



Current Report

Cooperative Extension Service • Division of Agriculture • Oklahoma State University

1980 Alfalfa Forage Yield Trials

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The 1980 growing season can be characterized as a season of extremes. The winter was remarkably mild until the first of March when temperatures dropped to near zero after alfalfa had already started spring growth, resulting in first cuts being delayed by about 2 weeks. Most areas of the state had adequate moisture during the spring and many areas had excessive rains in May and June. This was the last rainfall reported of significance until October. During the period from late June through September new high temperature records were frequently set throughout the state. These conditions produced fair to very good harvests for the first and second cuttings. Dryland production of alfalfa dropped off sharply after that.

Pea aphids, blue alfalfa aphids, and spotted alfalfa aphids each took their toll in various areas of the state. Heavy infestations of alfalfa

weevils occurred in Central Oklahoma but lighter populations in the Northwest and Panhandle areas. Other damaging insects included army cutworms, corn earworms, fall and beet armyworms and grasshoppers.

Diseases reported were downy mildew, spring and summer blackstem and anthracnose. The hot, dry weather probably reduced the incidence of other diseases.

LSD (Least Significant Difference) is a statistical test of yield differences. If the 5% LSD number is greater than the yield difference between two varieties, we cannot be confident there is any difference in yield.

The 5% LSD number must be smaller than the yield difference between two varieties before we can be 95% sure that the differences are not due to environmental irregularities and errors.

Location: Agronomy Research Station Stillwater, Payne County
Years 1979-1980

Entry	Tons Dry Matter/Acre						1979 4 cuts	2 yr. Avg.	Relative Yield ^{1/}
	1980					Total			
	5/9	6/26	7/24	8/25	10/8				
Liberty	2.51	2.90	1.51	1.11	0.89	8.92	6.28	7.60	109
531	2.44	2.89	1.67	1.14	0.96	9.11	6.09	7.60	109
Cimarron	2.22	2.88	1.54	1.17	0.95	8.76	6.20	7.48	107
Aztec	2.13	2.56	1.70	1.18	1.05	8.63	6.10	7.37	105
Buffalo	1.40	3.30	1.87	1.30	1.04	8.91	5.81	7.36	105
WL-318	2.17	2.77	1.72	1.21	0.97	8.85	5.77	7.31	104
Apollo	1.92	2.81	1.65	1.17	0.96	8.52	5.92	7.22	103
Kanza	1.96	2.80	1.66	1.14	0.95	8.51	5.79	7.15	102
APC '76	2.08	3.14	1.48	1.06	0.91	8.67	5.63	7.15	102
Riley	2.02	2.69	1.55	1.19	0.89	8.35	5.81	7.08	101
Arc	2.21	2.55	1.55	1.07	0.86	8.24	5.82	7.03	100
Vanguard	1.98	2.62	1.40	1.04	0.88	7.93	6.10	7.02	100
Givens-Ok. Common	1.42	2.67	1.76	1.22	0.95	8.03	5.98	7.01	100
Cody	1.35	2.56	1.80	1.32	1.02	8.05	5.75	6.90	99
530	2.03	2.56	1.35	1.03	0.88	7.85	5.80	6.83	98
Baker	2.21	2.37	1.16	0.96	0.85	7.55	5.62	6.59	94
Average	2.00	2.75	1.59	1.15	0.94	8.43	5.90	7.17	---
5% LSD	0.16	N.S.	0.18	0.10	0.09	0.69	N.S.	0.46	---
CV (%)	6.9	19.0	9.7	7.5	8.5	7.1	6.5	7.9	---

^{1/} Percent of average of Arc and Riley

N.S. = No Significant Differences Among Varieties (.05)

Planting Date: 9/15/78
Soil Type: Port Loam

Irrigated
Exp. No. 804

OKLAHOMA COMMON STRAINS

Location: Agronomy Research Station, Stillwater, Payne County
Years: 1979-1980

Entry	Tons Dry Matter/Acre						1979 4 cuts	2 yr. Avg.	Relative Yield ^{1/}
	1980					Total			
	5/13	6/26	7/24	8/25	10.8				
Riley	2.67	3.56	1.57	1.32	0.91	10.03	5.37	7.70	107
OK-PC Syn 1	1.78	2.94	1.56	1.37	0.99	8.64	6.25	7.45	103
Schroeder	1.72	2.70	1.96	1.34	1.02	8.74	6.11	7.43	103
Kanza	2.37	2.76	1.57	1.38	1.01	9.08	5.59	7.34	102
Wright	1.81	2.75	1.53	1.39	1.06	8.54	6.06	7.30	101
Givens	1.66	3.38	1.62	1.42	0.98	9.06	5.44	7.25	101
Dawson	2.48	2.68	1.38	1.20	0.85	8.58	5.92	7.25	101
Graham	1.87	2.73	1.78	1.39	0.99	8.76	5.48	7.12	99
Berends	1.73	2.49	1.54	1.35	0.92	8.03	5.97	7.00	97
Arc	2.43	2.69	1.31	1.19	0.88	8.50	5.49	7.00	97
Elsener	1.74	2.61	1.49	1.37	0.96	8.17	5.80	6.99	97
Dugan	1.61	2.61	1.61	1.40	0.99	8.22	5.63	6.93	96
Cody	1.85	2.50	1.55	1.39	0.99	8.27	5.43	6.85	95
Gastin	1.62	2.45	1.60	1.34	0.98	7.98	5.70	6.84	95
Kohler	1.51	2.53	1.56	1.30	0.97	7.87	5.55	6.71	93
Percy	1.59	2.50	1.59	1.33	0.90	7.91	5.25	6.58	91
Average	1.90	2.74	1.57	1.34	0.96	8.52	5.69	7.11	---
5% LSD	0.35	N.S.	0.17	0.13	0.10	0.99	0.58	0.62	---
CV (%)	15.8	23.0	9.6	8.4	9.2	10.1	8.9	10.7	---

^{1/} Percent of average of Arc and Riley

N.S. = No Significant Differences Among Varieties

Planting Date: 9/15/78
Soil Type: Port Loam

Irrigated
Exp. No. 812

Location: Agronomy Research Station, Stillwater^{1/}, Payne County Years: 1976-1980

Entry	Tons Dry Matter/Acre											Relative Yield ^{1/}
	1980						1979	1978	1977	1976	5 yr. Avg.	
	5/9	6/25	7/23	8/25	10/8	Total	4 cuts	4 cuts	3 cuts	4 cuts		
WL-318	2.68	2.90	1.43	1.13	1.08	9.22	8.25	7.56	5.15	5.71	7.18	107
Agate	2.54	2.91	1.33	1.07	1.03	8.88	8.15	7.05	4.54	5.03	6.73	101
Kanza	2.51	2.64	1.29	1.14	1.06	8.64	7.85	7.03	4.47	4.64	5.62	98
Arc	2.20	2.30	0.87	1.02	1.03	7.42	7.10	6.87	4.63	5.39	6.28	94
Average	2.48	2.68	1.23	1.09	1.05	8.54	7.84	7.13	4.70	5.19	6.68	---
5% LSD	N.S.	0.51	0.35	N.S.	N.S.	0.80	0.82	N.S.	N.S.	0.64	0.44	---
CV (%)	14.9	13.0	19.2	13.1	10.5	9.1	10.1	10.4	11.8	11.8	14.3	---

^{1/} Situation: Phytophthora Root Rot Infested Soil

^{2/} Percent of average of all entries

N.S. = No Significant Differences Among Varieties (.05)

Plant Date: 10/8/75
Soil Type: Port Loam

Irrigated
Exp. No. 503

Location: Agronomy Research Station, Stillwater, Payne County
Year: 1980

Entry	Tons Dry Matter/Acre						Relative Yield ^{1/}
	1980					Total	
	5/14	6/27	7/25	8/26	10/8		
PCc 77-122 Br	2.29	2.72	1.15	1.23	1.11	8.50	112
PCc 77-122	2.21	2.87	1.10	1.15	1.13	8.45	112
555	2.44	2.48	1.15	1.16	1.14	8.37	111
Cimarron	2.33	2.44	1.03	1.39	1.03	8.22	109
Advantage	2.40	2.63	1.06	1.09	1.02	8.21	108
WL-318	2.40	2.38	1.09	1.11	1.06	8.03	106
Trident	2.17	2.48	1.14	1.10	1.12	8.02	106
Kanza	2.20	2.28	1.08	1.10	1.28	7.93	105
WL-312	2.37	2.24	1.09	1.12	1.04	7.86	104
Arc	2.22	2.54	1.02	1.02	1.06	7.86	104
Apollo	2.17	2.42	1.05	1.03	0.98	7.65	101
Gladiator	2.26	2.35	1.00	1.02	0.98	7.62	101
Hiphy	1.91	2.35	1.13	1.13	1.10	7.62	101
NK-78010	2.12	2.40	0.98	1.03	1.00	7.53	99
Riley	2.35	2.20	0.98	1.06	0.95	7.53	99
Liberty	2.23	2.32	0.93	1.06	0.96	7.50	99
Dawson DCC 78	2.13	2.32	1.02	1.07	0.93	7.46	99
Classic	2.14	2.34	1.00	1.00	0.96	7.43	98
Baker BCC 78	2.33	2.26	0.88	1.00	0.96	7.43	98
G7730	2.13	2.25	1.07	0.98	0.92	7.35	97
Vanguard	2.07	2.22	0.98	1.03	1.05	7.35	97
K7-29	2.05	2.31	0.96	1.02	0.95	7.29	96
Buffalo	1.59	2.14	1.16	1.04	1.06	6.99	92
Average	2.19	2.39	1.06	1.09	1.04	7.77	---
5% LSD	0.24	N.S.	0.18	0.20	0.14	0.74	---
CV (%)	9.5	16.0	14.7	15.7	12.0	8.3	---

^{1/} Percent of average of Baker, Riley, Dawson and Arc

N.S. = No Significant Differences Among Varieties (.05)

Planting Date: 9/21/79
Soil Type: Port Loam

Irrigated
Exp. No. 901

Location: Eastern Research Station, Haskell, Muskogee County Years: 1978-1980

Entry	Tons Dry Matter/Acre										3 yr. Avg.	Relative Yield ^{1/}
	1980					1979	1978					
	5/6	6/13	7/10	10/1	Total	4 cuts	3 cuts					
Olympic	2.71	1.42	0.87	0.42	5.41	4.78	3.75	4.65	104			
530	2.54	1.42	0.95	0.36	5.26	4.49	4.02	4.59	102			
Team	2.72	1.53	0.83	0.35	5.43	4.66	3.65	4.58	102			
Apollo	2.46	1.39	0.99	0.42	5.25	4.51	3.98	4.58	102			
531	2.62	1.54	0.95	0.38	5.49	4.51	3.75	4.58	102			
Riley	2.43	1.47	1.01	0.43	5.43	4.74	3.67	4.58	102			
WL-318	2.61	1.48	1.03	0.39	5.51	4.35	3.80	4.55	102			
Aztec	2.36	1.46	1.08	0.43	5.32	4.47	3.72	4.50	100			
Liberty	2.54	1.47	0.84	0.43	5.38	4.62	3.47	4.49	100			
Arc	2.66	1.55	0.81	0.35	5.36	4.29	3.76	4.47	100			
Kanza	2.54	1.41	1.07	0.48	5.50	4.36	3.53	4.46	100			
APC '76	2.49	1.55	0.92	0.40	5.36	4.32	3.64	4.44	99			
Cody	2.08	1.41	1.11	0.54	5.14	4.57	3.38	4.36	97			
Vanguard	2.48	1.31	0.81	0.35	4.95	4.27	3.72	4.31	96			
X-321	2.14	1.51	1.12	0.46	5.22	4.28	3.33	4.28	96			
Buffalo	2.06	1.35	1.13	0.44	4.97	4.23	3.33	4.18	93			
Average	2.47	1.45	0.97	0.41	5.31	4.47	3.66	4.48	---			
5% LSD	0.26	N.S.	0.15	N.S.	N.S.	N.S.	0.36	N.S.	---			
CV (%)	7.4	10.0	10.7	22.5	6.2	6.6*	7.0	7.8	---			

^{1/} Percent of average of Kanza and Liberty.

N.S. = No Significant Difference Among Varieties (.05).

*Previously incorrectly reported

Planting Date: 9/27/77
Design: RCB w/4 Reps
Soil Type: Taloka Silt Loam

Dryland
Exp. No. 702

Location: South Central Research Station, Chickasha, Grady County
Years 1978-1980

OKLAHOMA
Location: Southwest Agronomy Research Station, Tipton, Tillman County
Years: 1977-1980

Entry	Tons Dry Matter/Acre						3 yr. Avg.	Relative Yield ^{1/}
	1980		1979	1978				
	4/30	6/11	Total	3 cuts	2 cuts			
WL-318	1.38	2.20	3.58	4.11	2.92	3.54	109	
Arc	1.05	2.20	3.25	4.26	2.81	3.44	106	
Apollo	1.18	2.20	3.38	4.17	2.78	3.44	106	
Olympic	0.97	2.18	3.14	4.21	2.74	3.36	103	
Aztec	1.18	2.36	3.54	4.03	2.35	3.31	102	
Liberty	1.00	2.03	3.03	4.28	2.58	3.30	101	
Vanguard	0.89	2.11	3.01	3.93	2.79	3.24	99	
APC '76	1.09	1.84	2.92	4.08	2.69	3.23	99	
Riley	1.14	1.89	3.04	4.00	2.61	3.22	99	
Team	1.10	1.78	2.88	4.08	2.55	3.17	97	
S31	1.24	2.16	3.40	3.68	2.37	3.15	97	
S30	0.98	2.06	3.04	3.68	2.55	3.09	95	
Kanza	1.04	2.02	3.06	3.82	2.32	3.07	94	
Cody	0.82	2.09	2.91	3.68	2.31	2.97	91	
Buffalo	0.93	1.77	2.70	3.80	2.19	2.90	89	
X-321	0.95	1.92	2.86	3.52	2.24	2.87	88	
Average	1.06	2.05	3.11	3.96	2.55	3.21	---	
5% LSD	0.18	N.S.	0.52	0.45	0.34*	0.31	---	
CV (%)	12.2	16.6	11.7	8.1	9.4*	11.6	---	

Entry	Tons Dry Matter/Acre						4 yr. Avg.	Relative Yield ^{1/}
	1980		1979*	1978	1977			
	5/9	6/18	Total ^{2/}	5 cuts	4 cuts	3 cuts		
KS 50	2.30	1.63	5.95	6.07	5.36	5.12	5.63	119
Perry	2.31	1.54	5.83	5.75	5.21	5.48	5.57	118
Liberty	1.99	1.25	4.91	5.76	4.93	5.93	5.39	114
WL-318	2.10	1.46	5.39	5.68	5.14	5.35	5.39	114
Riley	2.22	1.49	5.62	5.69	5.25	4.78	5.34	113
MN NC-4	1.66	1.51	4.80	5.44	5.38	5.32	5.24	111
Dawson	1.93	1.50	5.20	5.00	5.35	5.14	5.17	109
Baker	2.34	1.55	5.89	4.76	4.82	5.17	5.16	109
OK-PC Syn 1	1.87	1.33	4.85	5.29	5.00	4.53	4.93	104
Kanza	2.14	1.33	5.26	5.00	5.09	4.38	4.93	104
Arc	1.58	1.22	4.24	4.52	4.77	4.83	4.59	97
Saranac	1.55	1.16	4.11	4.71	4.49	4.67	4.50	95
Vernal	1.12	1.42	3.85	5.05	4.05	4.15	4.28	90
Average	1.93	1.41	5.07	5.29	4.99	4.99	5.09	---
5% LSD	0.74	N.S.	1.31	0.85	N.S.	0.91	0.51	---
CV (%)	22.6	13.2	10.0	9.6	12.7	10.8	10.9	---

^{1/} Percent of average of Liberty and Riley

N.S. = No Significant Differences Among Varieties (.05)

* Previously incorrectly reported

Planting Date: 9/23/77
Soil Type: McLain Silty Clay Loam

Dryland
Exp. No. 704

^{1/} Percent of average of Dawson, Kanza, Saranac and Vernal

^{2/} Adjusted for 4 cuttings

N.S. = No Significant Differences Among Varieties (.05)

*Previously Incorrectly reported.

Planting Dates: 9/10/76

Soil Type: Tipton Silt Loam

Irrigated
Exp. No. 602

OKLAHOMA COMMON STRAINS

Location: South Central Research Station, Chickasha, Grady County
Years: 1978-1980

Entry	Tons Dry Matter/Acre						3 yr. Avg.	Relative Yield ^{1/}
	1980		1979	1978				
	5/1	6/12	Total	3 cuts	2 cuts			
Liberty	1.23	1.72	2.95	4.22	2.33	3.17	101	
Kanza	1.28	1.63	2.91	4.17	2.34	3.14	100	
Berends	0.92	1.63	2.54	4.23	2.43	3.07	97	
Ahrberg	0.87	1.82	2.69	4.04	2.32	3.02	96	
Spradlin	0.95	1.61	2.56	4.11	2.25	2.97	94	
Elsener	0.83	1.49	2.32	4.29	2.28	2.96	94	
Givens	0.79	1.60	2.39	4.15	2.30	2.95	94	
Dugan	0.92	1.60	2.52	4.08	2.11	2.90	92	
Beaver County	0.79	1.48	2.27	4.26	2.14	2.89	92	
Gastin	0.90	1.55	2.45	3.96	2.21	2.87	91	
Percy	0.86	1.69	2.54	3.85	2.21	2.87	91	
Wright	0.92	1.63	2.55	3.84	2.08	2.82	90	
Schroeder	0.78	1.51	2.29	4.06	2.01	2.79	89	
Graham	0.78	1.54	2.32	3.89	2.12	2.78	88	
Kohler	0.75	1.58	2.33	3.74	2.16	2.74	87	
OK-PC Syn 1	0.74	1.63	2.37	3.59	2.12	2.69	85	
Average	0.89	1.60	2.50	4.03	2.21	2.91	---	
5% LSD	0.27	N.S.	0.39	N.S.	N.S.	N.S.	---	
CV (%)	21.2	9.1	11.1	12.2	11.8	16.7	---	

^{1/} Percent of average of Liberty and Kanza

Planting Date: 9/23/77

Exp. No. 712

Soil Type: McLain Silty Clay Loam

Dryland

Location: Southwest Agronomy Research Station, Tipton, Tillman County
Years: 1979-1980

Entry	Tons Dry Matter/Acre						2 yr. Avg.	Relative Yield ^{1/}	
	1980		1979	1978					
	5/9	6/18	7/22	9/4	10/2	Total			5 cuts
S31	2.71	1.50	1.51	0.94	0.61	7.28	8.42	7.85	109
Aztec	2.46	1.20	1.66	1.22	0.73	7.28	8.25	7.77	108
Kanza	2.58	1.22	1.62	1.12	0.63	7.17	8.36	7.77	108
Givens- Ok. Common	1.89	1.23	1.83	1.14	0.74	6.84	8.52	7.68	107
WL-318	2.32	1.28	1.70	1.18	0.67	7.15	8.15	7.65	106
Cimarron	2.21	1.26	1.68	1.19	0.57	6.91	8.34	7.63	106
Liberty	2.35	1.35	1.48	1.10	0.67	6.93	8.18	7.56	105
Buffalo	1.94	1.33	1.72	1.16	0.75	6.90	8.14	7.52	104
Cody	2.10	1.31	1.63	1.25	0.70	6.99	7.99	7.49	104
Vanguard	2.31	1.19	1.55	1.04	0.60	6.70	8.25	7.48	104
Apollo	2.24	1.35	1.49	1.03	0.65	6.75	8.15	7.45	103
Riley	2.40	1.47	1.44	0.89	0.62	6.82	7.96	7.39	103
APC '76	2.42	1.43	1.42	0.82	0.57	6.66	8.07	7.37	102
Baker	2.16	1.08	1.55	0.98	0.64	6.41	7.79	7.10	99
Arc	2.03	1.23	1.50	0.94	0.72	6.43	7.60	7.02	98
S30	2.03	1.05	1.32	1.07	0.61	6.08	7.79	6.94	96
Average	2.26	1.28	1.57	1.07	0.66	6.83	8.12	7.48	---
5% LSD	0.47	0.19	0.27	N.S.	N.S.	N.S.	N.S.	N.S.	---
CV (%)	18.1	12.6	14.7	30.3	22.1	13.0	7.5	11.7	---

^{1/} Percent of average of Arc and Riley.

N.S. = No Significant Differences Among Varieties (.05).

Planting Date: 9/7/78

Soil Type: Tipton Silt Loam

Irrigated

Exp. No. 808

Years: 1976-1980

Mangum, Greer County

Location: Sandyland Research Station

Table showing alfalfa yield trials with columns for Entry, Tons Dry Matter/Acre (1976-1980), 5 yr. Avg., and Relative Yield. Varieties include Apollo, WL-318, Liberty, Arc, Vanguard, Apollo, Dawson, Kanza, Atlas, Team, Olympic, Saranac, Apalachee, and Agate.

Location: Sandyland Research Station, Mangum, Greer County
Years: 1979-1980

Table showing alfalfa yield trials for 1979-1980 with columns for Entry, Tons Dry Matter/Acre (1980), 1979 1/3 cuts, 2 yr 1/2 Avg., and Relative Yield. Varieties include 531, Riley, Apollo, Givens-Ok. Common, Aztec, WL-318, Baker, Kanza, Cimarron, Buffalo, APC '76, 530, Cody, Liberty, Vanguard, and Arc.

1/ First cut not recorded in 1979

2/ Percent of average of Arc and Riley

N.S. = No Significant Differences Among Varieties (.05)

Planting Date: 9/8/78
Soil Type: Meno Sandy Loam

Dryland
Exp. No. 807

OKLAHOMA

Location: Panhandle Research Station, Goodwell, Texas County
Years: 1978-1980

Table showing alfalfa yield trials for 1978-1980 with columns for Entry, Tons Dry Matter/Acre (1980, 1979, 1978), 3 yr Avg., and Relative Yield. Varieties include Apollo, WL-318, X-321, Kanza, Arc, Vanguard, Liberty, Aztec, Team, Cody, Buffalo, and 530.

1/ Percent of average of Liberty and Kanza

N.S. = No Significant Difference Among Varieties (.05)

Planting Date: 9/16/77
Soil Type: Richland Clay Loam

Irrigated
Exp. No. 709

Subjective
Summary of Alfalfa Variety Yield Trials
1976-1980

Table summarizing alfalfa variety yield trials with columns for Variety, Overall Rating, Duration of Longest Trial, Total No. of Trials, Station-Years, and No. of Trials Ranked Very Good, Good, and Fair.

1/VG = Very good; G = Good; F = Fair; P = Poor.

2/ Nine station - years and at least one trial lasting four years usually establishes a strong trend.

?--indicates results have been irregular in certain tests.

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