

Improvement of Beef Cattle Through Breeding (Project 286).

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The purebred Shorthorn beef cattle breeding experiment was initiated to study inheritance of production traits, to evaluate effects of inbreeding, and to explore the feasibility of using inbred lines for breeding improvement of production traits. The project was initiated in 1949 and was continued during 1965 according to plan.

The Wernacre Premier line is in its fifth generation and the Mercury line in its fourth generation of inbreeding. The inbreeding program has been basically to continue successive generations of half-sibbing. Extensive line crossing has not been attempted because of relatively low levels of inbreeding prevailing in both lines and the limited number of animals. Inbreeding will continue to be increased as the project progresses.

Production data for the 1964 calves are summarized in Table 27. Those for the 1965 calves have not been completed. Thirty-four of the 1965 calves are being fed individually.

Management of the experimental cattle includes weighing each cow and calf immediately following parturition. Calves are born in the spring and early summer each year as the result of summer pasture breeding. Creep feeding is not practiced. The calves are weaned, weighed and scored at approximately 6 months of age for feeder calf grade. Shortly after being weaned, they are placed on individual feeding trials for record-of-performance tests for 182 days. At completion of this feeding phase they are approximately 365 days old. Feed consumption and live weight gain records are maintained while the calves are on test. Final weights and conformation scores are taken at the termination of the feeding period. The primary trait selected for has been high weight per day of age.

Feed consumption and weaning weight data have been summarized and subjected to preliminary statistical analyses, and previously reported.

To date, no hereditary abnormalities attributable to effects of inbreeding have been observed in either line. Incidence of still born calves has tended to increase with increased inbreeding, especially in the Mercury line.

The full-feed ration for bulls consists of 75% cracked corn and 25% chopped alfalfa hay; that for the heifers, 55% cracked corn and 45% chopped alfalfa hay. No bull calf has been castrated since 1957.

Table 27
Summary of the 1964 Shorthorn Calves

Tag no.	Coefficient of inbreeding	Birth weight	Weaning weight	Weaning score	Days fed	Initial weight	Final weight	Total gain	Av. daily gain	Final Score	T D N cwt. gain
Mercury Line Bulls											
1	20.30	69	337	2-	182	343	785	442	2.43	2	414
3	15.63	57	400	2+	182	392	810	418	2.30	1-	506
6	16.24	74	450	2	182	466	932	466	2.56	2+	314
10	7.18	66	360	3	182	396	850	454	2.49	3+	484
14	15.50	80	369	2-	182	370	910	540	2.97	2	347
16	7.81	75	298	2	182	315	735	420	2.31	3	401
17	18.75	75	380	2-	182	393	780	387	2.13	3+	508
19	16.24	85	365	2	182	391	980	589	3.24	2-	371
20	17.19	60	365	2	182	395	825	430	2.36	2	451
29	14.69	72	398	2+	182	387	825	438	2.41	2+	489
33	15.92	72	335	2-	182	328	730	402	2.21	3+	502
37	12.50	78	400	2-	182	422	875	453	2.49	2	480
38	13.45	55	315	2-	182	340	710	370	2.03	3+	472
Av.	14.72	71	367	2	---	380	827	447	2.46	2-	441
Heifers											
2	7.18	80	425	1-	182	443	790	347	1.91	1	568
5	16.75	71	400	2-	182	425	780	355	1.95	3+	545
8	9.38	80	415	2	182	400	750	350	1.92	1	504
11	15.50	56	380	2+	182	378	740	362	1.99	1-	582
12	15.63	67	382	2	182	381	680	299	1.64	2-	620
13	13.45	62	258	2+	182	302	750	448	2.46	1-	421
18	15.92	58	360	2-	182	334	690	356	1.96	2-	538
21	14.69	70	307	2	182	305	640	335	1.84	2	629
22	15.50	89	382	2-	182	386	758	372	2.04	2+	571
23	17.19	67	275	2-	182	276	630	354	1.95	3+	465
25	14.69	72	370	2	182	371	725	354	1.95	2-	574
27	16.25	64	341	2	182	355	641	286	1.57	2+	596

Tag no.	Coefficient of inbreeding	Birth weight	Weaning weight	Weaning score	Days fed	Initial weight	Final weight	Total gain	Av. daily gain	Final score	T D N cwt. gain
Continued											
32	17.19	71	280	2+	182	295	660	365	2.01	2-	587
34	12.93	53	345	2	182	336	650	314	1.73	2-	576
35	18.75	62	300	3	182	311	665	354	1.95	3+	503
Av.	14.73	<u>68</u>	<u>348</u>	2	---	353	703	350	1.92	2	552

Wernacre Premier Bulls

7	33.05	61	300	2-	182	309	825	516	2.84	2	464
9	34.05	79	382	2-	182	408	840	432	2.37	3	514
26	29.81	62	298	3	182	329	770	441	2.42	3+	477
30	34.05	72	480	2-	182	495	1030	535	2.94	2+	474
36	28.27	74	446	2	182	475	1005	530	2.91	2-	474
Av.	31.85	70	381	2-	---	403	894	491	2.70	2-	481

Heifers

28	30.86	67	331	2-	182	342	730	388	2.13	3+	530
24	34.09	75	400	3-	182	408	780	372	2.04	3+	608
Av	32.48	71	366	3+	---	375	755	380	2.09	3+	569