

In 1887 he showed purebred swine at the St. Louis fair which in those days boasted the largest livestock exhibits of any fair in the United States. It was also the fair where East met West and breeders of the West prized very highly winnings made at this fair. Mr. Hubbard's Berkshires did remarkably well, his winnings including: 1st on aged boar; 2nd on yearling boar; 1st on sow and litter; 1st on boar and his get. The yearling boar was second to the boar that was later made Grand Champion of the show.

His winnings at the great St. Louis show of 1887 established him as one of the leading swine breeders of the country and created a demand for swine of his breeding over a wide area for many years. This resulted in an increase in the size of his herds until his annual production of purebred swine often reached 300 head.

Mr. Hubbard's achievements in the field of agriculture commanded the respect and confidence of leading farmers and livestock producers of Kansas. This respect and confidence is reflected in the recognition he received from several organizations both local and state but only two instances of this recognition will be cited at this time.

(1) He was one of the founders of the Kansas Improved Stock Breeders Association, which was organized at Topeka January 8, 1891; a member the remainder of his life, a director several terms and president two terms—1895 and 1896. It may be stated in passing that this organization whose membership consisted chiefly of breeders of purebred livestock soon developed into the most active and most influential of all Kansas agricultural organizations. Breeders of purebred livestock of several other states noting the achievements of this Kansas organization formed similar associations in their states.

(2) He was elected a member of the State Board of Agriculture continuously from 1889 until his death in 1919, served several terms as a director and two terms as president—1899 and 1900.

Mr. Hubbard was a good speaker and his name appears on the programs of many agricultural meetings of former years. The proceedings of early day agricultural meetings also show that he frequently participated in the discussions following formal talks and one is impressed with the soundness and value of his comments.

Mr. Hubbard was interested in affairs of government as well as agriculture and was elected to several public offices by the people of his community and county. His first public office after settling in Kansas was road overseer for one term followed by two terms as township trustee. In 1875 he was elected representative from Sumner County and reelected in 1876. In 1879 he was elected county treasurer and reelected in 1881.

For approximately the next 20 years he devoted most of his time to his farm and agricultural affairs in general except for the acceptance in January 1890 of an appointment as supervisor of the Census for the 4th Kansas district but in 1902 he was elected County Treasurer of Sumner County and reelected in 1904. He also served as mayor of Wellington from 1907 to 1909.

Many statements have been published about Mr. Hubbard that indicate the kind of man he was but time being short I shall bring you excerpts from only two. The first of these appears in Andreas' "History of Kansas" published in 1883 and I quote: "He commenced life without means and by his own manly, determined, and persistent effort regulated by the principles of integrity and Christian purity has won for himself abundance of wealth, the unbounded confidence of his constituents and fellow citizens, and today he occupies the proud and desirable position of one of the foremost men of his community, his county and his state."

Thirty-seven years later and soon after his death the Kansas State Board of Agriculture paid tribute to his memory. This appears in the

22nd biennial report of this organization. Tributes were paid him by several members of the Board but I shall use only excerpts from the report of the Committee on Necrology and again I quote: "In Thomas A. Hubbard the world-approved attributes of character were personified in the very highest degree. When gloom apparently possessed the public mind and strong hearts of fellow pioneers were filled with sadness akin to fear and despair, the smiles of Uncle Tom Hubbard, born of a 'hopeful and helpful heart', and his acts and words of courage and encouragement were the sort of stuff that made Kansas—that made the state. No good thing was ever opposed by him and no bad thing ever received his support or approval in voice or act. He ever lent a helping hand to him who was in need and could reprove or forgive a transgressor in a spirit almost divine. His sympathies were as broad as the range of human thought and action, and he ever showered upon all his good wishes until their sum total amounts to a veritable sublime benediction. He hated sin but not the sinner. His hopes and ambitions for himself and his fellows were along constructive lines always.

While we will pass as he has passed and his personality will not be known to them, who come after us as it is known to us, but what he did and lived while here will never be effaced."

Thomas A. Hubbard died at Wellington, Kansas, November 8, 1919.

Project 78: A Study of Factors Influencing Rate of Gain, Quantity of Feed Consumed, and Carcass Grade.

SUMMARY OF TWO YEARS' TRIALS

F. W. Bell, D. L. Mackintosh, and A. G. Pickett

INTRODUCTION

Rate of gain in the feedlot is one of the most important factors determining the profits from cattle feeding. Also cattle which gain faster usually have more finish and sell for a higher price per hundredweight. There is considerable variation in rate of gain by different cattle in the same feedlot, and we need to know if the factors which cause these differences can be determined when the feeder cattle are selected.

EXPERIMENTAL PROCEDURE

Two lots of 10 head each were selected each year from the range-bred heifer calves purchased for feeding trials at this station. The entire lot of calves each year (75 head in 1946 and 100 head in 1947), graded good to choice and were quite uniform.

Sorting for the two lots in these trials was made on probable differences in performance during the fattening period as indicated by body capacity, chest room, natural fleshing or muscling, bone, head, and general appearance. The calves in Lot 1 were somewhat deficient in one or more of the above characteristics as compared to those in Lot 2. All calves were graded individually on a standard feeder chart.

The calves in both lots received the same kinds of feed, and were given as much corn and silage as they would consume. The same amount of cottonseed meal was fed in each lot.

Differences in rate of gain and in the kind and amount of feed required to produce 100 pounds of gain are given in the table which follows. These differences indicate the relation of body features of feeder calves to the efficiency of the calves in producing beef.

The carcasses were graded by a U. S. Government grader.

TABLE 1. AVERAGE OF TWO YEARS' TRIALS

December 5, 1946 to July 2, 1947—209 days.
November 11, 1947 to June 22, 1948—224 days.

1. Lot number	1	2
2. Number of heifers	20	20
3. Average daily ration:		
Ground shelled corn	8.94	9.45
Atlas sorgo silage	7.51	12.01
Cottonseed meal	1.27	1.27
Alfalfa hay	1.36	1.59
Prairie hay .....	.39	.60
Ground limestone .....	.09	.09
4. Average initial weight	378	454
5. Average final weight	731	856
6. Average total gain	353	402
7. Average daily gain	1.62	1.85
8. Feed required for 100 pounds gain:		
Ground shelled corn	551	511
Atlas sorgo silage	462	646
Cottonseed meal	78	68
Alfalfa hay	82	85
Prairie hay	23	31
Ground limestone	5	5
9. Cost of feed per 100 pounds gain	\$ 25.83	\$ 24.58
10. Initial cost per heifer at \$19.50 per cwt.	73.71	88.53
11. Total feed cost per heifer	91.19	98.81
12. Initial cost per heifer plus feed cost	164.90	187.34
13. Selling price per cwt.	30.50	31.00
14. Selling price per heifer less marketing costs	217.95	260.36
15. Margin per heifer above initial cost and feed costs	53.05	73.02
16. Carcass grades		
Choice	2	5
Good	16	15
Commercial	2	0

OBSERVATIONS

- Both lots of calves ate practically the same amount of corn.
- Lot 2 consumed considerably more silage than Lot 1.
- The calves in Lot 2 made an average gain of 49 pounds more per head head during the fattening period than those in Lot 1.
- The carcasses were graded by a Government grader. Lot 2 produced five choice and 15 good carcasses. Lot 1 produced two choice, 16 good, and two commercial grade carcasses.
- These tests indicate that feeder cattle can be selected which will make faster gains, and also utilize a greater proportion of roughages to grain during the fattening period. The results of these trials also indicate that economy of gain can be combined with a higher market value of the beef produced.

Experiment No. 3

November 15, 1948, to May 24, 1949—190 days

This is the third test in the study of factors which influence feedlot performance and market value of cattle. As in the two preceding years, two lots of 10 heifer calves were sorted from 100 range-bred calves

purchased for feeding experiments. The calves graded good to choice as feeders and were similar to those used in the trials of 1947 and 1948. However, there was more difference in fleshing or condition of the 100 calves from which the two lots were sorted for this year's test. They were sorted on the basis of differences in width and depth of body, chest room, heads, bone, fleshing, and general appearance. The calves in Lot 1 lacked somewhat in one or more of the above features as compared to those in Lot 2. As sorted there was a noticeable difference in fleshing or condition of the two lots, Lot 1 being thinner in fleshing than Lot 2.

This difference in fleshing of the two lots at the start of this trial doubtless accounts in part at least, for the differences in the results as compared to the two preceding tests in this project. Note that the greatest differences in this trial are in carcass grades and selling price of the two lots.

Experiment No. 3

TABLE 2. INFLUENCE OF BODY CHARACTERISTICS ON FATTENING CATTLE.

November 15, 1948 to May 24, 1949—190 days

1. Lot number	1	2
2. Number of heifers in lot	10	10
3. Average daily ration, pounds:		
Ground shelled corn	9.31	9.88
Atlas sorgo silage	8.03	8.92
Soybean meal	1.83	1.82
Prairie hay	2.07	2.09
Alfalfa hay .....	.48	.44
Ground limestone .....	.08	.08
4. Average initial weight	403	492
5. Average final weight	788	874
6. Average total gain	385	382
7. Average daily gain	2.03	2.01
8. Feed required for 100 pounds gain, pounds:		
Ground shelled corn	457	491
Atlas sorgo silage	394	444
Soybean meal	90	91
Prairie hay	102	104
Alfalfa hay	24	22
Ground limestone	4	4
9. Cost of feed per 100 pounds gain	\$ 16.88	\$ 17.70
10. Initial cost of heifers @ \$26.50 per cwt.....	106.80	130.38
11. Feed cost per heifer	64.61	67.66
12. Initial cost per heifer plus feed cost	171.41	198.04
13. Selling price per cwt. at market	25.00	26.00
14. Selling price per heifer less marketing costs	192.00	222.24
15. Margin per heifer above initial cost and feed cost	20.59	24.20
16. Carcass grades (U. S. Government grader)		
Choice	0	6
Good	10	4

OBSERVATIONS

- The heifers in both lots made practically the same gain in weight.
- All carcasses in Lot 1 graded good. In Lot 2, six carcasses graded choice and four graded good.

3. That there was no advantage in rate of gain or efficiency of gain in Lot 2 doubtless was due largely to the fact that at the start of the trial the heifers in Lot 2 carried more condition than those in Lot 1. Feed costs per pound of gain are less with thinner cattle, and increase with higher finish of cattle.
4. Another fact which affects the results of this trial as compared with those of 1947 and 1948 is the relative prices of fat cattle and feeder cattle. The calves in this trial cost \$26.50 cwt., and sold for \$25 and \$26 per cwt. If the market for fat cattle had been more favorable when these lots were marketed, Lot 2 would have shown a still greater profit as compared to Lot 1.

Project Commercial No. 65: Performance of Steers Sired by Bulls of Different Sizes.

COMPARISON OF HEREFORD STEERS Sired BY SMALL, MEDIUM AND LARGE SIZE BULLS

Ed F. Smith, D. L. Mackintosh, and A. D. Weber
(Preliminary report—not for publication)

The Kansas, Oklahoma, and Ohio Agricultural Experiment Stations are cooperating in this study, which is supported by grants from the American Hereford Association. In October, 1948, each station received 96 steer calves from the following commercial herds: Bar 13 Ranch, P. K. Ranck, and O. M. Wallop, Sheridan, Wyoming; and M. C. Simpson, Volborg, Montana.

The project involves comparisons of steer calves sired by small, medium, and large size bulls at each of the three stations under three standard systems of feeding and management.

System I, immediate full feeding for 225 days.

System II, a deferred full feeding program in which the steer calves are wintered well, grazed without grain from May 1 to August 1, and then full fed in dry lot 100 days.

System III has for its objective the production of two-year-old grass fat steers without the feeding of grain. Phases under this system include: wintering as calves without grain; grazing as yearlings a full season without supplemental feed; wintering as yearlings without grain; grazing as two-year-olds without supplemental feed and selling as slaughter cattle directly off pasture.

Marketing and carcass data have been obtained on the steers handled under Systems I and II. Similar data will be obtained on all of the steers handled under System III. At the conclusion of the experiment, a joint report will be issued by the three cooperating stations.

The accompanying tables are included in this circular to indicate the experimental procedures that are being followed, and to conform to an established custom of the Kansas Agricultural Experiment Station whereby those in attendance at Livestock Feeders' Day are given an opportunity to see all of the experimental cattle and are furnished preliminary reports on unfinished tests.

A COMPARISON OF HEREFORD STEERS Sired BY SMALL, MEDIUM AND LARGE SIZE BULLS

System I—Immediate Full Feeding

November 29, 1948 to July 12, 1949—225 days

1. Lot number	1	2	3
2. Size of sires	Small	Medium	Large
3. Number of steers per lot	10	10	10
4. Initial weight per steer	430	444	452

5. Final weight per steer	838	903	915
6. Gain per steer	408	459	463
7. Daily gain per steer	1.81	2.04	2.06
8. Daily ration per steer, pounds:			
Ground shelled corn	8.93	9.70	9.66
Soybean meal	2.00	2.00	2.00
Silage	6.61	6.61	6.58
Prairie hay	1.70	1.51	1.69
Alfalfa hay	1.28	1.30	1.26
Ground limestone .....	.07	.07	.07
Salt .....	.01	.02	.01
9. Feed required per 100 lbs. gain, pounds:			
Ground shelled corn	492.5	475.5	469.4
Soybean meal	110.3	98.0	97.4
Silage	364.6	324.1	320.9
Prairie hay	93.9	84.7	82.1
Alfalfa hay	70.4	63.5	61.6
Ground limestone	3.75	3.27	3.54
10. Cost of feed per 100 lbs. gain..	\$ 18.59	\$ 17.47	\$ 17.24
11. Slaughter ("onfoot") grades			
Low prime	0	2	0
Top choice	3	2	2
Average choice	4	2	0
Low choice	1	3	6
Top good	1	0	2
Average good	1	1	0
Low good	0	0	0
12. Shrink in transit to market			
Pounds per steer	20.0	36.5	32.8
Percent	2.4	4.0	3.6
13. Dressing percent**	59.2	61.3	60.2
14. Carcass grades			
Average choice	—	1	—
Low choice	—	3	1
Top good	4	3	1
Average good	2	2	5
Low good	3	—	2
Top commercial	1	1	1
15. Selling price per cwt. at market	\$ 27.00	\$ 27.25	\$ 27.00
16. Comparative values per cwt. in the carcass	26.15	27.25	26.23

** Includes 2.5% cooler shrink.

TABLE 2. A COMPARISON OF HEREFORD STEERS Sired BY SMALL, MEDIUM AND LARGE SIZE BULLS

System II—Deferred Full Feeding

PHASE I—WINTERING

November 29, 1948 to May 1, 1949—153 Days

1. Lot number	4	5	6
2. Size of sires	Small	Medium	Large
3. Number of steers per lot	10	10	10
4. Initial weight per steer	427	441	451