

Level of Sorghum Grain in Steer Calf Wintering Ration (Project 567).

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Sixty Hereford steer calves averaging 440 pounds from Warner's Ranch in Rice County were wintered on sorghum silage, 1 pound soybean oil meal and sorghum grain. Thirty steers received 4 pounds grain per head daily and 30 received 8 pounds. The results are shown in Table 34.

After 112 days, the steers were reallocated to six lots of 10 steers each with five from each level of grain. The animals are now on a test to study:

1. 0, 15,000 and 30,000 I.U. of added vitamin A to a sorghum silage, sorghum grain and supplementation.
2. Performance on high and low levels of silage.
3. Level of wintering ration on subsequent performance.

Table 34
Level of sorghum grain in steer calf wintering ration results, November 13, 1964, to March 5, 1965—112 days.

Lot no.	7	8	9	10	11	12
No. steers per lot	10	10	10	10	10	10
Av. initial wt., lbs.	441.0	440.5	440.5	441.5	441.0	441.5
Av. final wt., lbs.	620.5	617.5	622.5	633.0	638.5	642.5
Av. daily gain, lbs.	1.00	1.58	1.63	1.71	1.76	1.79
Av. daily ration, lbs.:						
Sorghum silage	23.4	23.3	23.2	17.7	17.7	17.8
Sorghum grain	4.2	4.2	4.2	7.5	7.5	7.5
Soybean oil meal	1.0	1.0	1.0	1.0	1.0	1.0
Feed per cwt. gain, lbs.:						
Sorghum silage	1461.0	1469.0	1428.6	1035.8	1004.3	990.5
Sorghum grain	263.9	267.5	260.2	440.2	426.8	419.4
Soybean oil meal	67.4	63.3	61.5	58.5	56.7	55.7
Feed cost per cwt. gain ..	\$13.61	\$13.78	\$13.40	\$15.31	\$14.84	\$14.59

Nutritive Value of Forages as Affected by Soil and Climatic Differences (Project 430).

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This is the second test to measure differences, if any, in performance of cattle in various parts of Kansas due to location, soil, climate, rainfall and/or local feed.

Forty-eight Hereford steer calves from the same herd (Warner's, near Alden and Sterling, Kansas) averaging 454 pounds each were divided as uniformly as possible into four groups of 12 animals. One group was assigned to each of four locations: Colby, Garden City, Manhattan, and

1. Colby Station.
2. Garden City Station.
3. Mound Valley Station.

Mound Valley. Uniform-size concrete lots with sheds were used at each location. Each group of 12 animals was subdivided into two groups of six. The wintering ration consisted of locally grown sorghum silage (F81a) fed free choice with 5 pounds of locally grown second-cutting alfalfa hay per head daily. At the end of the wintering phase, silage was gradually decreased and removed from the ration. At the same time, locally grown sorghum grain was introduced and gradually increased until the grain was self-fed. Salt was the only added mineral throughout the test. Analyses of the feeds used are shown in Table 35.

Results and Observations

Results of the second test are shown in Table 35. Greater differences in the performance of animals were observed between locations in this test than in the first test. However, satisfactory and economical performance was obtained at all locations. A third test is now in progress.

Table 35
Results of the wintering phase, November 8, 1963, to February 28, 1964—112 days.

Location	Colby		Garden City		Marquette		Mound Valley	
	1	2	1	2	1	2	1	2
Lot no.	1	2	1	2	1	2	1	2
No. steers per lot	6	6	6	6	6	6	6	6
Av. initial wt., lbs.	454.2	453.2	453.3	454.2	453.3	454.2	454.2	453.3
Av. final wt., lbs.	572.1	590.1	639.0	616.8	619.2	607.5	608.5	575.7
Av. daily gain, lbs.	1.05	1.21	1.75	1.45	1.48	1.37	1.38	1.09
Av. daily ration, lbs.:								
Sorghum silage	25.2	27.1	23.8	22.3	24.5	24.1	22.8	20.3
Alfalfa hay	4.3	5.0	4.9	4.9	5.0	5.0	5.0	5.0
Feed per cwt. gain, lbs.:								
Sorghum silage	2389	2233	1360	1534	1656	1760	1658	1858
Alfalfa hay	405	408	278	334	338	305	362	454
Total dry matter per cwt. gain, lbs.	954	921	680	785	886	947	807	949
Feed cost per cwt. gain	\$14.62	\$14.93	\$8.92	\$10.31	\$11.05	\$11.60	\$11.16	\$13.11
Results for fattening phase, February 29 to September 25, 1964—210 days.								
Initial wt. per steer, lbs.	572.1	590.1	619.0	616.8	619.2	607.5	608.5	575.7
Final wt. per steer, lbs.	1077	1090	1153	1078	1011	1046	1029	1037
Av. daily gain, lbs.	2.40	2.38	2.40	2.20	1.87	2.69	2.00	2.19
Av. daily ration, lbs.:								
Alfalfa hay	4.71	4.98	4.65	4.75	4.78	4.94	4.60	4.65
Sorghum grain	15.77	17.21	16.43	14.88	14.62	14.84	13.53	15.18
Feed per cwt. gain, lbs.:								
Alfalfa hay	196	209	169	216	256	237	230	212
Sorghum grain	656	723	684	677	784	711	676	692
Feed cost per cwt. gain ¹	\$14.24	\$15.62	\$14.42	\$14.89	\$17.31	\$15.76	\$15.05	\$15.01
Sheek to market, %	2.09	3.29	3.24	2.16	1.65	2.63	2.69	3.20
Av. hot carcass wt., lbs.	664.2	668.7	709.7	662.8	617.3	629.2	616.2	622.7
Av. cold carcass wt., lbs.	649.5	659.2	695.0	648.8	605.7	617.3	606.5	609.2
Dressing %, feed lot wt.	60.33	60.17	60.27	60.17	59.92	59.06	58.39	58.77
Dressing %, market wt.	61.61	62.21	62.29	61.50	60.92	60.62	60.00	60.71
Av. fat thickness, 12th rib, in.	0.78	0.65	0.88	0.64	0.73	0.66	0.44	0.55
Av. size rib eye, sq. in.	11.53	11.28	11.97	11.53	11.23	11.02	11.53	11.52
Av. degree marbling ²	7.0	7.7	6.3	6.7	7.2	7.3	7.7	7.3
Carcass grades:								
Top choice	1	...	...	...	...	1	...	...
Av. choice	1	1	3	...	1	...	1	3
Low choice	3	4	3	6	2	2	1	...
Top good	...	...	...	...	...	...	2	...
Av. good	1	...	...	...	1	2	1	2
Low good	...	1	...	...	2	1	1	1
Av. liver wt., lbs.	11.38	11.04	11.04	9.96	9.83	9.71	10.46	9.75
Vit. A per gram liver, I.U.	5.25	3.62	5.96	9.63	3.06	1.64	2.18	1.42
Carotene per gram liver, mrg.	1.75	1.48	2.31	3.11	3.48	1.30	4.67	2.00

¹ Alfalfa hay, \$25 per ton; sorghum grain, \$1.80 per cwt.

² 5 = moderate, 6 = modest, 7 = small amount, 8 = slight amount, 9 = traces.

Table 36
Feedstuff analyses, 1963-64.

	Moisture, %	Dry matter, %	Protein, %	Ash, %	Fiber extract, %	Crude fiber, %	N.F.E., %	Carotene, mg. per lb.
Colby:								
Sorghum silage	72.14	27.86	1.71	2.42	6.59	6.66	16.54	1.0
Alfalfa hay	5.2	94.8	13.69	7.65	1.68	24.78	45.00	29.2
Sorghum grain								
Dryland	8.5	91.5	9.81	0.91	0.99	0.92	78.87	....
Irrigated	8.5	91.5	10.84	0.93	1.91	1.91	75.91	....
Garden City:								
Sorghum silage	69.0	31.0	1.76	2.42	0.55	7.45	18.72	2.0
Alfalfa hay	6.9	93.1	19.18	9.14	1.55	24.90	19.18	24.9
Sorghum grain	16.7	83.3	8.52	0.77	3.93	1.93	74.15	....
Manhattan:								
Sorghum silage	65.69	34.4	3.15	2.98	1.91	8.52	18.74	2.0
Alfalfa hay	6.50	93.5	16.71	7.32	2.44	24.74	42.82	17.6
Sorghum grain	12.10	87.9	9.97	0.95	2.76	1.47	72.75	....
Mound Valley:								
Sorghum silage	71.70	28.3	1.88	1.91	6.63	6.44	17.42	1.0
Alfalfa hay	6.70	93.3	18.58	9.63	1.82	22.76	40.57	8.8
Sorghum grain	11.30	88.7	9.46	1.02	1.53	2.34	74.35	....

Nutritive Value of Forages as Affected by Soil and Climatic Differences
(Project 430), Progress Report.

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This is a progress report on the third test to determine whether there is a difference in the performance of beef steers due to location, soil, climate, rainfall and/or feed produced in farm areas of Kansas: Colby, Garden City, Manhattan, and Mound Valley. Forty-eight Hereford steer calves averaging 475 pounds and from the same herd (Warner's, near Alden and Sterling, Kansas) as steers used in the second test were divided into four groups of 12 animals. One lot was assigned to each of the four locations. The test is being conducted in the same manner as the two previous tests except that concrete has replaced soil floors under the sheds. Feed analyses are shown in Table 39 and results of the wintering phase in Table 37. The animals are now being finished for slaughter.

Note: Some observations are being made on the performance of Angus and Hereford cross at Colby; Charolais-Hereford and Charolais-Angus crosses at Garden City; and Holsteins at Mound Valley. Valid comparisons cannot be made because of source and ancestry of animal samples being used. The results of the wintering phase are shown in Table 38. The animals are being finished for slaughter in the same manner as animals in the regular project.