

Chemical Analysis of Feeds Used in Feeding Trials, 1952-1954.

Ingredient	Time of analysis	% Moisture	% Protein	% Ether extract	% Crude fiber	% N-free extract	% Ash	% Calcium	% Phosphorus	Mg. carotene per pound
Corn	Winter, 1952-53	11.58	9.19	4.20	1.90	71.68	1.45			
Soybean pellets	"	9.60	45.56	4.66	4.81	29.66	5.71			
Special cattle supplt.	"	11.27	34.13	1.97	4.91	35.61	12.11			
Ground corn cobs	"	8.87	2.31	.45	33.86	52.92	1.59			1.94
Prairie hay	"	5.22	5.88	2.46	32.35	46.91	7.18			
Alfalfa hay	"	5.95	13.56	1.90	32.18	38.21	8.20			
Atlas sorgo silage	"	65.00	2.77	.88	8.00	20.70	2.65			12.9
Nonwilted alfalfa silage	"	75.00	4.86	1.14	7.33	8.77	2.90			1.0
Wilted alfalfa silage	"	64.70	5.69	.98	11.34	13.56	3.73	.01	.30	1.2
Yellow corn	Summer, 1953	9.45	9.06	4.32	4.03	71.64	1.50	.04	.34	
Milo grain	"	9.17	11.06	2.95	2.80	71.76	2.26			
Chopped alfalfa hay	"	7.69	16.19	2.01	25.71	39.22	9.18	1.57	.18	7.3
Brome hay (cut after harvesting seed)	"	6.98	8.88	2.12	32.77	41.93	7.32	.29	.13	2.2
Atlas sorgo stover	Winter, 1953-54	52.50	2.17	.88	10.37	31.04	3.04	.12	.03	7.7
Dehydrated alfalfa pellets	"	6.65	20.00	3.49	18.25	40.65	10.96	2.09	.27	58.0
Dehydrated alfalfa meal	"		20.00							64.0
Cottonseed meal	"	7.95	41.63	4.01	11.80	28.49	6.12	.16	1.14	
Soybean oilmeal	"	8.70	48.63	2.77	4.51	28.35	7.04	.33	.63	
Yellow corn	"	10.70	10.06	3.84	2.08	71.89	1.43	.01	.33	

The Improvement of Beef Cattle Through Breeding Methods

PROJECT 286

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The purebred Shorthorn cattle breeding project proceeded according to plan during the last year. The project has been planned to facilitate the collection of production data that will be used to devise and test breeding procedures useful to cattlemen to improve beef cattle through breeding methods.

Pedigree barriers were established in the original College Shorthorn herd in 1950 and two inbred lines are being developed. College Premier 29th, 2368167, and Gregg Farm's Hoarfrost, 2492499, have been used as herd sires for this purpose and the inbred lines are designated as the Wernacre Premier and Mercury lines, respectively, for these two foundation sires. The inbreeding program in the Wernacre Premier line was initiated in 1949 by mating College Premier 29th to his half-sisters. These matings were continued during 1950, 1951, 1952, and 1953. A son of College Premier 29th, KSC Premier C 11th, was mated to the females produced in the Wernacre Premier line to extend the inbreeding into the second generation. Calves from these matings were produced in 1952 and 1953.

Calves sired by Gregg Farm's Hoarfrost in 1951, 1952, and 1953 were not inbred because the dams of these were not related to him. Inbreeding in the Mercury line was initiated in 1952 by mating the daughters of Gregg Farm's Hoarfrost to one of his sons, KSC Mercury. Calves from these matings were produced in 1953.

The females in the project are pasture-bred to calve in the spring of each year. The calves are not creep-fed during the suckling period while the cows are on grass. All calves are weaned at 182 days of age and placed on individual feeding trials for 182 days after a three week adjustment period following weaning.

The full-feed ration for the bulls and steers consists of 75 percent corn and 25 percent chopped alfalfa hay, and that for the heifers, 55 percent corn and 45 percent chopped alfalfa hay.

All steers are maintained on a fattening ration after completing the regular feeding trial and slaughtered in the College meats laboratory for detailed carcass studies.

The feeding trial data for the 1952 calf crop are summarized in Table 17, and a partial summary of the 1953 calf crop is presented in Table 18. The feeding trials for the 1953 calves have not been completed to date and the number of days of feeding is designated for each animal.

Table 17.—Summary of the 1952 Shorthorn Calves of the Wernacre Premier and Mercury Lines.

Tag number	Coefficient of inbreeding ¹	Birth weight	Weaning weight	Weaning score	Days fed	Initial weight	Final weight	Total gain	Average daily gain	Final score	Pounds corn per 100 pounds gain	Pounds alfalfa per 100 pounds gain
Wernacre Premier Line												
Bulls												
105	6.25	75	455	2	182	469	1024	555	3.05	2	365	226
184	14.06	88	514	2	182	530	1047	517	2.84	3+	369	232
2	23.44	64	400	3+	182	473	961	488	2.68	3	359	240
Av.	14.58	76	456	2-	182	491	1011	520	2.86	3+	364	233
Steers												
37	14.06	78	386	2	182	403	820	417	2.29	3	380	241
7	12.50	91	365	2-	182	380	722	342	1.88	3	417	270
72	6.64	67	336	3+	182	371	790	419	2.30	3	352	204
Av.	11.07	79	362	2-	182	385	777	393	2.16	3	383	238
Heifers												
49	15.62	67	357	3	182	367	565	198	1.09	3+	343	429
39	15.62	75	363	2	182	398	656	258	1.42	2-	473	516
10	18.75	65	392	2-	182	410	682	272	1.49	2-	374	353
154	6.25	56	295	3+	182	347	643	296	1.63	2	386	345
14	27.73	55	301	2-	182	406	782	376	2.07	3	332	303
108	19.73	55	270	3	182	346	727	381	2.09	3+	354	320
23	22.27	57	329	3+	182	361	687	326	1.79	3+	331	301
56	23.44	65	295	3+	182	338	681	343	1.88	3+	328	297
Av.	18.67	62	325	3+	182	372	678	306	1.68	3+	365	358

Table 17 (Cont.)

Mercury Line

Bulls												
61	0	64	366	1-	182	400	801	401	2.20	1-	285	281
9	0	84	434	2	182	448	969	521	2.86	2+	322	192
4	0	69	391	2+	182	411	824	413	2.27	1-	289	289
90	0	71	430	2	182	440	930	490	2.69	2+	366	236
Av.	0	72	405	2+	182	425	881	456	2.50	2+	316	250
Steers												
68	0	62	335	3+	182	360	757	397	2.18	3	392	249
Heifers												
82	0	66	353	1-	182	378	629	251	1.38	1-	397	382
180	0	68	380	1	182	401	618	217	1.19	1	359	350
92	0	68	363	2+	182	376	579	203	1.12	2	401	472
58	0	57	342	2	182	360	678	318	1.75	3+	413	384
79	0	59	311	2+	182	330	638	308	1.69	2	394	370
Av.	0	64	350	2+	182	369	628	259	1.43	2	393	392

1. Coefficient of inbreeding means the percentage of inbreeding. Individuals from full brother-sister matings and parent-offspring matings are 25 percent inbred. Individuals produced from mating half-brothers and sisters are 12.5 percent inbred.

Table 18.—Partial Summary of the 1953 Shorthorn Calves of the Wernacre Premier and Mercury Lines.

Tag number	Coefficient of inbreeding	Birth weight	Weaning weight	Weaning score	Initial weight	Weight on 4-5-54	Days on trial	Daily gain during trial
Wernacre Premier Line								
Bulls								
82	27.73	60	275	3	297	532	119	1.97
Steers								
9	15.62	61	435	2—	470	815	182	1.90
760	14.06	79	425	3	450	832	161	2.37
10	6.25	83	425	2	418	835	182	2.29
Av.	11.98	74	428	3+	446	827		2.19
Heifers								
92	15.62	71	360	2	393	675	182	1.55
39	14.06	72	370	2	393	713	182	1.76
49	14.06	70	290	3—	318	650	182	1.82
79	7.80	70	320	2—	335	486	119	1.27
14	0.00	64	300	3+	307	500	119	1.62
Av.	10.30	69	328	3+	349	605		1.60
Mercury Line								
Bulls								
58	0.00	73	390	1—	435	752	140	2.26
184	0.00	75	369	2+	425	776	140	2.51
61	14.06	52	215	3—	230	370	119	1.18
68	14.06	65	285	3+	304	490	119	1.56
Av.	7.03	66	315	2—	349	597		1.88

Table 18 (Cont.)

Steers								
154	0.00	69	390	2+	421	780	161	2.23
56	0.00	78	400	2	426	814	161	2.41
18	0.00	63	410	1—	426	820	161	2.45
Av.		70	400	2+	424	805		2.36
Heifers								
180	0.00	84	355	2—	356	610	161	1.58
23	0.00	85	375	2+	435	694	140	1.85
108	0.00	68	415	2+	405	660	140	1.82
2	0.00	67	370	2—	380	645	140	1.89
90	15.62	55	270	3+	305	540	140	1.68
22	0.00	68	325	3+	344	580	119	1.98
Av.	2.60	71	352	2—	371	622		1.81