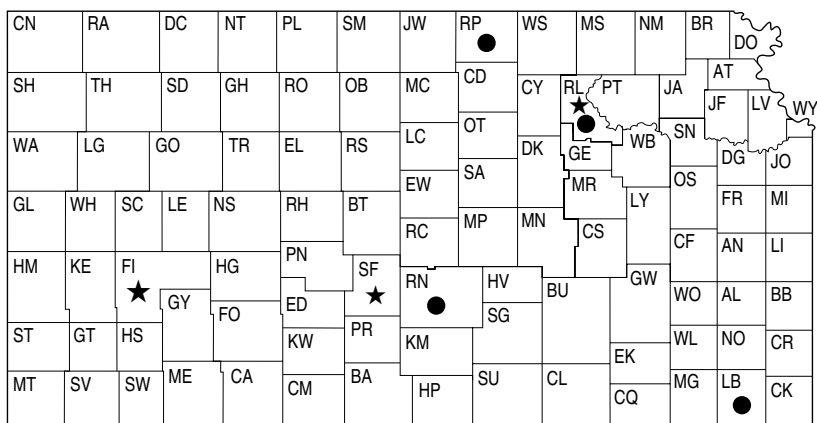




1994
 KANSAS PERFORMANCE TESTS WITH
ALFALFA
VARIETIES



● dryland ★ irrigated

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1994 KANSAS ALFALFA PERFORMANCE TESTS

INTRODUCTION

TEST OBJECTIVES AND PROCEDURES

An official performance testing program was established in 1980 by the Kansas Agricultural Experiment Station to provide Kansas growers with unbiased performance comparisons on many alfalfa varieties. Private companies enter varieties voluntarily at locations of their choice and pay fees to cover part of the costs of conducting the tests. Most tests are planted in mid-August or September; however, the Labette County test in Southeast Kansas usually is planted in the spring. Individual tests are conducted for a minimum of 3 or 4 years, then new tests are established. Announcements and entry forms are mailed to private companies in June for establishment of fall-seeded tests.

Descriptive information is presented with the results for each test (Tables 1-7). 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 1-7. The forage yield over the lifetime of a particular test is presented as the total tons of dry matter produced per acre, the total expressed at 15% moisture, and 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. 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 (C.V.) provides an estimate of the consistency of the results of a particular test. In these tests, C.V.'s below 10% generally indicate reliable, uniform data, whereas C.V.'s of 10-15% are not uncommon and generally indicate that the data are acceptable for rough comparisons. Tests with C.V.'s over 15% may still be useful, but variety comparisons lack precision.

1994 STATEWIDE GROWING CONDITIONS

Development of the 1994 alfalfa crop, as measured by the percent of alfalfa acreage harvested at any point in time, was typically 10 to 30 percent ahead of average and 20 to 40 percent ahead of 1993. This likely resulted from a combination of generally warmer temperatures and lower rainfall in 1994 compared to 1993. The season started with fairly good soil moisture status across the state. As the season progressed, topsoil moisture fluctuated with rainfall, and subsoil moisture was gradually depleted. Relatively dry periods in June and again in August caused nonirrigated alfalfa to depend on subsoil moisture reserves. (Statewide conditions from **Crop-Weather** reports, Kansas Agricultural Statistics, Topeka).

Severe insect damage to alfalfa was limited to localized infestations in 1994. March field surveys showed that a relatively high number

of adult alfalfa weevils had survived the winter, setting the stage for severe problems later. Fortunately, cool temperatures, beneficial insects, and a weevil-killing fungus apparently limited weevil populations in many fields. Treatment for weevils was not uncommon but was not as widespread as anticipated. Entomologists noted blue alfalfa aphids and pea aphids in many fields early in the season, but aphid populations seldom reached treatment levels. Potato leafhoppers caused severe yellowing in many northeastern fields in late June and July. Various types of blister beetles began to show up in July and were found for the remainder of the season. Grasshoppers occasionally caused appreciable damage to both established and new alfalfa stands later in the season. Various caterpillars (alfalfa caterpillar, garden webworm, green cloverworm, fall armyworm, forage loopers) threatened new seedings in late August and September. (Insect information from **Cooperative Insect Survey Reports**, Kansas State Board of Agriculture).

Plant pathologists noted the presence of spring black stem in nearly all alfalfa fields they visited early in the season in central and eastern Kansas. In some cases, most of the lower leaves had been lost, and the disease threatened the upper canopy. Little other disease presence was noted for the remainder of the season. (Disease information from **Plant Disease Survey Reports**, Kansas State Board of Agriculture).

Over 3.1 million tons of alfalfa hay were harvested from 800,000 acres of alfalfa in Kansas in 1994. Production was down slightly from 1993, when over 3.2 million tons were harvested from 850,000 acres. The average yield increased from 3.8 tons per acre in 1993 to 3.9 tons per acre in 1994. (From January 12, 1995, **Crops** report; Kansas Agricultural Statistics, Topeka).

The 1994 alfalfa performance test results include data from two new tests: Riley

County dryland, planted in the spring of 1994 (Table 1) and Finney County irrigated, planted in the fall of 1993 (Table 7). The Brown County test was discontinued after a significant loss of stand during the 1993 season. Individual test information is presented with the results from each location

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 through 7 contain updated yield data from individual tests currently in progress. Table 8 contains information for all currently marketed varieties that have been included in the 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 Table 8.

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

ACKNOWLEDGMENTS

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

TABLE 1. RILEY CO. DRYLAND ALFALFA PERFORMANCE TEST RESULTS, 1994.

Entrant, Brand, or Marketer	Entry	Plant Ht. in. 7/28	Plant Ht. in. 10/11	Leaf- hopper Yellowing ¹	Forage Yield (tons/a)		1994 Total, % of Mean
					Dry Matter 1994 7/28	Total, 15% Moist.	
MBS	PGI3212 Exp	17.3	15.8	2.75	1.85	2.18	117
ICI	630	16.8	16.8	2.88	1.84	2.16	117
ICI	645	16.8	14.0	2.00	1.83	2.15	116
America's Alfalfa	Aggressor	18.3	15.5	1.88	1.83	2.15	116
Star Seed	Asset	16.8	16.5	2.88	1.78	2.09	113
Cargill	Crown II	15.5	14.0	3.00	1.77	2.08	112
ABI	ABI 9142	17.3	16.0	1.50	1.76	2.07	112
America's Alfalfa	Archer	17.5	17.3	2.75	1.73	2.04	110
MBS	PGI3392 Exp	15.8	15.3	2.38	1.72	2.02	109
ABI	ABI 9136 Exp	16.0	13.0	1.63	1.72	2.02	109
DeKalb	DK 133	16.5	14.8	2.25	1.69	1.99	107
Star Seed	A-100	16.8	15.8	2.50	1.67	1.96	106
Mycogen	TMF Generation	15.8	14.0	1.38	1.66	1.95	105
America's Alfalfa	Apollo Supreme	16.0	12.5	2.00	1.66	1.95	105
ABI	ABI 9141 Exp	16.0	12.3	1.88	1.61	1.89	102
ABI	ABI 923DD Exp	14.8	12.0	2.25	1.61	1.89	102
ABI	ABI 9044 Exp	15.0	12.5	1.63	1.60	1.88	102
Germain's Seed Co.	WL 322 HQ	14.8	12.8	2.63	1.59	1.87	101
Germain's Seed Co.	WL 323	16.5	16.8	2.88	1.53	1.80	97
Pioneer	90W3PR1 Exp	16.0	15.0	3.00	1.51	1.78	96
Ohlde	Magnum IV	16.0	13.3	2.88	1.51	1.78	96
NE AES & USDA	Perry	16.8	16.0	2.00	1.51	1.78	96
C/W	1469 Exp	15.3	13.0	2.88	1.49	1.75	95
Pioneer	91112PJ1 Exp	15.5	15.0	3.13	1.46	1.72	93
C/W	OK49	15.8	15.5	2.63	1.46	1.72	93
Drussel	Reward	16.3	14.5	2.88	1.46	1.72	93
C/W	1344 Exp	14.0	10.8	2.88	1.45	1.71	92
KS AES & USDA	Kanza	17.0	15.3	2.88	1.43	1.68	91
C/W	1346 Exp	14.0	10.8	2.38	1.43	1.68	91
KS AES & USDA	Riley	15.3	12.8	2.38	1.37	1.61	87
Northrup King	Fortress	15.8	16.3	3.13	1.35	1.59	86
"Kansas Common"		15.3	14.8	4.25	1.35	1.59	86
Pioneer	91CO1PR1 Exp	15.0	12.5	4.13	1.33	1.56	84
Pioneer	88C2PI2 Exp	16.3	16.3	3.75	1.31	1.54	83
Pioneer	91CO2PR1 Exp	14.5	12.8	3.13	1.30	1.53	83
Average		16.0	14.3	2.61	1.58	1.85	100
L.S.D.(0.05)		1.6	2.7	0.57	0.24	0.28	15
L.S.D.(0.20)		1.3	2.1	0.44	0.18	0.21	11
C.V.(%)		8.7	16.2	18.6	12.9		

¹Leafhopper yellowing: 1 = very little or no yellowing evident, 5 = almost all leaves yellowed extensively.

<p>LOCATION: Northeast Kansas Agronomy North Farm RILEY County Near Manhattan Smolan silt loam</p> <p>ESTABLISHMENT: March 17, 1994; RCBD, 4 reps Plots 3'x12'; 3'x12' harvested 15lb seed/a, Eptam for grass control. Seed planted as received from entrants.</p>	<p>1994 FERTILIZATION: 0-25-0</p> <p>1994 PEST CONTROL: None needed.</p> <p>1994 CONDITIONS: The test was clipped on June 17 without measuring yields to remove uneven initial growth. Leafhoppers caused extensive yellowing and stunting in some varieties before the June 17 clipping and the July 28 harvest.</p>	<p>Correlation analysis revealed relatively strong, statistically significant relationships between yield and leafhopper yellowing ($r = -0.41$), between leafhopper yellowing and height ($r = -0.28$), and between height and yield ($r = 0.65$). Dry conditions in August limited late summer growth, which was allowed to accumulate for winter.</p>
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TABLE 2. RILEY CO. IRRIGATED ALFALFA PERFORMANCE TEST RESULTS, 92-94.

Entrant, Brand, or Marketer	Entry	Plant Ht. in.	Mat- urity 1-5 ¹ 9/8	Forage Yield (tons/a)								92-94	
				Dry Matter								Total	Total
				1994				1993				1992	92-94
		10/13	9/8	5/17	6/20	7/27	9/9	Total	Total	Total	Total	Moist.	Mean
Cargill	Crown II	13.0	2.3	2.29	1.80	1.78	1.67	7.54	6.01	5.88	19.43	22.86	105
America's Alfalfa	Apollo Supreme	13.5	2.3	2.15	1.98	1.78	1.56	7.46	6.40	5.49	19.35	22.76	105
Mycogen	Multi-plier	13.0	2.8	1.98	1.79	1.66	1.63	7.06	6.10	6.04	19.20	22.59	104
Germain's Seed Co.	WL 322 HQ	13.8	3.3	2.10	1.67	1.56	1.54	6.87	6.26	5.95	19.08	22.45	103
Cargill	Trident II	13.5	2.5	2.01	1.87	1.79	1.50	7.17	6.01	5.84	19.02	22.38	103
ICI	645	13.8	3.0	2.08	1.71	1.56	1.47	6.81	6.07	6.04	18.92	22.26	103
DeKalb	DK 125	13.5	3.8	1.99	1.81	1.69	1.54	7.03	6.12	5.77	18.92	22.26	103
Germain's Seed Co.	WL 320	14.0	3.8	1.96	1.69	1.85	1.63	7.12	6.20	5.58	18.90	22.24	102
Plains Alfalfa	Alfaleaf	12.8	1.8	1.90	1.78	1.64	1.61	6.92	6.22	5.73	18.87	22.20	102
Golden Harvest	GH-755	12.5	3.3	2.03	1.69	1.55	1.74	7.00	6.31	5.46	18.77	22.08	102
C/W	OK49	15.0	3.8	2.02	1.82	1.89	1.68	7.41	6.32	5.01	18.74	22.05	102
Michigan AES	MS90	12.3	2.5	1.88	1.62	1.47	1.51	6.48	6.28	5.88	18.64	21.93	101
Pioneer	5432	13.8	2.0	2.12	1.83	1.69	1.57	7.20	5.93	5.48	18.61	21.89	101
Pioneer	5364	13.3	3.0	2.18	1.54	1.79	1.65	7.16	6.11	5.25	18.52	21.79	100
Northrup King	MB5141 Exp	12.3	3.3	1.95	1.76	1.60	1.60	6.91	5.81	5.74	18.46	21.72	100
Germain's Seed Co.	WL 317	14.8	2.5	1.97	1.64	1.66	1.45	6.71	6.38	5.31	18.40	21.65	100
ICI	630	15.0	2.8	2.01	1.86	1.82	1.66	7.35	5.72	5.33	18.40	21.65	100
Germain's Seed Co.	Ogallala 633	14.5	3.0	2.19	1.78	1.74	1.48	7.19	5.99	5.22	18.40	21.65	100
NE AES & USDA	Perry	11.3	2.0	2.09	1.97	1.37	1.35	6.77	5.73	5.58	18.08	21.27	98
Star Seed	A-100	14.0	2.8	1.77	1.60	1.59	1.46	6.42	5.87	5.39	17.68	20.80	96
Wilbur-Ellis	Jewel	13.3	1.8	1.94	1.62	1.43	1.45	6.44	5.86	5.35	17.65	20.76	96
KS AES & USDA	Riley	13.3	2.3	1.78	1.40	1.43	1.60	6.21	5.64	5.35	17.20	20.24	93
KS AES & USDA	Kanza	14.0	3.0	1.93	1.61	1.60	1.59	6.72	5.54	4.93	17.19	20.22	93
Average		13.5	2.8	2.01	1.72	1.65	1.57	6.96	6.04	5.48	18.45	21.71	100
L.S.D.(0.05)		1.5	0.7	0.20	0.20	0.21	0.16	0.51	0.42	0.40	0.84	0.99	5
L.S.D.(0.20)		1.2	0.6	0.15	0.16	0.16	0.13	0.40	0.27	0.26	0.54	0.64	3
C.V.(%)		9.7	21.4	8.3	10.0	10.9	8.9	6.2	9.2	10.4			

¹Maturity rating: 1 = bud, 5 = 50% bloom.

<p>LOCATION: Northeast Kansas Ashland Research Farm RILEY County Near Manhattan Haynie very fine sand</p> <p>ESTABLISHMENT: August 26, 1991; RCBD, 4 reps Plots 5'x14'; 2.5'x14' harvested 18lb seed/a, no herbicides Seed planted as received from entrants.</p>	<p>1994 FERTILIZATION: May 17; 0-78-78</p> <p>1994 PEST CONTROL: May 24; Lorsban for alfalfa weevil and Post for grasses</p> <p>1994 IRRIGATION: Adequate most of season. Limited for second and third cuttings because of mechanical problems.</p>	<p>1994 CONDITIONS: Conditions were generally favorable, except for an irrigation problem in midsummer that limited yields. Grass weeds were starting to compete with alfalfa when moisture was limited, but the alfalfa had reasserted dominance by the end of the season.</p>
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TABLE 3. LABETTE CO. ALFALFA PERFORMANCE TEST RESULTS, 90-94.

Entrant, Brand, or Marketer	Entry	Forage Yield (tons/a)											90-94	
		1994						Dry Matter					Total, Total, 15% Moist.	% of Mean
		5/6	6/7	7/5	8/3	9/13	Total	1993	1992	1991	1990	90-94		
		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total		
ICI	630	2.43	1.87	0.40	1.79	1.22	7.71	6.11	6.27	5.01	3.11	28.21	33.19	104
Dairyland Seeds	Magnum III	2.37	1.69	0.52	1.60	1.27	7.44	6.08	6.29	4.97	3.26	28.04	32.99	103
Pioneer	5472	2.17	1.81	0.57	1.72	1.52	7.78	5.91	6.19	5.09	2.97	27.94	32.87	103
ICI	636	2.30	1.71	0.37	1.56	1.31	7.25	5.94	6.38	5.25	3.12	27.94	32.87	103
Cargill	Trident II	2.17	1.69	0.44	1.68	1.27	7.26	6.09	6.26	4.97	3.27	27.85	32.76	102
America's Alfalfa	Apollo Supreme	2.27	1.63	0.49	1.65	1.36	7.40	6.11	6.28	4.92	3.10	27.81	32.72	102
Germain's Seed Co.	WL 317	2.28	1.60	0.41	1.79	1.31	7.39	5.99	6.18	5.06	2.90	27.52	32.38	101
Pioneer	5364	2.33	1.59	0.40	1.57	1.21	7.10	5.97	6.38	5.04	3.00	27.49	32.34	101
SeedTec Int.	Ultra	2.12	1.69	0.49	1.59	1.41	7.30	5.64	6.07	5.11	3.22	27.34	32.16	101
AgriPro	Dart	2.30	1.78	0.41	1.59	1.16	7.23	5.84	6.32	4.95	2.96	27.30	32.12	100
Germain's Seed Co.	WL 320	2.05	1.70	0.43	1.71	1.26	7.15	5.80	6.09	4.83	3.06	26.93	31.68	99
Pioneer	5432	2.15	1.68	0.46	1.64	1.26	7.20	5.71	6.05	4.94	2.92	26.82	31.55	99
Great Plains Res.	Cimarron VR	2.10	1.57	0.35	1.49	1.12	6.63	5.56	6.05	4.75	3.09	26.08	30.68	96
DeKalb	DK 135	1.93	1.52	0.33	1.53	1.24	6.56	4.99	5.77	4.97	3.09	25.38	29.86	93
KS AES & USDA	Riley	2.01	1.35	0.27	1.56	1.19	6.37	4.84	6.01	4.86	2.88	24.96	29.36	92
Average		2.20	1.66	0.42	1.63	1.27	7.18	5.77	6.18	4.98	3.06	27.17	31.97	100
L.S.D.(0.05)		0.24	0.17	NS	NS	0.17	0.53	0.37	0.33	NS	NS			
L.S.D.(0.20)		0.18	0.13	NS	NS	0.13	0.41	0.24	0.20	0.32	NS			
C.V.(%)		9.0	8.5	32.3	15.4	11.3	6.2	13.0	8.5	7.0				

NS = No significant difference detected.

<p>LOCATION: Southeast Kansas Kansas State University Southeast Agricultural Research Center LABETTE County Near Mound Valley Parsons silty clay loam</p> <p>ESTABLISHMENT: April 23, 1990; RCBD, 4 reps Plots 5'x30'; 3'x20' harvested 15lb seed/a, preplant Eptam</p>	<p>Seed planted as received from entrants.</p> <p>1994 FERTILIZATION: February 17; 20-50-200</p> <p>1994 PEST CONTROL: None needed</p>	<p>1994 CONDITIONS: A few aphids were present at the first cutting. Droughty conditions reduced yields and increased variability of the third cutting.</p>
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TABLE 4. REPUBLIC CO. ALFALFA PERFORMANCE TEST RESULTS, 1994.

Entrant, Brand, or Marketer	Entry	Forage Yield (tons/a)							1994 Total, 15% Moist.	1994 Total, % of Mean
		Dry Matter					1993 Total	93-94 Total		
		1994								
		5/26	7/1	7/28	9/2	Total				
Plains Alfalfa	Alfaleaf	3.03	2.81	2.29	0.93	9.04	8.61	17.65	20.76	109
ICI	645	2.90	2.85	2.46	1.07	9.28	8.35	17.63	20.74	109
DeKalb	DK 125	2.91	2.68	2.33	0.95	8.87	8.21	17.08	20.09	105
Cargill	Crown II	2.84	2.71	2.40	0.90	8.85	8.20	17.05	20.06	105
Johnston Seed Co.	Good as Gold	2.54	2.97	2.54	1.07	9.12	7.84	16.96	19.95	105
Cargill	Trident II	2.87	2.64	2.34	0.83	8.68	8.25	16.93	19.92	104
Pioneer	5364	2.62	2.68	2.35	0.93	8.58	8.08	16.66	19.60	103
Germain's Seed Co.	WL 320	2.59	2.75	2.49	1.08	8.90	7.66	16.56	19.48	102
Northrup King	Viking 1	2.56	2.74	2.35	0.95	8.61	7.71	16.32	19.20	101
ABI	Venture	2.57	2.68	2.28	0.85	8.36	7.91	16.27	19.14	100
ICI	630	2.55	2.53	2.28	0.97	8.32	7.92	16.24	19.11	100
Wilbur-Ellis	Jewel	2.52	2.75	2.16	0.91	8.35	7.85	16.20	19.06	100
Pioneer	5432	2.90	2.66	2.28	0.82	8.65	7.51	16.16	19.01	100
C/W	OK49	2.54	2.81	2.26	1.08	8.67	7.45	16.12	18.96	99
Star Seed	A-100	2.54	2.74	2.24	0.90	8.41	7.70	16.11	18.95	99
Germain's Seed Co.	Ogallala 633	2.57	2.69	2.18	0.82	8.25	7.83	16.08	18.92	99
Northrup King	MultiKing1	2.43	2.56	2.17	0.78	7.92	7.93	15.85	18.65	98
Germain's Seed Co.	WL 317	2.41	2.42	2.02	0.82	7.67	8.07	15.74	18.52	97
America's Alfalfa	Apollo Supreme	2.50	2.74	2.21	1.05	8.49	7.12	15.61	18.36	96
Great Plains Res.	Cimarron VR	2.56	2.58	2.05	0.87	8.05	7.53	15.58	18.33	96
NE AES & USDA	Perry	2.53	2.67	2.10	0.81	8.12	7.40	15.52	18.26	96
KS AES & USDA	Riley	2.39	2.41	2.01	0.83	7.63	7.59	15.22	17.91	94
Germain's Seed Co.	WL 322 HQ	2.38	2.47	2.24	0.93	8.02	7.08	15.10	17.76	93
KS AES & USDA	Kanza	2.18	2.42	2.13	0.93	7.65	6.96	14.61	17.19	90
Average		2.60	2.66	2.26	0.92	8.44	7.78	16.22	19.08	100
L.S.D.(0.05)		0.20	NS	0.22	NS	0.78	0.79	1.17	1.38	7
L.S.D.(0.20)		0.16	NS	0.17	NS	0.61	0.51	0.76	0.90	5
C.V.(%)		6.6	9.8	8.3	22.1	7.9	7.2			

NS = No significant difference detected.

<p>LOCATION: North Central Kansas North Central KS Exp. Field REPUBLIC County Near Belleville Crete silt loam</p> <p>ESTABLISHMENT: August 27, 1992; RCB, 4 reps Plots 5'x30'; 3'x20' harvested 18lb seed/a, Balan herbicide Seed planted as received from entrants.</p>	<p>1994 FERTILIZATION: February; 0-50-0</p> <p>1994 PEST CONTROL: None needed</p>	<p>1994 CONDITIONS: Rainfall was above normal in June and July and the yields of the first three cuttings were excellent. Dry weather in August reduced the yields of the 4th cutting.</p>
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TABLE 5. RENO CO. ALFALFA PERFORMANCE TEST RESULTS, 92-94.

Entrant, Brand, or Marketer	Entry	Plant Ht. in.	Forage Yield (tons/a)								Total, 15% Moist.	92-94 Total, % of Mean
			Dry Matter					1993 Total	1992 Total	92-94 Total		
			5/24	6/24	7/29	8/30	Total					
Casterline	ProGro 424	25.3	2.75	1.93	1.97	0.88	7.54	7.40	7.83	22.77	26.79	107
Dairyland Seeds	Magnum III	26.3	2.90	2.10	2.07	0.92	7.99	7.69	6.74	22.42	26.38	105
Doebler/Wyffels	Precedent	25.8	3.07	1.92	1.86	1.03	7.88	6.69	7.55	22.12	26.02	104
ICI	630	25.3	2.99	1.91	1.88	0.97	7.76	7.43	6.72	21.91	25.78	103
Johnston Seed Co.	Good as Gold	24.5	2.93	1.88	1.82	0.98	7.64	7.47	6.66	21.77	25.61	102
Cargill	Crown II	24.0	2.92	1.94	1.77	0.64	7.28	7.07	7.38	21.73	25.56	102
Cargill	Royalty	23.3	3.65	1.81	1.70	0.65	7.82	7.23	6.61	21.66	25.48	102
ICI	636	24.0	3.07	1.72	1.70	0.79	7.29	7.46	6.77	21.52	25.32	101
Great Plains Res.	Cimarron VR	24.5	3.03	1.85	1.84	0.86	7.58	7.06	6.86	21.50	25.29	101
Germain's Seed Co.	Ogallala 633	25.3	3.25	1.90	1.78	0.73	7.67	6.89	6.93	21.49	25.28	101
Casterline	Empress	24.3	2.85	1.84	1.85	0.71	7.27	7.10	7.10	21.47	25.26	101
Cenex/Land O' Lakes	Legend	25.0	3.14	1.95	1.56	0.83	7.49	6.93	6.97	21.39	25.16	101
AGSECO	Envy	25.0	2.88	1.83	1.83	0.70	7.25	7.53	6.42	21.20	24.94	100
NC+	Jade	25.3	2.90	1.88	1.83	0.81	7.43	6.92	6.77	21.12	24.85	99
Drussel	Reward	24.0	3.02	1.72	1.84	0.79	7.38	6.83	6.79	21.00	24.71	99
ICI	645	24.0	2.90	1.78	1.94	0.80	7.43	7.55	5.94	20.92	24.61	98
Casterline	Super 55	23.8	2.86	1.80	1.90	0.84	7.41	7.31	6.20	20.92	24.61	98
Germain's Seed Co.	WL 320	24.8	2.99	1.86	1.77	0.94	7.57	6.52	6.66	20.75	24.41	98
KS AES & USDA	Kanza	25.0	3.13	1.86	1.71	0.97	7.68	6.57	6.43	20.68	24.33	97
Northrup King	MultiKing1	24.5	2.93	1.95	1.77	0.92	7.57	6.49	6.55	20.61	24.25	97
NE AES & USDA	Perry	23.8	2.97	1.86	1.78	0.76	7.37	6.48	6.72	20.57	24.20	97
America's Alfalfa	Apollo Supreme	22.0	2.85	1.77	1.62	0.60	6.85	6.94	6.25	20.04	23.58	94
KS AES & USDA	Riley	23.5	2.77	1.70	1.63	0.75	6.88	6.63	6.37	19.88	23.39	93
Average		24.5	2.99	1.86	1.80	0.82	7.48	7.05	6.75	21.28	25.04	100
L.S.D.(0.05)		1.8	0.32	NS	0.18	NS	NS	0.67	1.00	1.48	1.74	7
L.S.D.(0.20)		1.4	0.25	0.14	0.14	0.17	NS	0.43	0.64	0.96	1.13	5
C.V.(%)		6.2	9.0	8.3	8.7	23.0	8.3	13.1	13.8			

NS = No significant difference detected.

<p>LOCATION: South Central Kansas South Central KS Exp. Field RENO County Near Hutchinson Ost silt loam</p> <p>ESTABLISHMENT: August 27, 1991; RCBD, 4 reps Plots 5'x15'; 3'x15' harvested 15lb seed/a, no herbicides Seed planted as received from entrants.</p>	<p>1994 FERTILIZATION: None needed</p> <p>1994 PEST CONTROL: Feb.; herbicide for weed control May; insecticide for alfalfa weevil</p>	<p>1994 CONDITIONS: Periodic dry periods magnified subsoil variability, resulting in highly variable yields.</p>
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TABLE 6. STAFFORD CO. IRRIGATED ALFALFA PERFORMANCE TEST RESULTS, 92-94.

Entrant, Brand, or Marketer	Entry	Forage Yield										92-94	
		(tons/a)										Total, 15% Moist.	Total, % of Mean
		Dry Matter							1993 Total	1992 Total	92-94 Total		
		1994					Cut 5 Total	1993 Total				1992 Total	92-94 Total
Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Total	Total			Total	Total			
MBS	MBS 2042 Exp	2.05	2.02	1.60	2.14	1.46	9.27	7.43	9.75	26.45	31.12	106	
Keltgen Seed Co.	Allegro	2.07	1.91	1.47	1.95	1.17	8.56	8.05	9.77	26.38	31.04	106	
Dairyland Seeds	Magnum III	1.82	2.21	1.69	2.01	1.34	9.06	7.86	9.28	26.20	30.82	105	
Germain's Seed Co.	WL 320	1.73	2.05	1.52	2.13	1.53	8.96	7.82	9.37	26.15	30.76	105	
ICI	630	1.97	2.14	1.52	1.95	1.32	8.89	7.96	9.26	26.11	30.72	105	
ICI	645	2.13	1.95	1.62	1.88	1.15	8.73	7.93	9.24	25.90	30.47	104	
MBS	Crystal	1.92	2.08	1.57	2.11	1.24	8.91	7.97	8.83	25.71	30.25	103	
Golden Harvest	GH-755	2.20	1.84	1.54	1.79	1.32	8.69	7.60	9.34	25.63	30.15	103	
Cargill	Crown II	2.06	2.05	1.65	1.88	1.43	9.06	7.34	9.06	25.46	29.95	102	
Germain's Seed Co.	Ogallala 633	1.98	1.92	1.52	1.96	1.36	8.74	7.43	9.22	25.39	29.87	102	
Bio-Plant	Voyager	1.93	1.82	1.69	1.98	1.29	8.71	7.51	9.08	25.30	29.76	102	
Pioneer	88W2CR2 Exp	1.88	2.05	1.55	1.95	1.44	8.87	7.44	8.98	25.29	29.75	102	
Mycogen	Multi-plier	1.92	1.93	1.25	1.79	1.22	8.10	7.81	9.35	25.26	29.72	101	
Star Seed	Asset	1.65	1.99	1.55	1.89	1.27	8.34	7.36	9.52	25.22	29.67	101	
Pioneer	87CV842 Exp	1.82	1.96	1.39	2.02	1.31	8.50	7.59	8.97	25.06	29.48	101	
Plains Alfalfa	Alfaleaf	1.70	1.83	1.26	2.00	1.27	8.06	7.66	9.26	24.98	29.39	100	
AgriPro	Dawn	1.96	1.95	1.49	1.81	1.36	8.57	7.43	8.95	24.95	29.35	100	
Wilbur-Ellis	Jewel	1.68	1.89	1.47	1.94	1.44	8.42	7.20	9.28	24.90	29.29	100	
America's Alfalfa	Apollo Supreme	1.92	2.09	1.46	1.72	1.30	8.49	7.45	8.92	24.86	29.25	100	
Casterline	Empress	1.63	1.68	1.57	2.05	1.44	8.38	7.30	9.16	24.84	29.22	100	
Cargill	Trident II	1.85	2.08	1.45	1.79	1.27	8.43	7.43	8.96	24.82	29.20	100	
ABI	Venture	1.71	2.04	1.49	1.82	1.25	8.30	7.58	8.94	24.82	29.20	100	
DeKalb	DK 125	1.86	1.98	1.43	1.82	1.23	8.30	7.13	9.28	24.71	29.07	99	
Casterline	Super 55	1.66	1.86	1.48	1.88	1.42	8.29	7.47	8.88	24.64	28.99	99	
Northrup King	Fortress	1.72	1.88	1.38	1.84	1.38	8.20	7.30	9.09	24.59	28.93	99	
Union	UN-74	1.92	1.93	1.42	1.85	1.12	8.24	7.37	8.93	24.54	28.87	99	
Northrup King	MultiKing1	1.73	1.78	1.47	1.85	1.31	8.15	7.52	8.82	24.49	28.81	98	
Pioneer	5364	1.86	2.00	1.48	1.91	1.35	8.60	7.03	8.77	24.40	28.71	98	
Star Seed	A-100	1.81	1.84	1.46	1.83	1.31	8.25	7.45	8.60	24.30	28.59	98	
Wilbur-Ellis	Mede	1.50	1.86	1.48	1.90	1.47	8.20	7.06	8.94	24.20	28.47	97	
Germain's Seed Co.	WL 322 HQ	1.80	1.89	1.40	1.75	1.31	8.14	7.19	8.78	24.11	28.36	97	
Pioneer	5432	1.80	1.89	1.48	2.04	1.27	8.48	6.98	8.51	23.97	28.20	96	
NE AES & USDA	Perry	1.89	1.98	1.28	1.78	1.24	8.16	7.01	8.79	23.96	28.19	96	
Germain's Seed Co.	WL 317	1.66	1.79	1.49	2.06	1.23	8.23	6.85	8.87	23.95	28.18	96	
KS AES & USDA	Kanza	1.77	1.80	1.50	1.56	1.16	7.79	7.28	8.30	23.37	27.49	94	
C/W	OK49	1.81	1.90	1.28	1.81	1.31	8.12	6.89	8.19	23.20	27.29	93	
KS AES & USDA	Riley	1.56	1.69	1.38	1.72	1.26	7.60	6.75	8.69	23.04	27.11	93	
Average		1.84	1.93	1.48	1.89	1.31	8.45	7.42	9.04	24.90	29.29	100	
L.S.D.(0.05)		0.21	NS	0.16	NS	0.18	0.62	0.54	0.58	1.08	1.27	4	
L.S.D.(0.20)		0.16	NS	0.13	0.20	0.14	0.48	0.35	0.38	0.71	0.83	3	
C.V.(%)		9.8	12.5	9.3	11.7	11.7	6.3	12.1	9.2				

NS = No significant difference detected.

<p>LOCATION: South Central Kansas Sandyland Experiment Field STAFFORD County Near St. John Farnum loamy fine sand</p> <p>ESTABLISHMENT: Sept. 5, 1991; RCBD, 4 reps Plots 5'x20'; 3'x20' harvested 15lb seed/a, preplant Roundup Seed planted as received.</p>	<p>1994 FERTILIZATION: March; 36-92-0</p> <p>1994 PEST CONTROL: February; Velpar for broadleaf weeds</p> <p>1994 IRRIGATION: 21.7" from March 22 through September 29</p>	<p>1994 CONDITIONS: No major insect or disease damage was noted.</p>
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TABLE 7. FINNEY CO. ALFALFA PERFORMANCE TEST RESULTS, 1994.

Entrant, Brand, or Marketer	Entry	Forage Yield (tons/a)					Total, 15% Moist.	1994 Total, % of Mean
		Dry Matter						
		1994						
		6/7	7/7	8/17	10/11	Total		
MBS	PGI9047 Exp	3.64	2.19	2.31	1.90	10.05	11.82	107
Casterline	ProGro 424	3.41	2.33	2.34	1.96	10.05	11.82	107
Drussel	Reward	3.16	2.34	2.63	1.87	10.02	11.79	107
C/W	1309 Exp	3.73	2.16	2.20	1.91	10.01	11.78	107
NC+	Jade	3.35	2.06	2.21	2.34	9.97	11.73	106
MBS	PGI4372 Exp	3.38	2.26	2.35	1.94	9.93	11.68	106
DeKalb	DK 133	3.58	2.20	2.13	1.87	9.80	11.53	104
Mycogen	TMF Generation	3.39	2.26	2.31	1.81	9.78	11.51	104
C/W	2514 Exp	3.54	2.11	2.21	1.89	9.76	11.48	104
America's Alfalfa	Archer	3.33	2.21	2.32	1.84	9.72	11.44	103
ABI	ABI 9045 Exp	3.42	2.31	2.20	1.78	9.72	11.44	103
Great Plains Res.	Key	3.36	2.36	2.11	1.82	9.66	11.36	103
Great Plains Res.	Cimarron VR	3.46	2.12	2.25	1.74	9.57	11.26	102
C/W	OK49	3.20	2.18	2.14	1.96	9.49	11.16	101
Great Plains Res.	Belmont	3.40	2.16	2.07	1.85	9.49	11.16	101
MBS	More	3.25	2.23	2.21	1.71	9.42	11.08	100
KS AES & USDA	Riley	3.19	2.06	2.08	2.02	9.36	11.01	100
America's Alfalfa	Apollo Supreme	3.16	2.20	2.20	1.79	9.35	11.00	99
America's Alfalfa	Aggressor	3.31	2.14	2.15	1.71	9.33	10.98	99
Pioneer	90W3PR1 Exp	3.16	2.26	2.17	1.73	9.32	10.96	99
Wilbur-Ellis	Jewel	3.36	2.21	2.01	1.71	9.30	10.94	99
MBS	PGI4212 Exp	3.08	2.26	2.20	1.74	9.29	10.93	99
Germain's Seed Co.	WL 323	3.06	2.18	2.19	1.84	9.27	10.91	99
Pioneer	91CO1PR1 Exp	3.27	2.16	2.22	1.60	9.26	10.89	98
Golden Harvest	GH-755	3.21	2.16	2.13	1.74	9.26	10.89	98
Northrup King	Fortress	3.08	2.13	2.14	1.83	9.18	10.80	98
NE AES & USDA	Perry	3.14	2.15	2.13	1.66	9.08	10.68	97
Plains Alfalfa	Alfaleaf	2.99	2.17	2.08	1.75	9.00	10.59	96
Pioneer	91CO2PR1 Exp	2.92	2.17	2.12	1.77	8.99	10.58	96
Ohlde	Magnum IV	3.01	2.15	2.10	1.71	8.98	10.56	96
Pioneer	91I12PJ1 Exp	2.83	2.14	2.15	1.70	8.84	10.40	94
Germain's Seed Co.	WL 322 HQ	3.00	2.15	1.96	1.71	8.83	10.39	94
KS AES & USDA	Kanza	3.01	2.01	1.87	1.54	8.43	9.92	90
Pioneer	88C2PI2 Exp	2.40	2.02	2.06	1.68	8.17	9.61	87
Average		3.23	2.18	2.17	1.81	9.40	11.06	100
L.S.D.(0.05)		0.27	0.15	0.23	0.18	0.64	0.75	7
L.S.D.(0.20)		0.21	0.11	0.18	0.14	0.50	0.59	5
C.V.(%)		7.3	5.7	9.2	8.5	5.8	5.8	6

<p>LOCATION: Southwest Kansas SW KS Research-Extension Ctr. FINNEY County Near Garden City Keith silt loam</p> <p>ESTABLISHMENT: Sept. 10, 1993; RCBD, 4 reps Plots 3'x20'; 3'x20' harvested 32lb seed/a, no herbicides Seed planted as received from entrants.</p>	<p>1994 FERTILIZATION: None needed</p> <p>1994 PEST CONTROL: None needed</p> <p>1994 IRRIGATION: 4/4, 4/22, 5/12, 6/15, 6/29, 7/13, 8/1; about 5 - 6 inches each time.</p>	<p>1994 CONDITIONS: Conditions were excellent for alfalfa production. No serious damage resulted from insects or diseases.</p>
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TABLE 8. ALFALFA VARIETY CHARACTERIZATION.

Variety	Entrant, Brand, or Marketer	Fall Dormancy and Disease Resistance Ratings ¹													
		FD	Bw	Vw	Fw	An	PRR	SAA	PA	BAA	SN	APH	SRK	NRK	
636	ICI	2	HR	R	R	MR	R	--	R	--	R	--	--	--	
Clipper	Interstate/Payco	2	HR	R	HR	R	R	--	R	--	MR	--	--	--	
Vernal	WI AES	2	R	--	MR	--	--	--	--	--	--	--	--	MR	
Viking 1	Northrup King	2	R	HR	HR	R	R	--	MR	MR	--	--	--	--	
2980	L.L. Olds Seed Co.	3	HR	R	R	R	HR	R	R	--	--	R	--	--	
645	ICI	3	HR	R	R	HR	HR	MR	R	--	MR	MR	--	--	
Arrow	America's Alfalfa	3	HR	R	HR	MR	HR	--	R	--	MR	--	--	--	
Blazer XL	Cenex/Land O'Lakes	3	R	R	HR	HR	HR	HR	R	--	R	R	--	--	
Bronco	Jung/AgAmerica Seed	3	R	R	R	HR	HR	R	R	--	--	MR	--	--	
Crown II	Cargill	3	HR	R	HR	HR	HR	MR	R	--	--	--	--	--	
Dart	AgriPro	3	HR	R	HR	R	HR	--	R	--	--	--	--	--	
DK 125	DeKalb	3	HR	R	R	HR	R	MR	R	--	--	--	--	--	
Envy	AGSECO	3	HR	R	HR	HR	R	--	R	--	MR	--	--	--	
Multi-plier	Mycogen	3	HR	R	HR	HR	HR	MR	R	--	--	--	--	--	
MultiKing1	Northrup King	3	HR	R	HR	R	R	MR	MR	--	MR	--	--	--	
Perry	NE AES & USDA	3	R	--	--	LR	--	MR	R	--	--	--	--	--	
Royalty	Cargill	3	HR	R	HR	HR	HR	R	R	--	MR	LR	--	MR	
Trident II	Cargill	3	HR	R	R	R	HR	LR	--	--	LR	MR	--	--	
Ultra	SeedTec Int.	3	R	R	HR	HR	R	LR	R	--	R	--	--	--	
WL 317	Germain's Seed Co.	3	HR	R	HR	R	HR	R	HR	--	R	--	--	MR	
5364	Pioneer	4	R	MR	R	MR	MR	HR	HR	--	R	--	--	--	
5432	Pioneer	4	HR	R	HR	--	MR	HR	R	--	MR	--	--	--	
5472	Pioneer	4	HR	MR	HR	MR	MR	R	HR	--	R	--	--	--	
630	ICI	4	HR	MR	R	MR	R	MR	R	MR	MR	--	--	--	
Aggressor	America's Alfalfa	4	HR	R	HR	HR	HR	MR	HR	MR	MR	MR	--	--	
Alfaleaf	Plains Alfalfa	4	HR	R	R	R	HR	R	R	--	--	MR	--	--	
Allegro	Keltgen Seed Co.	4	HR	R	HR	HR	HR	MR	HR	--	MR	R	--	--	
Apollo Supreme	America's Alfalfa	4	HR	R	HR	HR	R	--	HR	--	--	--	--	--	
Arc	Public	4	LR	--	MR	HR	--	--	HR	--	LR	--	--	LR	
Asset	Star Seed	4	HR	R	R	R	HR	R	R	--	--	MR	--	--	
Cimarron	Great Plains Res.	4	HR	LR	HR	HR	MR	MR	HR	--	--	--	--	--	
Cimarron VR	Great Plains Res.	4	HR	R	HR	HR	R	HR	HR	MR	R	MR	MR	--	
Crystal	MBS	4	HR	R	HR	R	HR	LR	R	MR	MR	LR	--	--	
DK 133	DeKalb	4	HR	R	HR	HR	HR	R	R	--	MR	R	--	--	
DK 135	DeKalb	4	R	MR	R	MR	MR	MR	R	LR	R	--	--	--	
Dynasty	Dairyland Seeds	4	HR	R	R	MR	R	R	--	--	--	--	--	--	
Echo	Callahan Seeds	4	R	R	R	MR	R	R	HR	--	MR	--	--	--	
Emerald	Plains Alfalfa	4	R	MR	--	MR	R	--	--	--	--	--	--	--	
Empress	Casterline	4	HR	R	HR	R	HR	R	HR	--	R	--	--	MR	
Fortress	Northrup King	4	R	R	R	--	HR	HR	R	--	HR	--	--	--	
GH-737	Golden Harvest	4	R	R	HR	MR	HR	R	R	--	MR	--	--	--	
GH-755	Golden Harvest	4	HR	R	HR	HR	HR	R	R	R	R	R	--	--	
Good as Gold	Johnston Seed Co.	4	HR	R	HR	R	HR	R	HR	MR	--	LR	--	--	
Gourmet Hay	Germain's Seed Co.	4	HR	R	HR	HR	R	MR	HR	R	R	--	--	MR	
Jade	NC+	4	HR	R	R	R	HR	MR	--	--	--	--	--	--	
Jewel	Wilbur-Ellis	4	HR	R	R	R	HR	R	R	--	--	MR	--	--	
Kanza	KS AES & USDA	4	HR	--	--	S	S	HR	HR	LR	LR	--	--	--	
Key	Great Plains Res.	4	HR	HR	HR	HR	HR	HR	HR	MR	MR	MR	MR	--	

TABLE 8. ALFALFA VARIETY CHARACTERIZATION.

Variety	Entrant, Brand, or Marketer	Fall Dormancy and Disease Resistance Ratings ¹												
		FD	Bw	Vw	Fw	An	PRR	SAA	PA	BAA	SN	APH	SRK	NRK
Legend	Cenex/Land O'Lakes	4	HR	R	HR	HR	HR	LR	R	--	MR	--	--	--
Magnum III	Dairyland Seeds	4	R	MR	R	MR	R	MR	R	MR	MR	LR	--	--
Magnum IV	Ohlde	4	HR	R	HR	R	HR	MR	--	MR	R	MR	--	MR
Ogallala 633	Germain's Seed Co.	4	HR	R	R	HR	HR	HR	R	--	MR	MR	--	--
Precedent	Doebblers/Wyffels	4	HR	R	R	R	HR	R	R	--	--	R	--	--
Premier	Wyffels Hybrids	4	HR	R	HR	HR	HR	MR	HR	--	MR	--	--	MR
PRO-CUT	L. Herried Seeds	4	HR	R	HR	R	HR	R	R	--	MR	--	--	MR
ProGro 424	Casterline	4	HR	R	HR	R	HR	R	R	MR	--	MR	--	--
Reward	Drussel	4	HR	R	HR	R	HR	R	HR	MR	MR	MR	--	--
Riley	KS AES & USDA	4	HR	LR	--	MR	--	HR	HR	--	--	--	--	--
Salute	Lynks Seed	4	HR	--	--	MR	R	LR	--	--	--	--	--	--
Venture	ABI	4	HR	R	R	HR	R	--	HR	--	LR	R	--	--
Voyager	Bio-Plant	4	HR	MR	R	MR	R	MR	--	--	--	--	--	--
WAMPR	F.F.R.	4	R	R	R	R	R	MR	--	--	MR	--	--	--
WL 320	Germain's Seed Co.	4	R	MR	R	MR	R	R	MR	MR	MR	--	--	--
WL 322 HQ	Germain's Seed Co.	4	HR	R	HR	MR	R	HR	HR	R	LR	--	--	LR
WL 323	Germain's Seed Co.	4	HR	R	HR	HR	HR	MR	R	--	HR	R	--	--
Archer	America's Alfalfa	5	MR	MR	HR	R	R	HR	HR	R	R	--	--	R
Belmont	Great Plains Res.	5	HR	R	HR	HR	R	HR	HR	MR	R	--	--	--
Mede	Wilbur-Ellis	5	MR	MR	HR	R	R	HR	R	R	--	--	R	--
A-100	Star Seed	--	--	--	--	--	--	--	--	--	--	--	--	--
Dawn	AgriPro	--	--	--	--	--	--	--	--	--	--	--	--	--
More	MBS	--	--	--	--	--	--	--	--	--	--	--	--	--
OK49	C/W	--	--	--	--	--	--	--	--	--	--	--	--	--
Super 55	Casterline	--	--	--	--	--	--	--	--	--	--	--	--	--
TMF Generation	Mycogen	--	--	--	--	--	--	--	--	--	--	--	--	--
UN-74	Union	--	--	--	--	--	--	--	--	--	--	--	--	--

¹Information from *Alfalfa Varieties, 1994/95 Edition*, a publication of the Certified Alfalfa Seed Council, has been obtained from the Association of Official Seed Certifying Agencies (AOSCA), National Alfalfa Variety Review Board (NAVRB) Report. Blank spaces indicate variety is susceptible or has not been tested adequately. Codes and ratings are explained below. The variety information in these columns has not been verified, nor are any of the varieties endorsed, by the Certified Alfalfa Seed Council.™

Fall dormancy ratings

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

Codes

FD=	Fall Dormancy
Bw=	Bacterial Wilt
Vw=	Verticillium Wilt
Fw=	Fusarium Wilt
An=	Anthracoze Race 1
PRR=	Phytophthora Root Rot
SAA=	Spotted Alfalfa Aphid
PA=	Pea Aphid
BAA=	Blue Alfalfa Aphid
SN=	Stem Nematode
APH=	Aphanomyces Root Rot Race 1
SRK=	Southern Root Knot Nematode
NRK=	Northern Root Knot Nematode

Pest resistance ratings

% Resistant plants	Resistance class
0-5%	Susceptible (S)
6-14%	Low Resistance (LR)
15-30%	Moderate Resistance (MR)
31-50%	Resistance (R)
>50%	High Resistance (HR)

APPENDIX

Entrants and Entries reported in 1994 Kansas Performance Tests with Alfalfa Varieties

Entrant or Marketer	Entry	Kansas Distributers
ABI Alfalfa P.O. Box 2955 Shawnee Mission, KS 66201	Venture ABI9044* ABI9045* ABI9136* ABI9141* ABI9142* ABI923DD*	ABI Alfalfa
AgriPro Seeds 6700 Antioch Shawnee Mission, KS 66201	Dart Dawn	AgriPro AgriPro
AGSECO P.O. Box 7 Girard, KS 66743	Envy	AGSECO
America's Alfalfa P.O. Box 2955 Shawnee Mission, KS 66201	Aggressor Apollo Supreme Archer	Delange, Drussel, Ohlde, Valley Feed&Seed Delange, Drussel, Ohlde, Valley Feed&Seed Delange, Drussel, Ohlde, Valley Feed&Seed
Bio-Plant Research P.O. Box 253 Camp Point, IL 62320	Voyager	Bio-Plant
Cal/West Seeds Rt. 1, Box 70 West Salem, WI 54669	1309* 1344* 1346* 1469* 2514* OK49*	
Cargill Hybrid Seeds P.O. Box 5645 Minneapolis, MN 55440	Crown II Royalty Trident II	Cargill Cargill Cargill
Casterline Seeds P.O. Box 1377 Dodge City, KS 67801	Empress ProGro 424 Super 55	Casterline Casterline Casterline
Dairyland Seed Co. P.O. Box 958 West Bend, WI 53095	Magnum III	Ohlde Seed Farms Box 63 Palmer, KS 66962
DeKalb Plant Genetics 3100 Sycamore Rd. DeKalb, IL 60115	DK 125 DK 133 DK 135	DeKalb DeKalb DeKalb
Drussel Seed and Supply South Star Route Garden City, KS 67846	Reward	Drussel Seed

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Entrant or Marketer	Entry	Kansas Distributors
Germain Seeds P.O. Box 12447 Fresno, CA 93777	Ogallala 633 WL 317 WL 320 WL 322 HQ WL 323	Star Seed, Miller Seed, Collingwood Grain Star Seed, Miller Seed, Collingwood Grain Star Seed, Miller Seed, Collingwood Grain Star Seed, Miller Seed, Collingwood Grain Star Seed, Miller Seed, Collingwood Grain
Great Plains Research 3624 Kildaire Farm Rd. Apex, NC 27502	Belmont Cimarron VR Key	Delange, Sharp, Star, Phillips Delange, Sharp, Star, Phillips Delange, Sharp, Star, Phillips
J.C. Robinson Seed Co. 3rd St. & Hwy 64, Box A Waterloo, NE 68069	GH-755	Golden Harvest
ICI Seeds P.O. Box 300 Coon Rapids, IA 50058	630 636 645	ICI ICI ICI
Johnston Seed Co. P.O. Box 1392 Enid, OK 73702	Good as Gold	Johnston, Delange, Sipes
Keltgen Seed Co. Box A Olivia, MN 56277	Allegro	Keltgen
Mike Brayton Seeds, Inc. P.O. Box 308 Ames, IA 50010	Crystal More MBS 2042* PGI3212* PGI3392* PGI4212* PGI4372* PGI9047*	MBS MBS
Mycogen Plant Sciences 720 St. Croix St. Prescott, WI 54021	Multi-plier TMF Generation	Mycogen Mycogen
NC+ Hybrids Box 4408 Lincoln, NE 68504	Jade	NC+
Northrup King P.O. Box 959 Minneapolis, MN 55440	Fortress MultiKing 1 Viking 1 MB5141*	Northrup King Northrup King Northrup King
Ohlde Seed Farm P.O. Box 63 Palmer, KS 66962	Magnum IV	Ohlde

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Entrant or Marketer	Entry	Kansas Distributors
Pioneer Hi-Bred Int'l, Inc. 7305 NW 62nd P.O. Box 207 Johnston, IA 50131	5364 5432 5472 88C2PI2* 88W2CR2* 87CV842* 90W3PR1* 91CO1PR1* 91CO2PR1* 91I12PJ1*	Pioneer Pioneer Pioneer
Plains Alfalfa 126 North 10th, Box 722 Broken Bow, NE 68822	Alfaleaf	Sharp Brothers Seed Co. P.O. Box 140 Healy, KS 67850
Research Seeds P.O. Box 1393 St. Joseph, MO 64502	Legend Precedent	Cenex/Land O'Lakes Doebblers/Wyffels
SeedTec International P.O. Box 2210 Woodland, CA 95695	Ultra	SeedTec
Star Seed, Inc. P.O. Box 504 Beloit, KS 67420	Asset (Allied Seed) A-100 (AL-100)	Star Seed Star Seed
Union Seeds P.O. Box 339 Nampa, ID 83651	UN-74	Union
Wilbur-Ellis P.O. Box 1017 Lamar, CO 81052	Jewel Mede	Wilbur-Ellis Wilbur-Ellis
KS AES & USDA KS AES & USDA Michigan Ag. Experiment Station NE AES & USDA KS AES	Kanza Riley MS90* Perry "Kansas Common"	Public Public Public

*Public or private experimental entries not released for sale.

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.

* This agreement must be signed by an authorized individual before results involving the company's entries can be published by the Experiment Station. Except for the limitation that the name "KANSAS STATE UNIVERSITY" cannot be used in advertising (you may use something like "official state tests" or "state yield trials"), this does not preclude the use of data for advertising, if done in a fair manner.

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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.