73	2.55	1.47	7.75	6.07	13.82	16.26	103
Star	Spur	3.55	2.48	1.75	7.78	6.03	13.81	16.25	103
Germaines	WL 325 HQ	3.66	2.41	1.73	7.79	6.01	13.80	16.24	102
Star	Asset	3.44	2.53	1.47	7.43	6.04	13.47	15.85	100
AgriPro	Depend+EV	3.39	2.50	1.44	7.33	6.06	13.39	15.75	99
NE AES & USDA	Perry	3.56	2.30	1.43	7.29	5.72	13.01	15.31	97
KS AES & USDA	Kanza	3.24	2.33	1.88	7.45	5.50	12.95	15.24	96
Experimental Strains									
ABI	ZN9646	3.74	2.47	1.12	7.33	5.74	13.07	15.38	97
ABI	ZN9541	3.72	2.42	1.21	7.35	5.65	13.00	15.29	97
ABI	ZN9540	3.54	2.43	1.24	7.20	5.64	12.84	15.11	95
ABI	ZC9641	2.98	2.14	1.06	6.20	5.09	11.29	13.28	84
Summary Statistics									
	Average	3.52	2.48	1.54	7.55	5.92	13.47	15.85	100
	LSD(0.05)	0.36	0.22	0.21	0.52	0.33	0.73	0.86	5
	LSD(0.20)	0.28	0.17	0.16	0.40	0.26	0.48	0.56	4
	CV(%)	8.66	7.40	11.41	5.77	4.71	3.84	3.84	4
	MCV(%)	10.30	8.80	13.58	6.86	5.60	5.42	5.42	5

<p>LOCATION: North Central Kansas Site: North Central Kansas Exp. Field County: Republic Town: Belleville Soil: Crete silt loam</p> <p>ESTABLISHMENT: 9/6/97; RCBD, 4 reps Plots 5'x15'; 3'x15' harvested 18 lb. seed/acre</p>	<p>1999 FERTILIZATION: March, 1999; 36-92-0</p> <p>1999 PEST CONTROL: None</p>	<p>1999 CONDITIONS: Cool, wet conditions slowed initial spring growth and delayed the first cutting by about 1 week. Insects caused little or no damage. Below-normal rainfall in August and September prevented adequate regrowth for a fourth cutting.</p>
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TABLE 3. LABETTE CO. ALFALFA PERFORMANCE TEST RESULTS, 1998-1999.

BRAND	NAME	Forage Yield							98-99 Total, 15% Moist.	98-99 Total, % of Mean
		tons/acre					1998 Total	98-99 Total		
		Dry Matter								
		1999	1998	98-99	1998	98-99				
5-10	7-6	8-3	10-22	Total	Total	Total	Total	Total		
Released Cultivars										
Great Plains	Cimarron 3i	2.00	1.73	0.68	0.95	5.36	2.15	7.51	8.84	108
Germaines	WL 324	1.72	1.69	0.67	0.88	4.95	2.25	7.20	8.47	104
NE AES & USDA	Perry	1.85	1.85	0.58	0.76	5.04	2.15	7.19	8.46	104
America's Alfalfa	Amerigraze 401+Z	1.83	1.76	0.64	0.84	5.06	2.12	7.18	8.45	103
Garst	631	1.79	1.62	0.69	0.81	4.91	2.21	7.12	8.38	103
Garst	6420	1.86	1.64	0.65	0.88	5.01	2.08	7.09	8.34	102
DeKalb	DK 141	1.65	1.78	0.55	0.82	4.79	2.25	7.04	8.28	101
Star	Stamina	1.83	1.77	0.56	0.89	5.05	1.98	7.03	8.27	101
Star	Sendero	1.63	1.68	0.56	0.97	4.84	2.19	7.03	8.27	101
MBS	ProGro	1.70	1.62	0.63	0.89	4.83	2.19	7.02	8.26	101
America's Alfalfa	Emperor	1.72	1.64	0.69	0.76	4.80	2.19	6.99	8.22	101
DeKalb	DK 142	1.68	1.64	0.68	0.86	4.85	2.11	6.96	8.19	100
Germaines	WL 326 GZ	1.72	1.55	0.62	0.88	4.76	2.17	6.93	8.15	100
Pioneer	54H55	1.64	1.57	0.59	0.92	4.72	2.18	6.90	8.12	99
KS AES & USDA	Kanza	1.66	1.38	0.69	0.93	4.66	2.19	6.85	8.06	99
MBS	Gold Plus	1.59	1.61	0.59	0.83	4.61	2.09	6.70	7.88	97
Star	Spur	1.63	1.67	0.60	0.82	4.72	1.97	6.69	7.87	96
Germaines	WL 325 HQ	1.65	1.45	0.51	0.78	4.38	2.03	6.41	7.54	92
Experimental Strains										
ABI	ZC9751A	1.65	1.68	0.74	0.85	4.92	2.12	7.04	8.28	101
Cal/West	CW 74013	1.69	1.69	0.66	0.80	4.83	2.20	7.03	8.27	101
America's Alfalfa	ZC9650	1.65	1.63	0.68	0.83	4.80	2.10	6.90	8.12	99
Cal/West	CW 74031	1.81	1.52	0.67	0.78	4.78	2.12	6.90	8.12	99
Cal/West	CW 5426	1.68	1.69	0.72	0.76	4.85	2.04	6.89	8.11	99
AgriPro	ZC9651	1.65	1.64	0.62	0.87	4.77	2.07	6.84	8.05	99
Cal/West	CW 74034	1.67	1.59	0.70	0.88	4.83	2.00	6.83	8.04	98
Cal/West	CW 6408	1.65	1.70	0.67	0.71	4.72	2.04	6.76	7.95	97
ABI	ZC9750A	1.60	1.56	0.70	0.87	4.72	2.03	6.75	7.94	97
Cal/West	CW 75044	1.55	1.59	0.65	0.84	4.63	2.00	6.63	7.80	96
Summary Statistics										
Average		1.70	1.64	0.64	0.84	4.83	2.11	6.94	8.16	100
LSD(0.05)		0.14	NS	0.09	0.09	0.29	0.14	0.39	0.46	6
LSD(0.20)		0.11	NS	0.07	0.07	0.23	0.11	0.25	0.29	4
CV(%)		7.16	11.59	11.99	9.18	5.12	5.73	3.96	3.96	4
MCV(%)		8.43	NS	14.10	10.79	6.02	6.74	5.62	5.62	6
LOCATION: Southeast Kansas Site: Southeast Ag. Research Center County: Labette Town: Mound Valley Soil: Parsons silty clay loam		1999 FERTILIZATION: April 1, 1999; 20-50-200				1999 CONDITIONS: The first, third, and fourth harvests were cut at roughly 1/10 bloom. Excessive rainfall in April, May, and June saturated the soil and prevented a timely second harvest. Rainfall for July and August was substantially below normal, lowering third- and fourth-cutting yields.				
ESTABLISHMENT: 4/14/98; RCBD, 4 reps Plots 5'x30'; 3'x20' harvested 15 lb. seed/acre		1999 PEST CONTROL: Sprayed April 20 with 1.5 pt/a of Lorsban to control weevils.								

TABLE 4. RENO CO. ALFALFA PERFORMANCE TEST RESULTS, 1997-1999.

BRAND	NAME	Plant Height inches		Forage Yield								Total, 15% Moist.	Total, % of Mean
				tons/acre									
		Dry Matter				1998 Total	1997 Total	97-99 Total	1999 Total				
		5-24	8-16	5-24	6-17					7-19	8-16		
Released Cultivars													
Great Plains	Key	25	14	2.97	1.31	1.56	0.91	6.75	5.04	4.97	16.76	19.72	107
Casterline	ProGro 424	22	15	3.04	1.18	1.65	1.08	6.94	4.83	4.98	16.75	19.71	107
Star	Asset	23	14	2.89	1.15	1.61	1.03	6.69	5.10	4.87	16.66	19.60	106
Germaines	WL 324	22	13	2.73	1.12	1.60	0.92	6.37	4.95	5.04	16.36	19.25	104
Garst	645	22	14	2.82	1.07	1.57	0.94	6.40	4.81	4.97	16.18	19.04	103
Mycogen	TMF Generation	23	13	2.67	1.00	1.56	0.98	6.21	4.83	5.13	16.17	19.02	103
America's Alfalfa	Affinity+Z	22	13	2.87	1.11	1.51	0.96	6.46	4.82	4.80	16.08	18.92	102
Great Plains	Haygrazer	23	15	2.89	1.12	1.52	0.87	6.38	4.83	4.80	16.01	18.84	102
Mycogen	TMF Multiplier II	23	13	2.62	1.13	1.51	0.94	6.21	4.92	4.81	15.94	18.75	101
Dairyland Seeds	Magnum IV	21	15	2.79	1.07	1.49	0.93	6.29	4.79	4.80	15.88	18.68	101
Star	Spur	24	14	2.67	0.96	1.27	0.91	5.82	4.90	5.12	15.84	18.64	101
AgriPro	Depend+EV	21	14	2.67	1.11	1.53	1.02	6.33	4.77	4.72	15.82	18.61	101
DeKalb	DK 127	23	13	2.57	1.10	1.53	0.96	6.15	4.84	4.78	15.77	18.55	100
Germaines	WL 325 HQ	21	17	2.31	1.15	1.56	1.02	6.04	4.86	4.83	15.73	18.51	100
America's Alfalfa	Archer	23	16	2.64	1.12	1.55	0.97	6.28	4.72	4.69	15.69	18.46	100
Star	A-100	23	15	2.58	1.13	1.59	0.86	6.16	4.62	4.87	15.65	18.41	100
NE AES & USDA	Perry	22	15	2.90	0.99	1.45	0.92	6.27	4.58	4.58	15.43	18.15	98
W-L Research	WL 252 HQ	22	14	2.62	1.08	1.45	0.92	6.07	4.62	4.65	15.34	18.05	98
Sharp	Shamrock	25	13	2.74	1.05	1.40	0.86	6.06	4.69	4.57	15.32	18.02	98
Star	Excalibur II	22	15	2.58	1.02	1.45	0.84	5.90	4.74	4.67	15.31	18.01	97
Sharp	AlfaLeaf II	25	14	2.62	1.12	1.44	0.86	6.05	4.64	4.60	15.29	17.99	97
KS AES & USDA	Riley	23	15	2.67	0.98	1.46	0.97	6.08	4.51	4.68	15.27	17.96	97
Star	Stamina	22	14	2.60	1.09	1.37	0.89	5.94	4.66	4.48	15.08	17.74	96
W-L Research	WL 414	21	15	2.37	1.10	1.47	1.04	5.97	4.31	4.73	15.01	17.66	96
W-L Research	Ace	21	15	2.40	1.10	1.54	0.91	5.96	4.64	4.26	14.86	17.48	95
KS AES & USDA	Kanza	25	15	2.47	1.10	1.48	1.05	6.11	4.34	4.35	14.80	17.41	94
Experimental Strains													
Cal/West	CW 5440	21	15	2.71	1.06	1.56	1.05	6.39	4.89	4.71	15.99	18.81	102
Cal/West	CW 4429	22	14	2.54	1.12	1.51	0.95	6.13	4.74	4.62	15.49	18.22	99
Cal/West	CW 5406	21	14	2.48	1.08	1.50	1.00	6.06	4.78	4.63	15.47	18.20	98
Summary Statistics													
Average		23	14	2.67	1.09	1.51	0.95	6.22	4.75	4.74	15.71	18.48	100
LSD(0.05)		1	1	0.23	NS	0.11	0.10	0.38	0.34	0.35	0.67	0.79	4
LSD(0.20)		1	1	0.18	NS	0.09	0.08	0.30	0.22	0.23	0.44	0.52	3
CV(%)		5	8	7.41	10.86	6.19	8.65	5.22	5.03	5.25	3.02	3.02	3
MCV(%)		6	9	8.72	NS	7.27	10.17	6.14	7.16	7.38	4.26	4.26	4
LOCATION: South Central Kansas Site: South Central Experiment Field County: Reno Town: Hutchinson Soil: Ost silt loam				1999 FERTILIZATION: None				1999 CONDITIONS: April rainfall was above normal, but temperatures were below normal. May rainfall was lower but was distributed evenly throughout the month. Relatively cool temperatures and adequate rainfall continued through July, allowing for good regrowth. High temperatures and low rainfall in August limited growth of the fourth cutting.					
ESTABLISHMENT: 9/1/96; RCBD, 4 reps Plots 5'x20', 3'x20' harvested 18 lb. seed/acre				1999 PEST CONTROL: Furadan applied for control of alfalfa weevil.									

TABLE 5. FINNEY CO. IRRIGATED ALFALFA PERFORMANCE TEST RESULTS, 1997-1999.

BRAND	NAME	Forage Yield								Total, 15% Moist.	97-99 Total, % of Mean
		tons/acre									
		Dry Matter					1998 Total	1997 Total	97-99 Total		
		1999									
6-2	7-8	8-10	9-9	Total	Total	Total	Total				
Released Cultivars											
Germain	WL 324	4.76	2.00	2.38	1.87	11.00	11.02	9.46	31.48	37.04	103
Casterline	ProGro 424	4.89	1.97	2.37	1.95	11.17	11.20	9.08	31.45	37.00	103
Sharp	Enhancer	4.93	2.01	2.42	1.96	11.30	11.02	9.02	31.34	36.87	103
Garst	630	4.86	2.08	2.38	1.91	11.21	11.16	8.81	31.18	36.68	102
Golden Harvest	GH 755	5.03	1.85	2.32	1.83	11.02	11.07	8.99	31.08	36.56	102
Germain	WL 325 HQ	4.70	1.95	2.29	1.80	10.74	11.12	9.21	31.07	36.55	102
Mycogen	TMF Multiplier II	4.72	1.86	2.23	1.88	10.69	11.05	9.29	31.03	36.51	102
Cargill	Big Horn	4.83	1.98	2.39	1.87	11.06	10.79	9.15	31.00	36.47	102
W-L Research	WL 414	4.28	1.83	2.30	1.91	10.31	10.98	9.62	30.91	36.36	101
Star	Stamina	4.68	1.88	2.15	1.80	10.51	10.99	9.34	30.84	36.28	101
DeKalb	DK 127	4.80	1.91	2.30	1.74	10.75	10.73	9.12	30.60	36.00	100
KS AES & USDA	Riley	4.51	1.89	2.32	1.82	10.53	10.83	9.21	30.57	35.96	100
Garst	645	4.75	1.90	2.22	1.83	10.69	10.54	9.22	30.45	35.82	100
Star	Spur	4.62	1.77	2.16	1.76	10.30	10.78	9.14	30.22	35.55	99
NE AES & USDA	Perry	4.80	1.88	2.20	1.78	10.65	10.69	8.80	30.14	35.46	99
Sharp	AlfaLeaf II	4.67	1.73	2.09	1.75	10.25	10.64	9.22	30.11	35.42	99
W-L Research	WL 323	4.32	1.83	2.26	1.80	10.21	10.72	9.14	30.07	35.38	99
Dairyland Seeds	Magnum III	4.56	1.91	2.23	1.85	10.55	10.78	8.71	30.04	35.34	98
W-L Research	Ace	4.35	1.83	2.30	1.87	10.34	10.64	8.93	29.91	35.19	98
Golden Harvest	GH 766	4.47	1.81	2.19	1.76	10.22	10.82	8.78	29.82	35.08	98
Sharp	Sure	4.49	1.79	2.20	1.76	10.24	10.54	8.68	29.46	34.66	97
KS AES & USDA	Kanza	4.18	1.92	2.36	1.91	10.36	10.96	8.13	29.45	34.65	97
Star	A-100	4.10	1.66	2.13	1.77	9.65	10.58	9.17	29.40	34.59	96
DeKalb	DK 133	4.66	1.85	2.15	1.67	10.32	10.25	8.68	29.25	34.41	96
Star	Asset	4.15	1.63	2.16	1.73	9.67	10.59	8.69	28.95	34.06	95
Star	Excalibur II	4.41	1.63	2.08	1.75	9.87	10.36	8.59	28.82	33.91	94
Sharp	Shamrock	4.05	1.50	1.98	1.53	9.05	10.03	9.02	28.10	33.06	92
Experimental Strains											
DSS	DSS 5211X	5.09	2.00	2.41	2.04	11.53	11.81	9.71	33.05	38.88	108
Cal/West	CW 5440	4.88	2.11	2.44	2.01	11.43	11.10	9.55	32.08	37.74	105
Cal/West	CW 5406	4.75	2.03	2.34	1.95	11.07	11.11	9.89	32.07	37.73	105
Cal/West	CW 4598	4.25	1.95	2.41	1.93	10.54	11.12	9.56	31.22	36.73	102
Cal/West	CW 4429	4.78	1.94	2.30	1.92	10.94	10.62	9.37	30.93	36.39	101
DSS	DSS 5106X	4.62	2.03	2.37	1.97	10.99	10.73	9.01	30.73	36.15	101
Summary Statistics											
Average		4.60	1.87	2.27	1.84	10.58	10.83	9.10	30.51	35.89	100
LSD(0.05)		0.33	0.10	0.12	0.09	0.48	0.50	0.27	0.88	1.04	3
LSD(0.20)		0.25	0.08	0.10	0.07	0.38	0.39	0.17	0.57	0.67	2
CV(%)		6.02	4.69	4.57	4.09	3.87	3.90	2.09	2.04	2.04	2
MCV(%)		7.07	5.51	5.37	4.81	4.55	4.58	2.95	2.88	2.88	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		1999 FERTILIZATION: 22-104-0 applied at planting 1999 PEST CONTROL: None			1999 CONDITIONS: The test was flood irrigated as needed. Rainfall was well spaced and abundant and favored high yields. A hailstorm on July 1 reduced second-cutting yields.						

Appendix: Entrants and entries in 1999 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	
	<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>
ZC9641	- - - - - - - - - - - - -
ZC9750A	- - - - - - - - - - - - -
ZC9751A	- - - - - - - - - - - - -
ZC9840A	- - - - - - - - - - - - -
ZC9841A	- - - - - - - - - - - - -
ZC9842A	- - - - - - - - - - - - -
ZC9851A	- - - - - - - - - - - - -
ZG9840	- - - - - - - - - - - - -
ZH9841H	- - - - - - - - - - - - -
ZH9844H	- - - - - - - - - - - - -
ZN9540	- - - - - - - - - - - - -
ZN9541	- - - - - - - - - - - - -
ZN9646	- - - - - - - - - - - - -

AgriPro	800-334-4730
AgriPro Seed	
PO Box 2962	
Shawnee Mission, KS 66201-1302	
	<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>
Dagger+EV	5 H H H H H M H M R - - L
Defense+EV	3 H H H H H - R - - H - -
Depend+EV	4 H H H H H M R S M R - -
Dominator	4 H R H H H - R - M R - -
Feast+EV	3 H H H R H - M - - H - -
ZC9651	- - - - - - - - - - - - -

America's Alfalfa	913-384-4940
America's Alfalfa	
P.O. Box 2955	
6700 Antioch	
Shawnee Mission, KS 66201	
	<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>
Abilene+Z	- - - - - - - - - - - - -
Affinity+Z	4 H H H H H - R - R R - -
Amerigraze 401+Z4	H H H H H - R - R R - -
Ameriguard 302+Z3	H H H H H - R - R H - -
Archer	5 M M H R R H H R R - - R
Emperor	4 H H H H H M R - - H - -
ZC9650	- - - - - - - - - - - - -

Cal/West	608-786-1554
Cal/West Seeds	
R.R. 1, Box 70	
West Salem, WI 54669	
	<u>1 2 3 4 5 6 7 8 9 10 11 12 13</u>
CW 4429	- - - - - - - - - - - - -
CW 4598	- - - - - - - - - - - - -
CW 5406	- - - - - - - - - - - - -
CW 5426	4 - - - - - - - - - - - -
CW 5440	- - - - - - - - - - - - -
CW 6408	4 - - - - - - - - - - - -
CW 74013	4 - - - - - - - - - - - -
CW 74031	4 - - - - - - - - - - - -
CW 74034	4 - - - - - - - - - - - -
CW 75044	5 - - - - - - - - - - - -

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
Archer	5
ABI 700	6
Dona Ana	7
Maricopa	8
CUF 101	9
UC 1887	10

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	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 tested adequately.

(continued)

Appendix: Entrants and entries in 1999 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

Cargill 612-742-6731
 Cargill Hybrid Seeds
 P.O. Box 5645
 Minneapolis, MN 55440

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
Big Horn	4	H	R	H	H	H	R	R	H	R	H	-	-

Casterline 800-444-4137
 Casterline Seeds, Inc.
 Box 1377
 1st & Maple
 Dodge City, KS 67801

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

Dairyland Seeds 800-236-0163
 Dairyland Seed Co.
 P.O. Box 958
 West Bend, WI 53095

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
Magnum III	4	R	M	R	M	R	M	R	M	M	L	-	-
Magnum IV	4	H	R	H	R	H	M	-	M	R	M	-	M

DeKalb 815-758-9323
 Monsanto
 3100 Sycamore Rd.
 DeKalb, IL 60115

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
DK 127	3	H	R	R	H	H	H	H	M	R	H	-	R
DK 131HG	3	H	H	H	H	H	R	R	L	M	R	-	R
DK 133	4	H	R	H	H	H	R	R	-	M	R	-	-
DK 141	4	H	H	H	H	H	R	R	-	M	H	-	-
DK 142	4	H	R	H	R	H	R	H	-	R	H	-	-

DSS 316-275-2359
 Drussel Seed and Supply
 2197 W. Parallel Road
 Garden City, KS 67846

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
DSS 5106X	-	-	-	-	-	-	-	-	-	-	-	-	-
DSS 5211X	-	-	-	-	-	-	-	-	-	-	-	-	-

Garst 800-831-6630
 Garst Seed Co.
 2369 330th St.
 Slater, IA 50244

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
630	4	H	M	R	M	R	M	R	M	M	-	-	-
631	4	H	R	H	R	H	R	H	M	R	M	-	-
6420	4	H	R	H	-	H	R	R	-	R	R	-	H
645	3	H	R	R	H	H	M	R	-	M	M	-	-
645II	3	H	H	H	H	H	M	R	-	M	H	-	-

Germain's 785-674-2062
 Germain's Seed Co.
 P.O. Box 373
 Hill City, KS 67642

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
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 326 GZ	4	H	H	H	H	H	R	R	-	R	H	-	-

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
Archer	5
ABI 700	6
Dona Ana	7
Maricopa	8
CUF 101	9
UC 1887	10

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	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 tested adequately.

(continued)

Appendix: Entrants and entries in 1999 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

Golden Harvest 800-228-9906
 J.C. Robinson Seed Co.
 100 J.C. Robinson Blvd.
 P.O. Box A
 Waterloo, NE 68069

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
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	-	-

Mycogen 800-380-7282
 Mycogen Seeds
 1340 Corp Ctr Crv
 PO Box 21428
 Eagan, MN 55121-1233

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

Great Plains 919-362-1583
 Great Plains Research Co.,Inc.
 3624 Kildaire Farm Rd.
 Apex, NC 27502

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
Cimarron 3i	4	H	R	H	H	R	R	R	-	R	M	R	-
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	-

NC+ 402-467-2517
 NC+ Hybrids
 P.O. Box 4408
 1300 N. 79th
 Lincoln, NE 68504

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
Jade II	4	H	R	H	R	H	R	R	M	-	M	-	M

KS AES & USDA 785-532-6115
 KSU - Foundation Seed
 2200 Kimball Ave.
 Manhattan, KS 66502

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
Kanza	-	-	-	-	-	-	-	-	-	-	-	-	-
KS224	-	-	-	-	-	-	-	-	-	-	-	-	-
Riley	4	H	L	-	M	-	H	H	-	-	-	-	-

NE AES & USDA 402-472-4290
 Foundation Seed Division
 University of Nebraska-Lincoln
 3115 North 70th
 Lincoln, NE 68507-2104

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
Perry	3	R	-	-	L	-	M	R	-	-	-	-	-
Ranger	-	-	-	-	-	-	-	-	-	-	-	-	-

MBS 515-733-5274
 MBS, Inc.
 225 West 1st St.
 Story City, IA 50248-1657

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
Gold Plus	4	H	R	H	H	H	H	H	-	H	R	-	-
ProGro	4	H	R	H	R	H	R	R	M	-	M	-	-

NetSeeds 515-331-0939
 NetSeeds
 9001 Hickman Rd. Suite 320
 Urbandale, IA 50322

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
NetYield500	4	H	R	H	R	H	R	R	-	R	M	-	-

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- 2 = Bacterial wilt
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- 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
Archer	5
ABI 700	6
Dona Ana	7
Maricopa	8
CUF 101	9
UC 1887	10

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	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 tested adequately.

(continued)

Appendix: Entrants and entries in 1999 Kansas Alfalfa Performance Tests with unverified fall dormancy and disease and insect resistance ratings

Novartis 612-593-7395
 Novartis Seeds, Inc.
 7500 Olson Memorial Hwy
 Golden Valley, MN 55427

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
Geneva	4	H	H	H	H	H	R	H	L	R	H	-	-

Pioneer 515-270-3342
 Pioneer Hi-Bred Intl., Inc.
 Box 287
 7305 NW 62nd
 Johnston, IA 50131

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
5454	4	R	M	H	H	H	R	R	S	M	L	-	-
54H55	-	-	-	-	-	-	-	-	-	-	-	-	-
54H69	-	-	-	-	-	-	-	-	-	-	-	-	-

Sharp 316-398-2231
 Sharp Bros. Seed Company
 Box 140
 Healy, KS 67850

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
AlfaLeaf II	4	R	R	H	H	H	R	H	-	R	R	-	-
Enhancer	4	H	R	H	R	H	R	-	-	-	M	-	-
Shamrock	-	-	-	-	-	-	-	-	-	-	-	-	-
Sure	-	-	-	-	-	-	-	-	-	-	-	-	-

Star 785-346-5447
 Star Seed
 101 Industrial Ave.
 Osborne, KS 67473

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
A-100	-	-	-	-	-	-	-	-	-	-	-	-	-
Asset	4	H	R	R	R	H	R	R	-	-	M	-	-
Excalibur II	-	-	-	-	-	-	-	-	-	-	-	-	-
Sendero	-	-	-	-	-	-	-	-	-	-	-	-	-
Spur	4	H	R	H	H	H	R	H	-	M	R	-	M
Stamina	4	H	R	H	H	H	H	H	-	H	R	-	H

W-L Research 608-882-4100
 W-L Research, Inc.
 8701 Hwy. 14
 Evansville, WI 53536-8752

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
ABT 400SCL	4	H	H	-	H	H	R	H	-	M	H	-	M
Ace	4	H	R	H	H	H	M	R	R	H	R	-	-
W326	5	H	R	H	H	H	R	R	-	-	R	-	-
WL 252 HQ	2	H	R	H	H	H	M	R	L	R	L	-	-
WL 323	4	H	R	H	H	H	M	R	-	H	R	-	-
WL 414	6	R	R	H	R	H	H	H	H	R	-	R	-

<u>Variety characterization codes:</u>	<u>Fall dormancy ratings:</u>		<u>Pest resistance ratings:</u>		
	<u>Check variety</u>	<u>Rating</u>	<u>Code</u>	<u>Resistance class</u>	<u>% Resistant plants</u>
1 = Fall dormancy rating	Norseman	1	S	Susceptible	0-5%
2 = Bacterial wilt	Vernal	2	L	Low Resistance	6-14%
3 = Verticillium wilt	Ranger	3	M	Moderate Resistance	15-30%
4 = Fusarium wilt	Saranac	4	R	Resistance	31-50%
5 = Anthracnose race 1	Archer	5	H	High Resistance	>50%
6 = Phytophthora root rot	ABI 700	6	-	Not adequately tested	
7 = Spotted alfalfa aphid	Dona Ana	7			
8 = Pea aphid	Maricopa	8			
9 = Blue alfalfa aphid	CUF 101	9			
10 = Stem nematode	UC 1887	10			
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 tested adequately.

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