

EXPERIMENT STATION  
OF THE  
KANSAS STATE AGRICULTURAL COLLEGE,  
MANHATTAN.

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FARM DEPARTMENT.

C. C. GEORGESON, M. S.,  
Professor of Agriculture and Superintendent of Farm.  
F. C. BURTIS, M. S., Assistant.  
D. H. OTIS, B. S., Assistant.

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***STEER=FEEDING EXPERIMENTS.==SERIES V.***

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Our fifth series of steer-feeding experiments was carried out during the winter of 1895-'96. The purpose of this experiment was to make a further test of the relative merits of the balanced ration, ground corn, ear corn, and the feeding in open, as compared with barn feeding; that is to say, it followed the same general plan adopted in our first steer experiment, that of 1891-'92, in which these same questions were tested. It was thought desirable to duplicate that experiment, in order to ascertain how the results would compare with another lot of cattle under the incidental variations due to differences in season. The results are detailed in what follows.

CHARACTER OF STEERS.

The experiment comprised in all 20 steers, 14 of which were purchased from a local stock dealer, Mr. C. Parks, Manhattan. They had been reared on the pastures in this locality, and represented the average of native steers in size and quality. In breed they were grade Short-horns. Just what per cent. of Short-horn blood they carried could not be ascertained, but they all had the leading characters of the Short-horn breed, and none of them was probably

less than three-fourths pure Short-horn. Nor could the age be ascertained with accuracy; but all had been dropped during the fall of 1892 or early spring of 1893, and were hence two and a half to three years old when put in the feed lot.

The remaining six steers have a somewhat different history. Four of them were pure-bred Short-horns, brought to the Station as calves in the summer of 1893, and obtained from the well-known breeder, T. P. Babst, of Dover, Kas. They were intended for the experiment reported in Bulletin 51, in which pure-bred Short-horns were compared with scrubs. But these four steers were some six months younger than the other pure-bred steers in that experiment, and, further, owing to the fact that they were castrated in the summer of 1893, which operation retarded their growth, they became unsuited for that experiment, and remained on the farm, receiving only the ordinary care of stock cattle. They are numbers 7, 8, 9 and 10, in the tables which follow, one of them being put in each of the four lots into which the 20 steers were subsequently divided. They showed a decided tendency to early maturity. When turned to pasture, May 22, 1895, they had attained an average weight of 1, 197 pounds, being then about two years and four months old, and they were in prime condition. In consequence of this early maturing tendency they were considerably heavier and in better condition than the 14 steers purchased, when the latter arrived at the Station last October.

The two remaining steers, yet to be accounted for, were scrubs which were purchased as yearlings in the summer of 1893. They had been subject to the same treatment as the steers reported on in Bulletin 51 up to the fall of 1894, when, instead of being put in the feed lot, they were simply wintered in the yard and again put on pasture during the summer of 1895. They were at least six months older than any of the other steers in the experiment. These two steers are numbers 18 and 19, noted in the tables hereafter. One of them was put in lot III, and the other in lot IV, as these two lots were to be compared as to the merit of the treatment given them.

#### COST OF STEERS.

The 14 purchased steers cost \$3.85 per hundredweight and the six steers reared at the Station are assessed at the same value, although the actual cost is somewhat more than this figure, owing to the high first cost of the pure-breds.

#### PLAN OF THE EXPERIMENT.

The 20 steers were divided into four lots, numbered respectively I, II, III, and IV. Of these, lots I, II and III were tied up in the barn,

and lot IV was fed in the open yard with an open shed for shelter. Lot I was fed a mixture of corn-meal, linseed-oil meal, and bran, in the proportion of 15 parts of corn-meal, 4 parts each of oil-meal and bran (a balanced ration), and for coarse fodder had cut corn-stover (*i. e.*, corn-stalks from which the matured ears were gathered) in the forenoon, and alfalfa hay in the afternoon. Lot II was fed corn-meal and cut corn-stover. Lots III and IV were fed ear corn and cut stover, the only difference between these lots being that one was tied in the barn and the other kept in the yard. Of these rations, each steer was fed all he would eat without cloying his appetite, and an accurate record was kept of the amount fed to each steer at each meal. If it happened that the steer did not eat all his feed, the leavings were weighed, and deducted from the amount fed. The water drunk by the indoor steers was in like manner weighed, and a record kept of the amount consumed by each. The outdoor steers ran together in a bunch, and could, therefore, not be fed individually, but a record was kept of the grain and fodder consumed daily. These had free access to water, without record. They were all fed twice a day, the first feed being given at 6:30 in the morning and the second at 5:30 in the afternoon. The indoor steers were let out for exercise about two hours daily in pleasant weather.

A record was kept of the temperature in the barn and in the yard, the better to note the difference in exposure in lots III and IV.

It will be noticed that this is a duplicate of our first steer-feeding experiment (see Bulletin No. 34) in almost every particular.

#### PRELIMINARY WORK.

The steers were turned into the yard of the Station for the first time in the evening of October 7. During the following week they were fed collectively a moderate allowance of ear corn at night and turned to pasture in the daytime, in order to accustom them to the premises, and they were also weighed individually for five consecutive days, and divided into lots on the basis of the average of these weights. Great care was taken to have the lots as nearly as possible alike in all particulars, not only as to weight, but also in regard to the individual character of the steers constituting each lot. The four pure-bred Short-horns, which were almost identical in weight and quality, were distributed in the four lots, and the two scrubs were put in lots III and IV. The weight of the lots as made up October 11 was as follows: Lot I, 5,796 pounds; lot II, 5,798 pounds; lot III, 5,804 pounds; and lot IV, 5,792 pounds.

On October 14 lots I, II and III were tied in the barn for the first

time and remained there until the afternoon of October 17. From that date until the 23d they were turned out daily during a few hours for exercise, but for the rest of the time they were tied in the barn, the object being to accustom them to the routine they were to follow during the feeding period. Their feed consisted first of ear corn, as noted, but after a few days lots I and II were gradually accustomed to the ground feed which was to constitute their diet. All the steers were remarkably docile. They offered but little resistance when tied for the first time, and by October 23 they had become so well used to their quarters that the experiment could begin. Nevertheless these changes had excited them somewhat and as a result the indoor lots lost weight during this preliminary feeding, while lot IV, which had been undisturbed in the yard, had in the same time gained in weight. All were weighed again daily on October 21, 22, and 23, and the average of these three weights was the weight taken for the beginning of the experiment. These weights are given in table I.

Table I.

Lot I.	No. of steer.	Oct. 21.	Oct. 22.	Oct. 23.	Average.
	2	1100	1100	1111	1103
6	1165	1180	1167	1170	
8	1255	1261	1273	1263	
12	1007	1000	1006	1004	
13	1070	1072	1083	1075	
Total.....					5615
Average..					1123

Lot II.	No. of steer.	Oct. 21.	Oct. 22.	Oct. 23.	Average.
	3	1162	1175	1167	1168
4	1090	1060	1047	1055	
10	1265	1255	1265	1261	
17	1150	1132	1130	1137	
20	1025	1026	1032	1027	
Total.....					5648
Average..					1129

Lot III.	No. of steer.	Oct. 21.	Oct. 22.	Oct. 23.	Average.
	1	1022	1010	1021	1017
7	1278	1266	1280	1274	
11	1279	1279	1290	1282	
15	1080	1105	1111	1098	
19	1123	1123	1121	1122	
Total.....					5793
Average..					1153

Lot IV.	No. of steer.	Oct. 21.	Oct. 22.	Oct. 23.	Average.
	5	1135	1132	1106	1124
9	1246	1232	1216	1231	
14	1135	1134	1134	1134	
16	1125	1127	1130	1127	
18	1380	1365	1358	1367	
Total.....					5983
Average..					1196

COST OF FEED.

The feeds have been charged at actual cost, which is as follows:  
 Ear corn, 26 cents per cwt.; corn-meal, 35 cents per cwt.; oil-meal, 88 cents per cwt.; bran, 50 cents per cwt.; alfalfa, 20 cents per cwt.; cut corn-fodder (stover), 15 cents per cwt.

THE EXPERIMENT BEGAN

October 23, and continued for a period of 147 days, until March 18. The plan as outlined was carried out in every particular. Great pains were taken to give the steers all they would eat and no more. No serious mishap occurred; occasionally a steer would scour, or be somewhat off feed for a day or two, but regained appetite without causing any disturbance to the experiment.

In connection with the feeding, the manure from each lot was collected for a time, and washed out, with a view to ascertain what per cent. of the grain fed was excreted without being digested. Some interesting data were obtained, and are recorded in what follows.

THE TABLES

which follow are condensed from the daily records, as it is impracticable to give the record in full. The facts as to the amount of feed consumed, gain made, etc., are condensed into weekly accounts. Each steer tied up in the barn can thus be followed through the experiment. These tables not only show the amount of grain and fodder eaten weekly, but also the cost of these feeds, and the cost per pound of gain from the beginning of the experiment, as shown for each succeeding week. Special attention is called to the columns which show the amount of grain and roughness eaten for each pound of gain made, and also to the columns showing the average daily gain from the beginning of the experiment and the cost per pound of gain. These are instructive, in that they, in every case, show the gradual falling off in the gain made for the feed consumed, as the experiment progresses, resulting in a corresponding increase of cost per pound of gain.

All the steers were weighed individually on a stock scale every Wednesday forenoon. They were weighed after they had eaten the morning feed, but before they were watered, and the weights and gains given in the following tables are those noted at these weekly weighings. In the case of lot IV, it will be found that there is greater individual variation in the weekly weighings than in the case of the indoor steers. This is due mainly to the fact that, having access to water at all times, they would sometimes drink before they were weighed and at other times not.

LOT I.

Tables II to VIII, inclusive, give details of lot I. Table II gives a collective view of the weekly weights and gains of each steer in the lot, and of the lot as a whole, from the beginning of the experiment. A minus sign in front of a figure indicates a loss in weight

instead of gain. The weekly gains vary considerably, but this is always the case with cattle, and is probably due to the varying amount of food in the intestines. It will be noted that a light gain, or a loss, in weight is usually followed by an excessive gain the next week, a feature that is common to all feeding experiments.

Tables III to VIII, inclusive, give a weekly account of the feed eaten, water drank and the cost of the gain for each steer in the lot, with a summary of these facts at the bottom of each table. These tables are given chiefly with a view to show the individuality of the steers, as far as this can be shown by figures. While they were all good, thrifty steers, some were better than others. The average daily gain per head for the whole lot was 2.76 pounds. Nos. 2 and 8 fall below this gain, while Nos. 6, 12 and 13 exceed it. No. 12 made the cheapest gain of any in the lot—a total of 427 pounds in 147 days, at a cost of 3.64 cents per pound. He consumed 7.02 pounds of the mixed grain (balanced ration) and 1.96 pounds of roughness for each pound of gain, a total of a trifle less than 9 pounds of food per pound of gain. This is an excellent showing. No. 6 did almost as well, with the total gain a little larger and the daily average gain exceeding 3 pounds, but he consumed somewhat more both of grain and roughness, for each pound of gain, and the gain cost, therefore, a third of a cent more per pound. The pure-bred steer, No. 8, made the least gain of any of them, the total being 349 pounds, and the average daily gain 2.37 pounds, at a cost of 4.24 cents per pound of gain. This, however, should not be put down to his discredit. It was largely due to the fact that he was nearly 150 pounds heavier than the others, and in better flesh, when the feeding began. He could, therefore, not be expected to gain so rapidly for the feed consumed. The tables show conclusively that as a steer gains in flesh it requires more and more feed for each additional pound of gain. These tables are commended to the careful study of readers interested in stock feeding. From them can be deduced many facts of practical value.

Table VIII gives a summary of the individual tables, so as to present the totals of lot No. I in a more condensed form. Here I would especially call attention to the last two columns of the table, and also to the columns showing the grain and roughness eaten per pound of gain. It will be noticed that the cheapest gains are made at the start; that there is a gradual increase in the cost as the feeding proceeds, which corresponds to the increased consumption of feed for each pound of gain. The data shown by the table on these points are somewhat more valuable than those taken from the tables of individual steers, inasmuch as they here represent the average of the

whole lot. Had the feeding period been prolonged, the average cost per pound of gain would steadily have increased, owing to the diminishing gains for the feed consumed. There is a point in every feeding operation when every additional pound of gain is produced at a loss. Just when this point is reached will depend on several factors, chief among which are the cost of feed and the price the steers will bring in the market. As these factors vary, each feeder must determine for himself when the selling point has been reached. This lot averaged 1,529 pounds when they were sent to market.

Table II. LOT I. BALANCED RATION.  
 WEEKLY ACCOUNT OF WEIGHT AND GAIN IN POUNDS.

DATE, 1895-'96.	Steer 2.		Steer 6.		Steer 8.		Steer 12.		Steer 13.		Total.		Average.	
	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.
October 23.....	1103	.....	1170	.....	1263	.....	1004	.....	1075	.....	5615	.....	1123	.....
.. 30.....	1146	43	1169	—1	1305	42	1045	41	1125	50	5790	175	1158	35
November 6.....	1172	26	1203	34	1314	9	1056	11	1129	4	5874	84	1175	17
.. 13.....	1212	40	1241	38	1326	12	1090	34	1149	20	6018	144	1204	29
.. 20.....	1244	32	1277	36	1369	43	1130	40	1195	46	6215	197	1243	39
.. 27.....	1234	—10	1260	—17	1383	14	1115	—15	1198	3	6190	—25	1238	—5
December 4.....	1258	24	1297	37	1401	18	1152	37	1216	18	6324	134	1265	27
.. 11.....	1290	32	1326	29	1424	23	1177	25	1251	35	6468	144	1294	29
.. 18.....	1295	5	1360	34	1415	—9	1178	1	1268	17	6516	48	1303	9
.. 25.....	1326	31	1393	33	1455	40	1208	30	1302	34	6684	168	1337	34
January 1.....	1332	6	1414	21	1469	14	1234	26	1326	24	6775	91	1355	18
.. 8.....	1345	13	1427	13	1486	17	1261	27	1340	14	6859	84	1372	17
.. 15.....	1350	5	1390	—37	1497	11	1273	12	1356	16	6866	7	1373	1
.. 22.....	1366	16	1470	80	1514	17	1296	23	1363	7	7009	143	1402	29
.. 29.....	1351	—15	1471	1	1535	21	1321	25	1386	23	7064	55	1413	11
February 5.....	1381	30	1507	36	1523	—12	1321	0	1400	14	7132	68	1426	13
.. 12.....	1382	1	1498	—9	1545	22	1335	14	1368	—32	7128	—4	1425	—1
.. 19.....	1417	35	1530	32	1570	25	1350	15	1428	60	7295	167	1459	34
.. 26.....	1444	27	1560	30	1591	21	1362	12	1430	2	7387	92	1477	18
March 4.....	1464	20	1578	18	1598	7	1388	26	1460	30	7488	101	1497	20
.. 11.....	1482	18	1606	28	1626	28	1401	13	1481	21	7596	108	1519	22
.. 18.....	1487	5	1619	13	1612	—14	1431	30	1496	15	7645	49	1529	10
Totals.....	.....	384	.....	449	.....	349	.....	427	.....	421	.....	2030	.....	406
Average daily gain.....	.....	2.61	.....	3.05	.....	2.87	.....	2.90	.....	2.86	.....	13.81	.....	2.76

Total gain of lot, 2,030 pounds.  
 Average daily gain, 13.81 pounds.  
 Average daily gain per head, 2.76 pounds.

Table III. LOT I. STEER No. 2.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.				ROUGHNESS.				WATER.			Ave. daily gain of grain from Oct. 23, lbs.	Cost per lb. of grain from Oct. 23, cts.		
	Corn-meal.		Bran.		Oil-meal.		Total.		Lbs. grain eaten per lb. grain from Oct. 23.	Total amt. drank, lbs.	Amt. drank per lb. of food from Oct. 23, lbs.			Gain of steer from Oct. 23, lbs.	
	Wt., lbs.	Cost per cwt.	Wt., lbs.	Cost per 50 cts. per cwt.	Wt., lbs.	Cost per 88 cts. per cwt.	Wt., lbs.	Cost.							
Oct. 23	75 64	\$0 285	20 18	\$0 101	20 13	\$0 178	116 00	544	2 69	473	11 00	43	6 14	1 49	
Nov. 6	91 30	320	24 35	122	24 35	214	140 00	656	3 71	567	14 92	69	4 93	2 02	
Nov. 13	49 13	347	26 43	132	26 43	233	152 00	712	3 74	528	14 29	109	5 19	2 02	
Nov. 20	96 20	337	25 65	128	25 65	226	147 50	691	3 93	577	15 14	141	5 03	2 12	
Nov. 27	81 52	285	21 74	109	21 74	191	127 00	585	5 19	456	19 77	131	3 71	2 81	
Dec. 4	102 39	358	27 30	137	27 30	240	157 00	735	5 40	525	20 10	155	3 69	2 83	
Dec. 11	108 92	381	29 01	145	29 01	255	167 00	781	5 37	588	20 63	187	3 81	3 24	
Dec. 18	104 68	366	27 91	139	27 91	246	160 50	751	6 06	544	21 95	192	3 51	3 17	
Dec. 25	109 24	382	29 13	146	29 13	256	167 50	784	5 97	562	22 82	223	3 44	3 44	
Jan. 1	104 34	365	27 83	139	27 83	245	160 00	749	6 51	510	22 82	229	3 27	3 55	
Jan. 8	90 32	316	24 09	120	24 09	212	138 50	648	6 73	510	23 51	242	3 14	3 78	
Jan. 15	92 28	323	24 61	123	24 61	214	141 50	663	7 17	465	24 91	247	3 81	3 81	
Jan. 22	81 84	286	21 83	109	21 83	192	125 50	587	7 21	408	25 18	263	2 89	3 14	
Jan. 29	39 78	139	10 61	63	10 61	93	61 00	285	7 89	326	28 02	248	2 33	4 18	
Feb. 5	75 32	264	20 09	100	20 09	177	115 50	541	7 46	425	26 52	279	2 64	3 95	
Feb. 12	91 30	320	24 35	122	24 35	214	140 00	656	7 93	387	27 81	279	2 49	4 19	
Feb. 19	99 13	347	26 43	132	26 43	233	145 50	682	7 51	455	26 16	314	2 63	3 96	
Feb. 26	98 48	345	26 23	131	26 23	231	151 00	707	7 37	497	25 66	361	2 71	3 88	
Mar. 4	98 48	345	26 23	131	26 23	231	151 00	707	7 37	489	25 69	379	2 70	3 90	
Mar. 11	106 30	372	28 35	142	28 35	249	163 00	763	7 75	479	26 60	384	2 61	4 06	
Totals.	1,941.49	\$6,795	517.74	\$2,538	517.74	\$4,556	2,977.00	\$13,939	.....	431.25	\$0.647	511.00	\$1.022	10,216	.....

Grain eaten, 2,877 pounds.  
Total food eaten, 3,919.25 pounds.  
Total gain, 147 days, 384 pounds.  
Cost per pound of gain, 4.06 cents.  
Grain eaten per pound of gain, 7.75 pounds.  
Total food eaten per pound of gain, 10.20 pounds.  
Water drunk to one pound of food consumed, 2.60 pounds.

Roughness eaten, 942.25 pounds.  
Total water drank, 10,216 pounds.  
Average daily gain, 2.61 pounds.  
Total cost of feed, \$15,608.  
Roughness eaten per pound of gain, 2.45 pounds.  
Water drunk per pound of gain, 26.60 pounds.

Table IV. LOT I. STEER No. 6.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.						ROUGHNESS.				WATER			Ave. daily gain of steer from Oct. 23, lbs.	Cost per lb. of grain from Oct. 23, cts.
	Corn-meal.		Bran.		Oil-meal.		Total.		Lbs. grain eaten per lb. gain from Oct. 23	Lbs. roughness eaten per lb. gain from Oct. 23	Total amt. drunk, lbs.	Amt. drunk to 1 lb. of food from Oct. 23, lbs.	Gain of steer from Oct. 23, lbs.		
	Wt., lbs.	Cost 35 cts. per cwt.	Wt., lbs.	Cost 50 cts. per cwt.	Wt., lbs.	Cost 88 cts. per cwt.	Wt., lbs.	Cost.							
Oct. 23	75 64	\$0 265	20 18	\$0 101	20 18	\$0 178	116 00	\$0 544	7 74	3 88	473	2 01	-1	14	*
" 30	90 98	318	24 26	124	24 26	243	139 30	652	5 76	2 34	598	2 51	33	2 36	4 22
Nov. 6	100 10	380	26 70	134	26 70	235	153 30	719	5 42	2 02	572	2 85	33	3 38	3 10
" 13	111 84	381	29 83	149	29 83	262	171 30	802	6 44	3 00	565	2 75	107	3 82	2 89
" 20	58 36	204	15 57	78	15 57	137	89 30	419	6 44	3 00	409	2 78	90	2 57	4 00
" 27	96 52	338	25 74	129	25 74	227	148 00	664	6 34	2 88	543	2 74	127	3 44	3 44
Dec. 4	111 52	380	29 74	149	29 74	262	171 00	841	6 15	2 88	579	2 74	156	3 18	3 37
" 11	117 06	440	31 22	166	31 22	275	179 30	841	6 08	2 88	632	2 75	190	3 39	3 25
" 18	122 04	450	32 78	164	32 78	288	188 30	882	6 82	2 88	582	2 71	223	3 54	3 20
" 25	127 82	447	34 09	170	34 09	300	196 00	917	6 82	2 88	582	2 71	244	3 48	3 32
Jan. 1	131 74	461	35 13	176	35 13	309	202 00	946	8 61	2 88	582	2 71	244	3 48	3 32
" 8	91 30	320	24 35	122	24 35	214	140 00	656	8 61	2 88	582	2 71	244	3 48	3 32
" 15	114 14	400	30 43	152	30 43	268	175 00	820	6 30	2 88	540	2 68	257	3 54	3 54
" 22	95 86	356	25 57	128	25 57	225	147 00	689	7 36	2 88	634	2 68	220	3 27	3 53
" 29	108 92	381	29 48	145	29 48	259	167 00	782	7 07	2 88	634	2 68	301	3 07	3 68
Feb. 5	110 54	407	31 04	155	31 04	273	169 30	793	7 78	2 88	634	2 68	328	3 22	4 05
" 12	117 40	411	31 30	157	31 30	275	178 30	835	7 56	2 88	634	2 68	328	3 22	4 05
" 19	116 42	411	31 30	157	31 30	275	178 30	835	7 56	2 88	634	2 68	328	3 22	4 05
" 26	117 06	410	31 22	156	31 22	275	179 30	841	7 57	2 88	634	2 68	328	3 22	4 05
Mar. 4	117 72	412	31 39	157	31 39	276	180 30	845	7 50	2 88	634	2 68	328	3 22	4 05
" 11	125 54	439	33 48	167	33 48	295	192 30	901	7 71	2 88	634	2 68	328	3 22	4 05
Totals,	2,250.42	\$7,907	602.54	\$3,013	602.54	\$5,302	3,461.50	\$16,222	.....	11,857	.....	.....	.....	.....	.....

\* All loss.  
 Grain eaten, 3,461.5 pounds.  
 Total food eaten, 4,475.25 pounds.  
 Total gain, 147 days, 449 pounds.  
 Cost per pound of gain, 3.99 cents.  
 Grain eaten per pound of gain, 7.71 pounds  
 Total food eaten per pound of gain, 9.96 pounds.  
 Water drunk to one pound food consumed, 2.61 pounds.  
 Roughness eaten, 1,010.75 pounds.  
 Total water drunk, 11,857 pounds.  
 Average daily gain, 3.06 pounds.  
 Total cost of feed, \$17,922.  
 Roughness eaten per pound of gain, 2.25 pounds.  
 Water drunk per pound of gain, 23.40 pounds.

Table V. LOT I. STEER NO. 8.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.				ROUGHNESS.				WATER.			Ave. daily gain from Oct. 23, lbs.	Cost per lb. of gain Oct. 23, cts.							
	Corn-meal.		Bran.		Oil-meal.		Total.		Cut corn-fodder.		Alfalfa.			Total amt. drank, lbs.		Amt. drank to 1 lb. of food from Oct. 23, lbs.		Gain of steer from Oct. 23, lbs.		
	Wt., lbs.	Cost 35 cts per cwt.	Wt., lbs.	Cost 50 cts per cwt.	Wt., lbs.	Cost 88 cts per cwt.	Wt., lbs.	Cost.	Lbs. grain eaten from Oct. 23	Wt., lbs.	Cost 15 cts per cwt.	Wt., lbs.	Cost 20 cts per cwt.	Lbs. roughness eaten from Oct. 23	Total amt. drank, lbs.	Amt. drank per lb. gain from Oct. 23, lbs.	Amt. drank to 1 lb. of food from Oct. 23, lbs.	Gain of steer from Oct. 23, lbs.		
Oct. 23	73 04	\$0 256	10 48	\$0 093	19 48	\$0 171	112 00	\$0 524	2 66	10 50	\$0 016	33 50	\$0 667	1 04	508	12 09	3 25	42	6 00	1 44
" 30	86 08	301	22 96	119	22 96	202	132 00	618	4 78	18 50	028	30 50	061	1 82	581	21 36	3 23	51	3 64	2 57
" 6	87 39	306	23 30	127	23 30	205	134 00	628	6 00	16 00	024	32 00	064	2 23	553	26 06	3 16	63	3 00	3 22
" 13	95 54	324	25 48	137	25 48	224	146 50	685	4 94	21 50	032	32 50	065	1 83	594	21 09	3 10	106	3 78	2 65
" 20	84 13	294	22 43	112	22 43	197	129 00	603	5 44	27 50	041	17 50	035	2 00	560	23 30	3 12	120	3 43	2 90
Dec. 4	70 06	205	21 30	101	21 30	187	122 50	574	5 62	28 00	042	26 50	053	2 13	545	24 21	3 12	138	3 28	3 01
" 11	85 76	306	25 22	116	23 22	204	133 50	625	6 84	34 50	052	20 50	041	2 17	531	24 04	3 07	161	3 28	3 02
" 18	90 22	316	22 57	114	22 57	201	131 50	615	5 64	36 50	058	16 50	033	2 44	554	29 11	3 06	152	2 71	3 67
Jan. 1	93 26	328	24 97	124	24 09	212	138 50	648	6 14	38 50	045	17 50	029	2 37	533	25 83	3 03	192	3 04	3 42
" 8	86 52	298	25 71	123	24 87	219	148 00	669	6 41	30 00	043	19 50	039	2 44	539	26 68	3 01	206	2 89	3 51
" 15	89 34	313	23 83	119	23 83	210	137 00	642	6 86	28 50	043	29 00	058	2 60	545	28 29	3 00	223	2 89	3 66
" 22	78 26	274	20 87	102	20 43	180	117 00	562	6 87	31 00	046	34 50	069	2 68	544	28 75	3 00	251	2 75	3 68
" 29	87 72	302	23 39	117	23 39	208	134 50	630	6 78	23 00	034	28 50	037	2 66	545	28 63	3 01	272	2 77	3 64
Feb. 5	86 42	302	23 04	113	23 04	203	132 50	624	7 46	24 00	036	19 50	041	2 91	525	31 29	3 00	260	2 47	4 07
" 12	86 74	304	23 13	116	23 13	204	133 00	628	7 31	32 50	039	20 50	045	2 84	569	30 59	3 01	307	2 58	3 91
" 19	87 40	306	23 30	117	23 30	205	134 00	628	7 25	34 00	049	22 50	046	2 83	563	30 41	3 01	328	2 60	3 88
" 26	87 40	306	22 96	117	22 96	202	132 00	618	7 50	31 50	052	18 50	037	2 93	546	31 42	3 01	335	2 51	4 02
Mar. 4	86 08	301	22 96	119	22 96	202	132 00	618	7 25	32 00	048	16 50	033	2 84	559	30 52	3 01	363	2 59	3 90
" 11	78 38	275	20 96	105	20 96	184	120 50	564	7 92	28 00	042	14 00	028	3 07	505	33 20	3 01	349	2 37	4 24
Totals..	1,833.37	\$6.312	430.95	\$2.405	480.95	\$4.232	2,765.50	\$12.949	.....	590.50	\$0.886	482.50	\$0.965	.....	11,387	.....	.....	.....	.....	.....

Gain eaten, 2,765.5 pounds.  
Total food eaten, 3,888.5 pounds.  
Total gain, 147 days, 349 pounds.  
Cost per pound of gain, 4.24 cents.  
Grain eaten per pound of gain, 7.92 pounds.  
Total food eaten per pound of gain, 10.96 pounds.  
Water drunk to one pound of food consumed, 3.01 pounds.

Roughness eaten, 1,075 pounds.  
Total water drank, 11,387 pounds.  
Average daily gain, 2.37 pounds.  
Total cost of feed, \$14.80.  
Roughness eaten per pound of gain, 3.07 pounds.  
Water drank per pound of gain, 33.30 pounds.

Table VI. LOT I. STEER NO. 12.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.						ROUGHNESS.						WATER.			Ave. daily gain of steer from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Corn-meal.		Bran.		Oil-meal.		Total.		Lbs. grain eaten per lb. gain from Oct. 23.		Lbs. roughness eaten per lb. gain from Oct. 23.		Total amt. drank, lbs.	Amt. drank per lb. from Oct. 23, lbs.	Amt. drank to 1 lb. of food from Oct. 23, lbs.		
	Wt., lbs.	Cost, 35 cts. per cwt.	Wt., lbs.	Cost, 50 cts. per cwt.	Wt., lbs.	Cost, 88 cts. per cwt.	Wt., lbs.	Cost, per lbs.	Wt., lbs.	Cost, per lbs.	Wt., lbs.	Cost, per lbs.					
Oct. 23	75 00	\$0 263	20 00	\$0 100	20 00	\$0 176	115 00	\$1 539	2 80	5 00	34 00	95	9 17	2 44	41	5 86	1 49
" 30	90 65	317	24 17	118	24 57	213	139 50	631	4 88	6 00	35 00	1 53	15 62	2 47	52	3 71	2 58
Nov. 6	88 36	309	23 57	118	24 57	213	135 50	734	4 52	9 00	35 00	1 44	14 81	2 48	86	4 09	2 39
" 13	104 34	365	27 83	139	27 83	209	190 00	749	4 96	12 50	019	1 35	13 70	2 39	126	4 50	2 30
" 20	80 02	312	23 74	119	23 74	209	136 50	640	6 18	19 50	029	1 87	13 70	2 38	111	3 17	2 24
Dec. 4	93 60	328	24 95	125	24 95	220	143 50	640	5 00	17 50	029	1 87	13 70	2 37	148	3 52	2 91
" 11	80 23	281	21 30	107	21 30	168	122 00	576	5 30	30 00	019	1 82	17 23	2 35	173	3 53	2 91
" 18	79 90	280	21 30	107	21 30	168	122 00	574	6 17	25 50	038	2 02	19 38	2 33	201	3 10	2 28
" 25	82 18	288	21 91	109	21 91	169	138 00	588	5 88	28 00	042	2 08	18 50	2 32	201	3 23	2 13
Jan. 1	90 32	316	24 00	120	24 00	212	158 50	648	5 82	17 00	025	2 04	18 12	2 29	230	3 28	3 09
" 8	97 50	341	26 00	130	26 00	233	149 50	700	5 79	15 00	023	2 02	17 77	2 29	257	3 33	3 06
" 15	99 46	348	26 52	133	26 52	233	152 50	714	6 10	14 00	021	2 50	18 57	2 29	269	3 20	3 22
" 22	97 50	341	26 00	130	26 00	233	146 50	700	6 13	12 00	018	3 00	18 57	2 27	262	3 20	3 24
" 29	95 54	331	25 48	127	25 48	224	149 50	685	6 57	12 00	023	1 99	18 55	2 27	262	3 23	3 22
Feb. 5	96 52	338	25 74	129	25 74	224	148 50	685	6 37	15 00	023	2 08	18 55	2 22	317	3 23	3 22
" 12	97 50	341	26 00	130	26 00	233	149 50	702	6 89	12 50	019	2 10	19 51	2 25	317	3 01	3 46
" 19	97 82	342	26 00	130	26 00	233	150 50	702	6 50	13 50	020	2 10	19 50	2 23	381	2 95	3 54
" 26	98 16	344	26 17	131	26 17	230	150 50	705	7 08	12 50	019	2 11	19 50	2 23	346	2 90	3 61
Mar. 4	97 50	341	26 00	130	26 00	233	149 50	700	6 99	11 00	017	2 04	20 20	2 23	384	2 84	3 70
" 11	97 82	342	26 09	130	26 09	230	150 00	702	7 14	11 50	017	2 04	20 20	2 23	384	2 88	3 64
" 18	103 30	372	28 39	142	28 39	249	163 00	763	7 02	8 50	013	1 96	20 07	2 23	427	2 83	3 71
Totals, 1895, 21	\$6 843	521 39	\$2 607	521 39	\$4 588	2,998 00	\$14 028	307 50	\$0 461	531 00	\$1 062	8,572	418			2 90	3 64

Roughness eaten, 2,998 pounds.  
Total food eaten, 5,895 pounds.  
Total gain, 47 days, 427 3/4 pounds.  
Cost per pound of gain, 3 64 cents.  
Grain feed eaten per pound of gain, 7 32 pounds.  
Total food eaten per pound of gain, 8 38 pounds.  
Water drunk to one pound of food consumed, 2 23 pounds.

Roughness eaten, 838 5/8 pounds.  
Total water drunk, 8,572 pounds.  
Average daily gain, 2 90 pounds.  
Total cost of feed, \$15 861.  
Roughness eaten per pound of gain, 1 96 pounds.  
Water drunk per pound of gain, 20 07 pounds.

Table VII. LOT I. STEER NO. 13.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.						ROUGHNESS.						WATER.			Ave. daily gain of steer from Oct. 23, 1895, lbs.	Cost per lb. of gain from Oct. 23, 1895, cts.	
	Corn-meal.		Bran.		Oil-meal.		Total.		Alfalfa.		Lbs. roughness eaten per lb. gain from Oct. 23	Total amt. drank, lbs.	Amt. drank per lb. gain from Oct. 23, lbs.	Amt. drank to 1 lb. of food from Oct. 23, lbs.				
	Wt., lbs.	Cost, 35 cts. per cwt.	Wt., lbs.	Cost, 50 cts. per cwt.	Wt., lbs.	Cost, 88 cts. per cwt.	Wt., lbs.	Cost.	Wt., lbs.	Cost, 20 cts. per cwt.								
Oct. 23.	75.32	\$0.364	39.09	\$0.100	30.09	\$0.177	115.50	\$0.541	2.33	20.50	\$0.031	485	9.70	2.78	50	7.14	1.29	
Nov. 6.	61.30	0.290	24.35	0.222	24.35	0.214	140.00	0.656	4.72	24.50	0.037	2.12	18.29	2.65	54	3.86	2.60	
" 13.	108.09	0.378	34.70	0.233	24.70	0.217	142.00	0.684	5.37	25.00	0.031	2.33	19.98	2.59	74	3.52	2.93	
" 20.	80.19	0.317	23.43	0.184	23.75	0.253	165.50	0.775	4.69	21.00	0.031	1.84	16.00	2.44	120	4.25	2.52	
" 27.	60.13	0.257	21.43	0.132	21.43	0.233	132.00	0.712	5.81	26.00	0.039	2.12	19.19	2.41	123	3.51	3.09	
Dec. 4.	67.05	0.222	21.52	0.133	21.52	0.216	141.00	0.651	6.07	28.00	0.012	2.29	19.80	2.36	141	3.35	3.21	
" 11.	67.50	0.241	23.00	0.139	23.00	0.229	149.50	0.700	5.71	33.00	0.054	2.21	18.61	2.35	176	3.69	3.06	
" 18.	100.12	0.350	30.69	0.133	25.69	0.235	153.50	0.718	6.00	36.00	0.043	2.32	19.54	2.34	193	3.44	3.22	
" 25.	103.04	0.351	27.88	0.131	27.48	0.242	153.00	0.740	5.80	28.50	0.029	2.21	18.75	2.33	227	3.60	3.10	
Jan. 1.	103.98	0.371	28.26	0.141	28.26	0.249	162.50	0.761	5.89	19.50	0.038	2.22	18.75	2.33	251	3.58	3.13	
" 8.	86.52	0.338	23.74	0.129	23.74	0.233	148.00	0.693	6.14	25.50	0.030	2.25	19.47	2.32	265	3.44	3.26	
" 15.	76.14	0.289	25.43	0.132	25.43	0.233	152.00	0.712	6.33	19.50	0.029	2.22	18.75	2.33	281	3.34	3.36	
" 22.	76.06	0.289	20.32	0.103	20.32	0.180	118.00	0.552	6.58	19.50	0.031	2.38	18.75	2.33	281	3.16	3.50	
" 29.	59.34	0.313	23.83	0.119	23.83	0.210	137.00	0.642	6.54	20.50	0.031	2.38	18.75	2.33	309	3.16	3.48	
Feb. 5.	80.00	0.315	24.00	0.120	24.00	0.211	142.00	0.646	6.68	22.00	0.033	2.41	20.72	2.32	311	3.17	3.48	
" 12.	82.00	0.324	24.70	0.124	24.70	0.217	143.50	0.655	6.89	19.00	0.029	2.31	21.68	2.30	325	3.09	3.55	
" 19.	83.38	0.327	24.96	0.125	24.96	0.220	143.50	0.672	6.96	19.00	0.029	2.41	21.68	2.30	341	3.09	3.61	
" 26.	88.80	0.346	25.35	0.131	25.35	0.232	151.50	0.709	7.35	15.00	0.025	2.52	22.98	2.32	353	2.96	3.68	
" 26.	86.20	0.336	25.65	0.128	25.65	0.226	147.50	0.690	7.16	16.50	0.025	2.41	22.43	2.34	385	2.81	3.78	
Mar. 4.	96.46	0.348	26.52	0.133	26.52	0.233	152.50	0.714	7.16	15.50	0.023	2.37	22.35	2.34	406	2.80	3.77	
" 11.	106.30	0.372	28.35	0.142	28.35	0.249	163.00	0.763	7.29	16.00	0.024	2.37	22.61	2.33	421	2.86	3.83	
Totals.	12,003.84	\$7.013	534.32	\$2.671	534.32	\$4.702	3,072.50	\$14.386	470.50	\$0.706	528.50	\$1.057	9,520					

Grain eaten, 3,072.5 pounds.  
Total food eaten, 4,071.3 pounds.  
Total gain, 147 days, 421 pounds.  
Cost per pound of gain, 3.83 cents.  
Grain eaten per pound of gain, 7.29 pounds.  
Total food eaten per pound of gain, 9.67 pounds.  
Water drank to one pound of food consumed, 2.33 pounds.

Roughness eaten, 999 pounds.  
Total water drank, 9,520 pounds.  
Average daily gain, 2.83 pounds.  
Total cost of feed, \$16.149.  
Roughness eaten per pound of gain, 2.37 pounds.  
Water drank per pound of gain, 22.61 pounds.

Table VIII. TOTALS OF LOT I.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1896 '96.	GRAIN.						ROUGHNESS.				WATER.		GRAIN		Ave. daily gain per head from Oct. 23, '95, to Oct. 23, '96.	Cost per lb. of gain from Oct. 23, '95, to Oct. 23, '96.						
	Com-meal.		Bran.		Oil-meal.		Total.		Lbs. grain eaten per lb. from Oct. 23, '95, to Oct. 23, '96.		Cut corn-fodder.		Alfalfa.				Lbs. roughness eaten per lb. of gain from Oct. 23, '95, to Oct. 23, '96.		Total amt. drank from Oct. 23, '95, to Oct. 23, '96.		Amt. drank to 1 lb. of food from Oct. 23, '95, to Oct. 23, '96.	
	Wt., lbs.	Cost, cts. cwt.	Wt., lbs.	Cost, cts. cwt.	Wt., lbs.	Cost, cts. cwt.	Wt., lbs.	Cost, cts. cwt.	Wt., lbs.	Cost, cts. cwt.	Wt., lbs.	Cost, cts. cwt.	Wt., lbs.	Cost, cts. cwt.			Wt., lbs.	Cost, cts. cwt.	Wt., lbs.	Cost, cts. cwt.	Wt., lbs.	Cost, cts. cwt.
Oct. 23.	374 68	\$1.311	99 91	\$0.500	99 91	\$0.879	574 50	\$2.680	3 28	74 25	\$0.111	174 50	\$0.349	1 42	2 315	13 22	2 81	175	25 00	5 00	\$1.80	
" 30.	450 32	1 576	120 09	624	124 70	1 087	690 50	3 253	4 88	104 00	156	150 50	319	1 97	2 691	19 32	2 81	259	18 50	3 70	2 64	
Nov. 6.	467 60	1 637	124 70	624	137 57	1 087	717 00	3 705	4 91	103 25	166	145 50	301	1 70	2 590	18 84	2 76	403	19 19	3 84	2 64	
" 13.	515 86	1 806	137 57	688	137 57	1 211	791 00	3 705	5 92	110 50	166	145 50	291	1 70	2 681	17 04	2 69	600	21 43	4 25	2 47	
" 20.	412 18	1 443	109 91	549	109 91	967	632 00	2 959	5 92	128 00	192	112 50	225	2 19	2 468	21 73	2 67	575	16 43	3 16	3 16	
Dec 4.	464 31	1 625	123 83	619	123 83	1 080	712 00	3 334	5 80	129 50	194	135 00	270	2 15	2 465	21 14	2 65	709	16 88	3 37	3 10	
" 11.	485 22	1 688	129 39	617	129 39	1 130	744 00	3 484	5 69	171 00	257	118 00	296	2 12	2 555	20 56	2 62	853	17 40	3 48	3 04	
" 18.	487 50	1 706	130 00	650	130 00	1 144	778 50	3 500	6 22	163 00	244	96 50	193	2 30	2 613	22 37	2 62	901	16 08	3 21	3 32	
" 25.	507 72	1 777	135 39	677	135 39	1 191	778 50	3 745	5 97	161 50	242	88 50	177	2 17	2 521	21 21	2 60	1 069	16 96	3 39	3 17	
Jan. 1.	521 74	1 825	139 13	685	139 13	1 224	800 00	3 745	6 19	147 00	175	80 50	161	2 17	2 488	21 69	2 58	1 160	16 97	3 31	3 28	
" 8.	512 62	1 794	136 69	683	136 69	1 203	786 00	3 680	6 40	125 50	188	93 00	186	2 20	2 478	22 22	2 58	1 214	16 15	3 23	3 38	
" 15.	471 52	1 650	125 74	629	125 74	1 107	723 00	3 386	6 95	101 00	152	103 00	273	2 32	2 445	22 05	2 57	1 251	14 89	2 68	3 67	
" 22.	447 06	1 565	119 22	598	119 22	1 049	685 50	3 210	6 83	99 50	149	163 00	285	2 32	2 519	23 30	2 58	1 391	15 32	3 06	3 65	
" 29.	398 80	1 396	106 35	532	106 35	963	611 50	2 861	6 79	88 50	133	142 50	265	2 39	2 490	24 02	2 58	1 449	14 78	2 86	3 55	
Feb. 5.	458 48	1 605	122 26	611	122 26	1 076	703 00	3 292	7 05	108 50	163	89 50	179	2 41	2 313	25 97	2 58	1 517	13 50	2 70	3 72	
" 12.	478 36	1 674	127 57	638	127 57	1 129	733 50	3 425	7 25	116 50	171	100 00	200	2 56	2 473	24 47	2 56	1 513	14 44	2 88	3 98	
" 19.	489 46	1 713	133 57	658	133 57	1 149	750 50	3 515	7 25	113 00	175	94 00	188	2 43	2 509	25 25	2 56	1 680	14 11	2 82	3 82	
" 26.	500 86	1 753	133 57	668	133 57	1 175	768 00	3 565	7 31	109 00	170	86 00	172	2 40	2 490	25 25	2 57	1 772	14 06	2 81	3 84	
Mar. 4.	499 56	1 748	133 22	666	133 22	1 172	765 00	3 565	7 31	113 00	166	80 50	161	2 36	2 594	25 01	2 57	1 873	14 15	2 83	3 83	
" 11.	523 04	1 831	139 48	697	139 48	1 227	802 00	3 755	7 52	94 00	141	81 00	162	2 39	2 389	25 49	2 56	2 030	13 81	2 76	3 94	
Totals.	9,963 56	\$34,872.2	2,656 97	\$13,284.2	4,656 97	\$23,381 15	27,775 50	\$71,537	2,412 50	\$3,664	2,421 00	\$1,842	51,752	.....	51,752	.....	.....	.....	.....	.....	.....	.....

Grain eaten, 15,277.5 pounds.  
Total food eaten, 20,141 pounds.  
Total gain, 147 days, 2,030 pounds.  
Average daily gain of lot, 13 81 pounds.  
Average cost per pound of gain, 3.94 cents.  
Average cost of feed per head, \$16.01.  
Roughness eaten per pound of gain, 2.39 pounds.  
Water drunk per pound of gain, 25.46 pounds.

Grain eaten, 4,863.5 pounds.  
Total water drank, 51,752 pounds.  
Average gain per head, 406 pounds.  
Average daily gain per head, 2.76 pounds.  
Total cost of feed, \$80,043.  
Grain eaten per pound of gain, 7.52 pounds.  
Total food eaten per pound of gain, 9.91 pounds.  
Water drunk to one pound of food consumed, 2.56 pounds.

## LOT II.

Tables IX to XV show the details of lot II, on the same plan as the tables for lot I.

Table IX shows the weight of each steer in the lot at the beginning of the experiment. October 23, with the weight and gain for each succeeding week, and finally the total and average gains of the lot. The feed of this lot, as already stated, consisted of corn-meal and cut corn-stover. They were tied up alongside of lot I, and were subjected to the same conditions in all respects, except that of feed.

Tables X to XIV, inclusive, each give the details of one steer, whose individuality will be revealed in a measure by the figures given. As in the former case, some steers made better gains than others. Those that ate the most did not always make the best gains. The average daily gain of the lot was 1.97 pounds. Three of the steers exceeded that gain slightly and two fell slightly below. But as a whole they went along together with remarkable uniformity. The cheapest gain was made by steer No. 20, whose feed cost but 3.22 cents for each pound of gain. The costliest gain was that of steer No. 10, namely, 3.71 cents per pound of gain. This is the thoroughbred steer in this lot, and the remark made concerning No. 8, in lot I, applies also here. He was much heavier and in better condition than the others when the experiment began, which is sufficient to account for his gaining less rapidly than some of the others. The general principle of decreasing gains as the feeding progresses is illustrated in the case of every steer of this lot also.

Table XV gives a summary of the steers in the lot, in which the weights, gains, the feed and cost of feed for all five have been condensed under each week throughout the experiment. The lot as a whole ate less than lot I, but also gained less, at slightly less cost per pound of gain. The feed used was cheaper than that of lot I, which, of course, is the cause of this slightly cheaper gain.

Table IX. LOT II. CORN-MEAL.  
 WEEKLY ACCOUNT OF WEIGHT AND GAIN IN POUNDS.

DATE, 1895-'96.	Steer 3.		Steer 4.		Steer 10.		Steer 17.		Steer 20.		Total.		Average.	
	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.
October 23.....	1168	.....	1055	.....	1261	.....	1137	.....	1027	.....	5648	.....	1130	.....
“ 30.....	1180	12	1094	39	1305	44	1208	71	1063	36	5850	202	1170	40
November 6.....	1189	9	1094	0	1343	38	1186	-22	1072	9	5884	34	1177	7
“ 13.....	1215	26	1112	18	1358	15	1196	10	1117	45	5998	114	1200	23
“ 20.....	1226	11	1158	46	1383	25	1220	24	1148	31	6135	137	1227	27
“ 27.....	1227	1	1163	5	1377	-6	1237	17	1165	17	6169	34	1234	7
December 4.....	1260	33	1164	1	1400	23	1241	4	1153	-12	6218	49	1244	10
“ 11.....	1283	23	1196	32	1407	7	1269	28	1158	5	6313	95	1263	19
“ 18.....	1285	2	1180	-16	1379	-28	1240	-29	1149	-9	6233	-80	1247	-16
“ 25.....	1295	10	1210	30	1399	20	1261	21	1196	47	6361	128	1272	23
January 1.....	1315	20	1221	11	1421	22	1275	14	1200	4	6432	71	1286	14
“ 8.....	1302	-13	1228	7	1435	14	1290	15	1200	0	6455	23	1291	5
“ 15.....	1324	22	1212	-16	1434	-1	1268	-23	1204	4	6442	-13	1288	-3
“ 22.....	1337	13	1218	6	1436	2	1273	5	1216	12	6480	38	1296	8
“ 29.....	1358	21	1223	5	1432	-4	1272	-1	1229	13	6514	34	1303	7
February 5.....	1377	29	1251	28	1430	-2	1295	23	1259	30	6622	108	1321	21
“ 12.....	1391	4	1244	-7	1454	24	1322	27	1237	-22	6648	26	1329	5
“ 19.....	1436	45	1305	64	1469	15	1310	-12	1291	54	6814	166	1362	33
“ 26.....	1435	-1	1297	-11	1496	27	1348	38	1293	2	6869	55	1373	11
March 4.....	1445	10	1323	28	1500	4	1375	27	1305	12	6956	81	1390	17
“ 11.....	1483	38	1337	12	1529	29	1390	15	1340	35	7079	129	1416	26
“ 18.....	1475	-8	1349	12	1543	14	1392	2	1340	0	7099	20	1420	4
Total.....	.....	307	.....	294	.....	282	.....	255	.....	313	.....	1451	.....	290
Average daily gain.....	.....	2.08	.....	2.00	.....	1.91	.....	1.73	.....	2.12	.....	9.87	.....	1.97

Total gain of lot, 1,451 pounds.  
 Average daily gain, 9.87 pounds.  
 Average daily gain per head, 1.97 pounds.

Table X. LOT II. STEER NO. 3.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.			FODDER.		WATER.		Gain of steer from Oct. 23, lbs.	Average daily gain from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, etc.
	Corn-meal.		Pounds grain eaten per lb. of gain from Oct. 23.	Cut corn-fodder.		Total amount drunk, lbs.	Amount drunk per lb. of gain from Oct. 23, lbs.			
	Weight, lbs.	Cost 35 cts per cwt.		Weight, lbs.	Cost 15 cts per cwt.					
October 23.										
" 30	116 00	\$0 406	9 65	38 50	\$0 058	412 00	34 33	12	1 71	3 86
November 6	140 00	490	12 19	27 00	.041	437 00	20 42	21	1 50	1 73
" 13	148 00	518	8 59	19 50	029	398 00	25 53	47	2 23	3 28
" 20	408 00	378	8 82	32 50	049	318 00	26 98	58	2 07	3 30
" 27	91 00	329	10 27	37 50	056	312 00	31 23	2	1 68	3 49
December 4	428 00	448	7 97	40 00	060	312 00	23 42	92	2 30	3 11
" 11	140 00	490	7 60	40 00	060	350 00	21 78	42	2 34	3 11
" 18	108 00	378	8 39	44 50	067	346 00	24 36	115	2 06	2 96
" 25	142 00	497	8 85	38 50	058	312 00	24 90	117	2 34	3 20
January 1	147 00	514	8 64	42 50	064	344 00	23 85	127	2 01	3 47
" 8	115 50	404	10 34	25 50	038	320 00	23 85	147	2 01	3 30
" 15	126 00	441	9 69	34 00	.051	312 00	28 55	134	1 85	4 05
" 22	134 50	471	9 71	29 00	043	320 00	26 53	156	1 82	3 70
" 29	106 50	373	9 22	28 50	043	323 00	25 08	169	1 93	3 60
February 5	136 00	476	8 62	27 00	041	295 00	25 08	180	1 90	3 36
" 12	140 00	490	9 10	29 50	044	293 00	23 91	219	1 90	3 23
" 19	140 00	490	8 09	33 50	050	352 00	21 20	223	2 07	3 54
" 26	140 00	490	8 64	21 00	031	330 00	22 52	267	2 21	3 15
March 4	140 00	490	8 84	23 00	034	316 00	22 85	267	2 08	3 42
" 11	140 00	490	8 22	27 00	041	351 00	21 20	315	2 23	3 18
" 18	146 00	511	8 91	23 50	035	294 00	22 71	307	2 08	3 44
Totals.	2,735.50	\$9.574	652.00		\$0.993	6,975.00				

Grain eaten, 2,735.5 pounds.  
Total food eaten, 3,397.5 pounds.  
Total gain, 147 days, 307 pounds.  
Cost per pound of gain, 3.44 cents.  
Grain eaten per pound of gain, 8.91 pounds.  
Total food eaten per pound of gain, 11.06 pounds.  
Water drunk to one pound food consumed, 2.06 pounds.

Fodder eaten, 662 pounds.  
Total water drunk, 6,975 pounds.  
Average daily gain, 2.08 pounds.  
Total cost of feed, \$10.567.  
Fodder eaten per pound of gain, 2.15 pounds.  
Water drunk per pound of gain, 22.71 pounds.

Table XI. LOT II. STEER NO. 4.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.		FODDER.		WATER.		Gain of steer from Oct. 23, lbs.	Average daily gain of steer from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Corn-meal.		Cut corn-fodder.	Pounds fodder eaten per lb. from Oct. 23.	Total amount drunk, lbs.	Amount drunk to 1 lb. of food from Oct. 23, lbs.			
	Weight, lbs.	Cost 35 cts. per cwt.							
October 23.									
" 30.	116 00	\$0 406	43 00	\$0 065	1 10	12 48	3 06	5 57	\$1 20
November 6	140 00	490	39 00	058	2 10	24 07	2 77	2 78	2 61
" 13	151 00	539	36 00	054	2 07	455 00	2 64	2 71	2 82
" 20	166 00	581	34 50	052	1 48	18 30	2 58	3 07	2 67
" 27	168 00	588	39 00	058	1 77	491 00	2 42	3 08	2 67
December 4	95 50	334	33 00	050	2 05	23 98	2 45	2 52	3 00
" 11	138 00	483	39 50	059	1 87	305 00	2 42	2 87	2 70
" 18	120 00	420	39 00	058	2 42	329 00	2 38	2 23	2 43
" 25	156 00	546	36 00	054	2 18	26 70	2 34	2 23	2 43
January 1	160 00	560	22 50	034	2 17	381 00	2 31	2 46	2 40
" 8	72 00	252	19 00	029	2 19	329 00	2 37	2 37	2 30
" 15	72 50	254	21 50	032	2 56	25 68	2 38	2 21	2 23
" 22	124 50	436	14 00	021	2 55	257 00	2 30	1 56	2 09
" 29	124 50	425	11 50	017	2 54	30 85	2 36	1 70	2 09
February 5	120 50	453	7 50	011	2 24	31 47	2 36	1 71	2 13
" 12	125 50	459	9 85	011	2 51	116 00	2 58	1 86	2 17
" 19	134 00	469	18 50	028	2 30	28 58	2 35	1 68	2 17
" 26	140 00	460	14 00	021	1 87	386 00	2 40	2 12	2 31
March 4	140 00	460	17 00	025	2 02	357 00	2 35	2 02	2 07
" 11	140 00	460	20 00	030	1 86	27 04	2 35	2 01	2 08
" 18	146 00	511	22 00	033	1 86	346 00	2 31	2 01	2 02
Totals.	2,759.00	\$9,656	548.00	\$0,822	1 86	7,644.00	2 31	2 00	2 30

Grain eaten, 2,759 pounds.  
Total food eaten, 3,307 pounds.  
Total gain, 177 lbs., 284 pounds.  
Cost per pound of gain, 3.36 cents.  
Grain eaten per pound of gain, 1.56 pounds.  
Total food eaten per pound of gain, 1.86 pounds.  
Water drunk to one pound food consumed, 2.31 pounds.

Fodder eaten, 548 pounds.  
Total water drunk, 7,044 pounds.  
Average daily gain, 2 pounds.  
Total cost of feed, \$30,478.  
Fodder eaten per pound of gain, 1.86 pounds.  
Water drunk per pound of gain, 2.31 pounds.

Table XII. LOT II. STEER No. 10.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.			FODDER.			WATER.			Gain of steer from Oct. 23, lbs.	Average daily gain of steer from Oct. 23, lbs.	Cost per lb. of grain from Oct. 23, cts.
	Corn-meal.		Pounds grain eaten per lb. of grain from Oct. 23.	Cut corn-fodder.		Pounds fodder eaten per lb. of grain from Oct. 23.	Total amount drunk, lbs.	Amount drunk per lb. of grain from Oct. 23, lbs.	Amount drunk to 1 lb. of food from Oct. 23, lbs.			
	Weight, lbs.	Cost 35 cts. per cwt.		Weight, lbs.	Cost 15 cts. per cwt.							
October 23.												
30.	115 00	\$0 403	2 61	42 00	\$0 063	05	452 00	10 27	2 87	14	6 28	1 05
November 6	140 00	490	3 10	43 00	065	1 03	478 00	11 35	2 73	62	5 85	1 24
13	149 00	522	4 16	37 50	056	1 23	418 00	13 00	2 46	57	4 61	1 61
20	145 50	509	4 50	37 50	056	1 31	414 00	13 45	2 48	122	4 35	1 77
27	144 00	504	5 07	49 00	074	1 80	388 00	13 51	2 38	116	3 31	2 36
December 4	130 50	457	5 92	49 00	074	1 85	391 00	18 28	2 31	139	3 30	2 35
11	132 00	462	6 54	49 50	074	2 10	425 00	18 72	2 34	146	3 30	2 60
18	142 00	392	9 05	50 00	075	3 02	422 00	23 72	2 37	118	2 10	3 62
25	131 00	158	8 62	42 50	064	2 74	420 00	21 40	2 38	139	2 30	3 45
January 1	132 00	478	8 31	39 00	058	2 74	375 00	23 13	2 36	160	2 28	3 52
8	135 50	478	8 43	29 50	044	2 69	355 00	26 12	2 34	174	2 25	3 85
15	130 00	455	9 23	30 00	045	2 88	357 00	28 32	2 33	173	2 05	3 66
22	131 50	460	9 88	24 50	037	2 68	317 00	29 96	2 32	175	1 92	3 90
29	133 50	467	10 80	15 00	023	3 41	318 00	32 51	2 31	171	1 74	4 28
February 5	118 50	415	11 72	11 50	017	3 55	351 00	35 00	2 33	169	1 61	4 59
12	110 50	387	10 82	25 00	037	3 67	302 00	32 21	2 33	183	1 72	4 23
19	119 50	418	10 62	15 50	023	2 86	331 00	31 48	2 33	208	1 74	4 15
26	120 50	422	9 92	20 00	023	2 61	346 00	29 51	2 34	235	1 86	3 83
March 4	120 00	420	10 25	28 00	030	2 61	339 00	30 26	2 34	233	1 79	3 98
11	123 50	432	9 60	27 50	042	2 61	388 00	28 36	2 34	268	1 91	3 73
18	127 50	446	9 58	27 50	041	2 44	353 00	28 13	2 33	282	1 91	3 71
Totals.	2,702.50	\$9,459		690.50	\$1,035		7,495.00					

Grain eaten, 2,702.5 pounds.  
 Total food eaten, 3,383 pounds.  
 Total gain, 117 days, 282 pounds.  
 Cost per pound of gain, 3.71 cents.  
 Grain eaten per pound of gain, 9.58 pounds.  
 Total food eaten per pound of gain, 12.02 pounds.  
 Water drunk to one pound food consumed, 2.33 pounds.

Fodder eaten, 690.5 pounds.  
 Total water drunk, 7,838 pounds.  
 Average daily gain, 1.91 pounds.  
 Total cost of feed, \$10,494.  
 Fodder eaten per pound of gain, 2.44 pounds.  
 Water drunk per pound of gain, 28.13 pounds

Table XIII. LOT II. STEER No. 17.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.			FODDER.			WATER.			Average daily gain of steer from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Com-meal.		Pounds of grain eaten per lb. from Oct. 23.	Cut corn-fodder.		Pounds fodder eaten per lb. from Oct. 23.	Total amount drunk, lbs.	Amount drunk per lb. of gain from Oct. 23, lbs.	Amount drunk per lb. of food from Oct. 23, lbs.		
	Weight, lbs.	Cost 35 cts. per cwt.		Weight, lbs.	Cost 15 cts. per cwt.						
October 23	50 50	\$0 177	71	67 50	\$0 101	86	313 00	4 40	2 05	71	1 39
" 30	110 00	385	3 27	47 00	070	2 33	359 00	13 71	5 20	49	1 49
November 6	127 00	445	4 87	46 00	049	2 72	377 00	16 70	5 20	59	2 11
" 13	115 50	404	4 85	43 50	055	2 45	309 00	15 03	2 04	83	2 06
" 27	127 00	473	5 30	48 50	073	2 52	329 00	16 04	1 84	100	2 85
December 4	133 00	473	6 30	38 00	057	2 79	265 00	17 91	1 84	104	2 47
" 11	140 00	490	6 09	31 50	032	2 45	237 00	16 46	1 32	132	2 50
" 18	115 50	404	8 92	11 00	021	3 35	237 00	23 88	1 90	103	1 53
" 25	115 00	490	8 55	25 00	037	3 15	232 00	22 23	1 30	124	3 46
January 1	108 50	373	8 45	32 50	049	3 06	218 00	21 18	1 88	135	3 42
" 8	88 50	310	8 20	38 00	057	3 01	219 00	21 18	1 88	131	3 32
" 15	125 00	411	10 74	38 00	023	3 65	259 00	26 30	1 85	155	4 23
" 22	115 50	404	11 40	15 00	023	3 76	239 00	26 39	1 84	136	4 39
" 29	81 50	320	11 76	15 00	023	3 76	199 00	28 03	1 84	135	4 68
February 5	87 00	323	13 60	13 00	011	3 30	230 00	25 86	1 85	158	4 20
" 12	110 00	385	13 60	27 50	041	2 96	230 00	23 36	1 85	185	3 82
" 19	111 50	360	10 96	22 00	025	3 30	217 00	26 23	1 84	211	4 33
" 26	111 50	360	8 32	16 50	025	2 78	202 00	22 75	1 84	211	1 67
March 4	112 00	392	8 91	19 00	029	2 54	234 00	21 23	1 85	233	3 75
" 11	111 00	388	8 82	28 00	042	2 50	231 00	20 97	1 85	258	3 50
" 18	118 00	413	9 21	28 00	042	2 59	228 00	21 70	1 83	255	3 46
Totals.....	2,350 00	\$8,225	.....	662 50	\$0 991	.....	5,534 00	.....	.....	.....	.....

Grain eaten, 2,350 pounds.  
Total food eaten, 3,912.5 pounds.  
Total gain, 147 days, 255 pounds.  
Cost per pound of gain, 3.61 cents.  
Grain eaten per pound of gain, 3.24 pounds.  
Total food eaten per pound of gain, 11.80 pounds.  
Water drunk to one pound of food consumed, 1.83 pounds.

Fodder eaten, 662.5 pounds.  
Total water drunk, 5,534 pounds.  
Average daily gain, 1.73 pounds.  
Total cost of feed, \$8,224.  
Fodder eaten per pound of gain, 2.59 pounds.  
Water drunk per pound of gain, 21.70 pounds.

Table XIV. LOT II. STEER NO. 20.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1885-'96.	GRAIN.		FODDER.		WATER.		Gain of steer from Oct. 23, lbs.	Average daily gain of steer from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Corn-meal.		Cut corn-fodder.		Total amount drunk, lbs.	Amount drank to 1 lb. from food from Oct. 23, lbs.			
	Weight, lbs.	Cost, 35 cts. per cwt.	Weight, lbs.	Cost, 15 cts. per cwt.					
October 23									
" 30	116 00	\$0 405	37 00	\$0 056	378 00	10 50	36	5 11	1 28
November 6	140 00	016	31 00	016	428 00	17 82	45	3 21	2 21
" 13	140 00	490	36 50	055	388 00	13 22	90	4 28	1 71
" 20	152 00	532	27 50	041	387 00	13 03	121	4 32	1 74
" 27	136 50	478	16 50	025	372 00	13 39	158	3 91	1 89
December 4	99 00	346	38 00	057	312 00	15 13	126	3 00	2 39
" 11	132 00	462	29 00	043	318 00	16 79	131	2 67	2 09
" 18	93 00	325	29 50	044	293 00	22 58	111	2 17	3 19
" 25	136 00	476	24 50	037	316 00	18 34	122	2 68	2 00
January 1	140 00	490	30 00	045	318 00	19 73	169	2 47	2 85
" 8	135 00	473	13 50	020	278 00	19 34	173	2 21	3 14
" 15	138 50	485	16 50	025	293 00	25 33	175	2 17	3 36
" 22	136 00	476	12 50	019	283 00	22 40	177	2 07	3 40
" 29	109 00	381	11 00	017	243 00	22 16	189	2 05	3 26
February 5	136 50	478	11 00	017	297 00	20 71	202	2 21	3 16
" 12	116 00	406	16 00	024	263 00	21 13	232	2 21	3 16
" 19	112 00	392	24 50	037	352 00	24 53	240	1 57	3 69
" 23	133 00	465	13 00	019	356 00	21 71	204	2 21	3 10
March 4	125 50	439	13 00	019	325 00	21 91	206	2 11	3 28
" 11	126 00	441	22 50	034	328 00	20 57	278	2 09	3 28
" 18.	132 00	462	20 50	031	301 00	21 53	313	2 23	3 07
Totals.....	2,684 00	\$9,394	473 50	\$0,711	6,740 00		313	2 12	3 07

Grain eaten, 2,684 pounds.  
 Total food eaten, 3,157.5 pounds.  
 Total gain, 147 days, 313 pounds.  
 Cost per pound of gain, 3.22 cents.  
 Grain eaten per pound of gain, 8.57 pounds.  
 Total food eaten per pound of gain, 10.08 pounds.  
 Water drunk to one pound of food consumed, 2.13 pounds.

Fodder eaten, 473.5 pounds.  
 Total water drunk, 6,740 pounds.  
 Average daily gain, 1.22 pounds.  
 Total cost of feed, \$10.106.  
 Fodder eaten per pound of gain, 1.51 pounds.  
 Water drunk per pound of gain, 21.53 pounds.

Table XV. TOTALS OF LOT II.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.		FODDER.		WATER.		Grain of lot from Oct. 23, lbs.	Average daily gain from Oct. 23, lbs.	Average daily gain per head from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Corn-meal.		Cut corn-fodder.		Total amount drunk, lbs.	Amount drunk to 1 lb. of food from Oct. 23, lbs.				
	Weight, lbs.	Cost 35 cts. per cwt.	Weight, lbs.	Cost 45 cts. per cwt.						
October 23	...	\$1.797	228 00	\$0.342	2,012.00	10 10	202	28.55	5.77	1.05
" 30	533.50	2.345	187.50	281	2,151.00	17.76	226	16.85	3.37	2.01
November 6	670.00	2.543	175.50	263	1,976.00	17.62	350	16.66	3.33	2.05
" 13	718.00	2.543	175.50	263	1,976.00	18.00	487	17.30	3.47	2.09
" 20	687.00	2.405	175.50	286	1,823.00	18.63	521	14.88	2.97	2.46
December 4	693.50	2.343	190.50	286	1,622.00	19.88	570	13.57	2.71	2.68
" 11	588.00	2.058	182.50	297	1,783.00	19.72	665	13.57	2.71	2.68
" 18	682.00	2.387	192.50	280	1,677.00	25.28	585	10.46	2.09	3.43
" 25	548.50	1.920	204.00	306	1,771.00	23.23	715	11.30	2.20	3.49
January 1	705.00	2.467	166.50	250	1,771.00	23.26	784	11.20	2.21	3.41
" 8	685.50	2.300	166.50	250	1,508.00	24.47	791	9.45	1.89	3.75
" 15	547.50	1.916	125.50	188	1,480.00	26.62	807	10.18	2.00	3.41
" 22	593.00	2.076	119.00	170	1,306.00	27.21	791	9.45	1.89	3.75
" 29	622.00	2.247	95.00	142	1,319.00	27.65	832	8.83	1.76	3.97
February 5	562.00	1.967	81.00	121	1,326.00	26.13	866	9.11	1.82	3.88
" 12	698.00	2.128	105	105	1,487.00	26.13	971	8.92	1.78	3.75
" 19	692.00	2.107	116.50	175	1,487.00	26.13	1,000	8.62	1.78	3.88
" 26	617.00	2.160	125.50	190	1,621.00	21.11	1,000	9.27	1.90	3.53
March 4	615.00	2.287	80.00	120	1,651.00	21.56	1,221	9.69	1.94	3.56
" 11	637.50	2.231	92.00	138	1,657.00	24.36	1,302	9.78	1.96	3.62
" 18	640.50	2.242	125.50	188	1,657.00	24.32	1,431	10.22	2.04	3.37
" 25	669.50	2.343	121.50	182	1,446.00	24.00	1,451	9.87	1.97	3.50
Totals.....	13,231.00	\$46,308	3,036.50	\$4,555	34,528.00					

Grain eaten, 43,231 pounds.  
Total food eaten, 16,287 5/8 pounds.  
Total gain, 147 43/8, 1,451 1/2 pounds.  
Average daily gain of lot, 3.87 pounds.  
Average cost per pound of gain, 3.50 cents.  
Average cost of feed per head, \$40.17.  
Fodder eaten per pound of gain, 2.09 pounds.  
Water drunk per pound of gain, 2 1/4 pounds.

Fodder eaten, 3,036.5 pounds.  
Total water drunk, 34,528 pounds.  
Average gain per head, 280 pounds.  
Average daily gain per head, 1.97 pounds.  
Total cost of feed, \$50.85.  
Grain eaten per pound of gain, 9 1/4 pounds.  
Total food eaten per pound of gain, 11.29 pounds.  
Water drunk to one pound of food consumed, 2.14 pounds.

## LOT III.

The results with lot III are exhibited in tables XVI to XXII, inclusive. This lot was tied up alongside of lot II, and in the same row of stalls. Their treatment differed from that of the others only in that they were fed ear corn. The roughness consisted of cut cornstover, as in the previous case.

Table XVI represents the weights of each steer in the lot throughout the progress of the experiment, together with the weekly gains and the average of the lot as a whole. This lot made a total gain of 1,149 pounds or an average of 1.56 pounds daily per head. The table shows the customary fluctuation in the gain of individual steers, but, aside from the smaller gains, presents no essential difference in this respect from the facts shown in the previous tables.

Tables XVII to XXI, inclusive, present the results attained with individual steers, as in the two previous lots. The poorest gain in this lot was made by steer No. 19, the scrub steer in that lot. He gained a total of only 186 pounds, or a daily average of 1.26 pounds. The best gain was made by steer No. 11, 264 pounds, with a daily average of 1.79 pounds. The other three fell between these extremes. Steer No. 19 started out with a delicate appetite, and never was a heavy feeder. He ate and drank somewhat irregularly, showing occasional large gains and frequent loss in weight. Steer No. 7, the pure-bred steer in the lot, had somewhat the same characteristics but to a less degree. He was remarkable for eating more than twice as much corn-fodder as any of the others and less grain. So, while the total food eaten per pound of gain is greater than that of the three others a less proportion of that food was gain. Nos. 1, 11 and 15 are fairly comparable in the amount eaten and gains made.

Table XXII gives a summary of the lot. The lot as a whole shows the same peculiarities in regard to the rate of gain and the cost of gain which have been prominent in the two preceding lots. It is noticeable that the lot consumed a greater weight of grain than lot II. This is, of course, due to the fact that they were fed on ear corn while lot II was fed on corn-meal. The ears were chopped in pieces somewhat with a spade at the time of feeding, to facilitate mastication. A large proportion of the cobs were eaten, especially in the beginning, but as they gained in weight they became more particular, and toward the last they ate comparatively little of the cobs. The cobs left uneaten were not weighed back, however. It was thought best to give the weights of the ear corn fed and the gains resulting therefrom, as it would afford a more serviceable guide to the large number of feeders of ear corn who do not weigh the feed

than it would if the cobs not eaten had been deducted from the amount fed.

It is noticeable, also, that this lot drank only 1.88 pounds water for each pound of food consumed, while lots II and I drank 2.14 pounds and 2.56 pounds respectively for each pound of food eaten.

**Table XVI. LOT III. EAR CORN IN BARN.**  
WEEKLY ACCOUNT OF WEIGHT AND GAIN IN POUNDS.

DATE, 1895-'96.	Steer 1.		Steer 7.		Steer 11.		Steer 15.		Steer 19.		Total.		Average.	
	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.
October 23.....	1017	.....	1274	.....	1282	.....	1098	.....	1122	.....	5793	.....	1159	.....
.. 30.....	1041	24	1304	30	1305	23	1150	52	1149	27	5949	156	1190	31
November 6.....	1057	16	1305	1	1335	30	1150	0	1135	-14	5982	33	1196	6
.. 13.....	1078	21	1335	30	1360	25	1175	25	1179	44	6127	145	1225	29
.. 20.....	1108	30	1361	26	1369	9	1195	20	1205	26	6238	111	1247	22
.. 27.....	1103	-5	1378	17	1350	-19	1195	0	1192	-13	6218	-20	1243	-4
December 4.....	1108	5	1375	-3	1366	16	1181	-14	1197	5	6227	9	1245	2
.. 11.....	1122	14	1385	10	1395	29	1188	7	1203	6	6293	66	1258	13
.. 18.....	1125	3	1388	13	1400	5	1195	7	1213	10	6331	38	1266	8
.. 25.....	1155	30	1387	-11	1423	23	1205	10	1213	0	6383	52	1276	10
January 1.....	1151	-4	1402	15	1447	24	1194	-11	1212	-1	6406	23	1281	5
.. 8.....	1178	27	1404	2	1448	1	1222	28	1237	25	6489	83	1297	16
.. 15.....	1182	4	1430	26	1465	17	1243	21	1253	16	6573	84	1314	17
.. 22.....	1137	-45	1431	1	1480	15	1270	27	1268	15	6586	13	1317	3
.. 29.....	1195	58	1440	9	1497	17	1275	5	1259	-9	6666	80	1333	16
February 5.....	1195	0	1435	-5	1483	-14	1280	5	1268	9	6661	-5	1332	-1
.. 12.....	1206	11	1459	24	1491	8	1290	10	1250	-18	6696	35	1339	7
.. 19.....	1224	18	1465	6	1502	11	1300	10	1268	18	6759	63	1352	13
.. 26.....	1206	-18	1484	19	1505	3	1315	15	1280	12	6790	31	1358	6
March 4.....	1240	34	1478	-6	1525	20	1325	10	1304	24	6872	82	1374	16
.. 11.....	1249	9	1487	9	1541	16	1325	0	1304	0	6906	34	1381	7
.. 18.....	1250	1	1492	5	1546	5	1346	21	1308	4	6942	36	1388	7
Totals.....	.....	233	.....	218	.....	264	.....	248	.....	186	.....	1149	.....	229
Average daily gain.....	.....	1.58	.....	1.48	.....	1.79	.....	1.68	.....	1.26	.....	7.81	.....	1.56

Total gain of lot, 1,149 pounds.  
Average daily gain, 7.81 pounds.  
Average daily gain per head, 1.56 pounds.

Table XVII. LOT III. STEER No. 1.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.			FODDER.		WATER.			Gain of steer from Oct. 23, lbs.	Average daily gain of steer from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Ear corn.		Pounds grain eaten per lb. from Oct. 23.	Cut corn-fodder.		Pounds fodder eaten per lb. from Oct. 23.	Total amount drunk, lbs.	Amount drunk per lb. of gain from Oct. 23, lbs.			
	Weight, lbs.	Cost 26 cts. per cwt.	Cost 26 cts. per cwt.	Weight, lbs.	Cost 15 cts. per cwt.						
October 23	140 00	\$0 361	5 83	42 50	\$0 064	1 77	356 00	14 83	1 95	24	1 78
" 30	168 00	424	7 10	16 00	024	1 16	390 00	18 65	2 03	40	2 22
November 6	179 50	493	7 48	20 50	031	1 29	386 00	18 55	2 00	61	2 27
" 13	180 50	493	7 43	24 50	037	1 13	377 00	16 58	1 93	91	2 10
" 20	201 50	524	10 20	27 50	025	1 40	310 00	21 15	1 82	86	2 06
December 4	118 50	308	11 05	22 00	034	1 57	291 00	23 18	1 85	91	3 08
" 11	168 50	423	11 05	22 50	037	1 59	321 00	23 15	1 82	105	3 12
" 18	165 00	420	12 29	22 50	045	1 85	308 00	25 36	1 79	108	3 47
" 25	178 00	463	10 61	31 00	041	1 67	331 00	22 24	1 76	138	3 08
January 8	187 00	486	12 63	16 00	021	1 84	276 00	24 95	1 72	134	3 56
" 15	193 50	503	11 71	16 00	013	1 59	295 00	22 61	1 69	165	3 28
" 22	161 00	410	12 46	11 00	018	2 32	252 00	23 83	1 69	165	3 46
" 29	122 00	317	18 07	12 00	018	1 61	220 00	34 60	1 69	120	3 01
February 5	92 00	239	12 70	19 00	020	1 67	258 00	24 76	1 72	178	3 55
" 12	155 50	402	13 57	15 50	023	1 76	238 00	26 14	1 72	178	3 39
" 19	158 50	412	13 62	17 50	023	1 75	239 00	26 32	1 71	189	3 30
" 26	131 00	348	13 08	24 00	027	1 05	270 00	25 37	1 71	207	3 66
March 4	140 50	365	15 07	21 00	021	1 05	269 00	29 19	1 71	189	3 66
" 11	132 50	345	13 37	22 50	034	1 75	314 00	26 14	1 72	223	4 21
" 18	136 50	355	13 40	28 50	043	1 81	313 00	25 48	1 73	232	3 74
" 18	146 50	381	14 01	23 00	031	1 90	282 00	27 57	1 73	233	3 92
Totals.	3,265.50	\$8,490	.....	443.50	\$0.685	.....	6,426.00	.....	.....	.....	.....

Grain eaten, 3,265.5 pounds.  
Total food eaten, 3,709 pounds.  
Total gain, 147 days, 233 pounds.  
Cost per pound of gain, 3.92 cents.  
Grain eaten per pound of gain, 14.01 pounds.  
Total food eaten per pound of gain, 15.91 pounds.  
Water drunk to one pound food consumed, 1.73 pounds.

Fodder eaten, 463.5 pounds.  
Total water drunk, 6,426 pounds.  
Average daily gain, 4.56 pounds.  
Total cost of feed, \$8,490.  
Fodder cost per pound of gain, 1.60 pounds.  
Water drunk per pound of gain, 21.57 pounds.

Table XVIII. LOT III. STEER NO. 7.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.			FODDER.			WATER.			Average daily gain of steer from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Ear corn.		Pounds grain eaten per lb. from Oct. 23.	Cut corn-fodder.		Pounds fodder eaten per lb. from Oct. 23.	Total amount drunk, lbs.	Amount drunk per lb. of gain from Oct. 23, lbs.	Amount to 1 lb. of food from Oct. 23, lbs.		
	Weight, lbs.	Cost, 26 cts. per cwt.		Weight, lbs.	Cost, 15 cts. per cwt.						
October 23.	90 50	\$0 235	3 01	57 80	\$0 086	1 91	437 00	14 56	2 95	4 28	1 07
" 30.	102 00	285	6 20	62 80	094	3 87	420 00	27 64	2 74	2 21	2 19
" 13	123 00	320	5 17	74 00	111	3 18	441 00	21 27	2 54	2 90	1 82
" 20	147 00	382	5 31	64 00	096	2 96	443 00	20 01	2 41	3 10	1 82
" 27	136 00	354	5 75	68 00	102	3 13	428 00	20 85	2 34	2 97	1 96
December 4.	122 00	317	7 13	69 00	101	3 91	368 00	25 38	2 29	2 40	2 44
" 11	114 50	298	7 52	79 00	118	4 27	416 00	26 84	2 27	2 26	2 59
" 18	127 00	330	7 75	75 00	112	4 42	444 00	27 61	2 26	2 21	2 68
" 25	112 50	370	9 77	62 00	093	5 40	405 00	33 88	2 23	2 79	3 35
January 1	147 50	383	9 78	53 00	079	5 18	392 00	32 97	2 20	1 82	3 31
" 8	140 50	365	10 71	35 50	053	5 38	315 00	34 89	2 16	1 68	3 59
" 15	142 50	370	9 83	36 50	055	4 71	358 00	31 37	2 15	1 85	3 25
" 22	136 00	351	10 64	35 00	052	4 91	370 00	33 52	2 15	1 72	3 50
" 29.	141 00	367	10 91	30 50	046	4 82	333 00	33 71	2 14	1 69	3 56
February 5	143 50	373	12 14	28 00	042	5 15	319 00	36 93	2 13	1 53	3 92
" 12	143 50	373	11 34	33 50	050	4 65	358 00	34 07	2 12	1 65	3 64
" 19	133 00	346	11 68	27 00	041	4 65	392 00	35 05	2 14	1 60	3 73
" 26	141 00	367	11 30	14 00	021	4 30	377 00	33 68	2 15	1 66	3 58
March 4	116 00	302	12 20	28 00	042	4 56	414 00	36 70	2 18	1 53	3 85
" 11	140 00	364	12 34	33 00	046	4 51	402 00	37 03	2 19	1 52	3 88
" 18	131 00	311	12 66	33 00	050	4 56	348 00	37 78	2 19	1 48	3 97
Totals	2,760 00	\$7,176		995 50	\$1,493		8,237 00				

Grain eaten, 2,760 pounds  
Total food eaten, 3,755.5 pounds.  
Total gain, 147 days, 218 pounds.  
Cost per pound of gain, 3.97 cents.  
Grain eaten per pound of gain, 12.65 pounds.  
Total food eaten per pound of gain, 17.22 pounds.  
Water drank to one pound of food consumed, 2.19 pounds.

Fodder eaten, 995.5 pounds.  
Total water drunk, 8,237 pounds.  
Average daily gain, 1.48 pounds.  
Total cost of feed, \$8,680.  
Fodder eaten per pound of gain, 4.56 pounds.  
Water drank per pound of gain, 37.78 pounds

Table XIX. LOT III. STEER No. 11.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.			FODDER.			WAFER.			Gain of steer from lbs. Oct. 23, 1895.	Average daily gain of steer from lbs. Oct. 23, 1895.	Cost per lb. of gain from Oct. 23, cts.
	Ear corn.		Pounds grain eaten per lb. of gain from Oct. 23.	Cnt corn-fodder.		Pounds fodder eaten per lb. of gain from Oct. 23.	Amount drunk per lb. of gain from Oct. 23, lbs.		Amount drunk to 1 lb. of food from Oct. 23, lbs.			
	Weight, lbs.	Cost 26 cts. per cwt.		Weight, lbs.	Cost 15 cts. per cwt.							
October 23	110 00	\$0 384	6 08	56 00	\$0 084	2 43	409 00	17 78	2 08	23	1 94	
November 6	168 00	457	5 81	32 00	018	1 66	421 00	15 66	2 09	53	1 76	
" 13	182 00	473	6 28	33 00	050	1 55	408 00	15 88	2 02	78	1 86	
" 20	198 25	515	7 91	18 00	027	1 59	406 00	18 93	1 99	87	2 29	
December 4	113 50	300	11 80	16 50	025	2 28	287 00	28 13	1 99	68	3 41	
" 11	136 00	354	11 18	31 00	047	2 22	354 00	26 76	1 99	84	3 24	
" 18	170 50	443	9 82	30 50	045	1 92	358 00	23 06	1 96	113	2 84	
" 25	169 50	493	11 01	16 50	023	1 76	365 00	25 17	1 93	118	3 16	
January 1	199 00	517	10 62	15 50	019	1 58	322 00	22 10	1 84	141	3 02	
" 8	216 50	563	10 39	13 00	017	1 64	318 00	23 89	1 80	166	2 94	
" 15	183 00	554	11 61	11 50	015	1 51	325 00	23 89	1 79	183	3 26	
" 22	197 50	514	11 66	10 50	016	1 48	325 00	23 31	1 77	198	3 23	
February 5	188 00	489	11 60	8 00	012	1 40	318 00	22 94	1 76	215	3 23	
" 12	167 00	434	13 25	11 00	016	1 55	368 00	26 37	1 78	201	3 67	
" 19	178 50	464	13 39	21 50	032	1 60	339 00	26 99	1 77	209	3 77	
" 26	177 50	461	13 72	18 00	027	1 62	353 00	27 24	1 77	220	3 80	
March 4	174 00	432	14 32	9 00	014	1 62	338 00	28 39	1 78	223	3 96	
" 11	174 50	454	13 86	16 00	024	1 55	316 00	27 05	1 77	243	3 83	
" 18	176 00	458	13 68	25 00	037	1 55	357 00	27 01	1 77	259	3 79	
" 25	175 50	456	14 09	26 00	039	1 62	340 00	27 82	1 77	264	3 90	
Totals.	3,719.75	\$9.671	428.50		\$0.643		7,345.00					

Grain eaten, 3,719.75 pounds.  
 Total food eaten, 4,118.25 pounds.  
 Total gain, 147 days, 264 pounds.  
 Cost per pound of gain, 3.90 cents.  
 Grain eaten per pound of gain, 14.69 pounds.  
 Total food eaten per pound of gain, 15.71 pounds.  
 Water drank to one pound of food consumed, 1.77 pounds.

Fodder eaten, 428.50 pounds.  
 Total water drunk, 7,345 pounds.  
 Average daily gain, 1.79 pounds.  
 Total cost of feed, \$10.314.  
 Fodder eaten per pound of gain, 1.62 pounds.  
 Water drank per pound of gain, 27.82 pounds.

Table XX. LOT III. STEER NO. 15.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-96.	GRAIN.			FODDER.		WATER.			Gain of steer from Oct. 23, lbs.	Average daily gain of steer from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Bar corn.		Pounds grain eaten per lb. from Oct. 23.	Cut corn-fodder.	Pounds fodder eaten per lb. from Oct. 23.	Total amount drank, lbs.	Amount drank per lb. from Oct. 23, lbs.	Amount drank to 1 lb. from Oct. 23, lbs.			
	Weight, lbs.	Cost 26 cts. per cwt.									
October 23, .....	140 00	\$0.361	2 69	46 50	\$0.070	433 00	8 22	2 22	52	7 42	\$0.83
November 6, .....	156 00	432	6 88	25 00	042	415 00	10 88	2 29	52	3 71	1 74
" 13, .....	166 00	405	6 28	24 00	047	411 00	11 33	2 25	51	3 06	1 83
" 20, .....	163 25	471	6 06	24 00	037	423 00	11 32	2 11	57	2 77	2 40
December 27, .....	182 50	474	8 84	19 50	039	381 00	31 88	2 10	83	2 77	2 32
" 4, .....	166 50	387	12 09	30 50	031	354 00	29 54	2 10	80	1 47	3 44
" 11, .....	160 50	433	15 03	29 50	044	321 00	32 75	2 03	97	1 83	3 69
" 18, .....	165 50	473	15 70	27 50	031	322 00	32 75	2 03	107	1 73	3 91
" 25, .....	184 00	407	14 44	27 50	041	353 00	32 09	1 90	96	1 49	5 03
January 1, .....	161 00	407	17 75	16 50	046	309 00	32 09	1 90	96	1 27	5 03
" 8, .....	162 00	410	15 05	16 50	046	311 00	32 09	1 90	96	1 63	4 24
" 15, .....	182 00	484	14 13	7 50	030	321 00	33 73	1 95	124	1 72	4 24
" 22, .....	182 00	478	12 98	8 50	033	333 00	34 15	1 83	115	1 80	3 98
" 29, .....	177 00	467	13 66	12 50	018	328 00	34 20	1 82	172	1 80	3 63
February 5, .....	168 00	427	14 16	12 50	020	287 00	30 02	1 80	177	1 73	3 79
" 12, .....	170 00	462	14 38	12 50	027	287 00	30 02	1 80	182	1 80	3 94
" 19, .....	170 00	462	14 38	16 50	025	313 00	30 51	1 87	182	1 71	3 98
" 26, .....	153 50	390	14 18	16 50	006	323 00	30 51	1 87	202	1 69	4 02
March 4, .....	157 50	410	14 25	15 50	023	311 00	29 66	1 87	217	1 72	3 89
" 11, .....	157 00	408	14 06	17 00	026	326 00	31 33	1 88	227	1 70	3 95
" 18, .....	168 00	437	14 36	19 50	026	279 00	29 81	1 86	245	1 62	4 14
Totals.....	3,561 75	\$9.236	400 00	\$0.613	7,393 00						

Grain eaten, 3,561 75 pounds.  
 Total food cost, 3,970 75 pounds.  
 Total gain, 47 days, 248 38 pounds.  
 Cost per pound of gain, 3 98 cents.  
 Grain eaten per pound of gain, 14 36 pounds.  
 Total food eaten per pound of gain, 16 pounds.  
 Water drank to one pound of food consumed, 1 86 pounds.  
 Fodder eaten, 400 pounds.  
 Total water drank, 7,393 pounds.  
 Average daily gain, 68 38 pounds.  
 Total cost of feed, \$9,373.  
 Fodder eaten per pound of gain, 1 64 pounds.  
 Water drank per pound of gain, 28 84 pounds.

Table XXI. LOT III. STEER No. 19.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.			FODDER.			WATER.			Gain of steer from Oct. 23, lbs.	Average daily gain of steer from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Ear corn.		Pounds grain eaten per lb. from Oct. 23.	Cut corn-fodder.		Pounds fodder eaten per lb. from Oct. 23.	Total amount drank, lbs.	Amount drank per lb. of gain from Oct. 23, lbs.	Amount drank to 1 lb. of food from Oct. 23, lbs.			
	Weight, lbs.	Cost 25 cts. per cwt.		Weight, lbs.	Cost 15 cts. per cwt.							
October 23												
" 30	94 00	\$0 244	3 48	46 00	\$0 069	1 70	353 00	13 07	2 32	27	3 85	1 15
November 6	84 50	220	13 73	40 00	060	6 61	352 00	54 23	2 65	13	2 92	4 56
" 13	432 50	344	5 45	36 50	055	2 14	359 00	18 03	2 45	57	2 71	1 74
" 20	152 25	396	5 58	27 00	041	1 80	375 00	17 03	2 34	83	2 96	1 72
" 27	135 00	351	8 51	36 00	054	2 65	313 00	25 02	2 23	70	2 00	2 62
December 4	143 50	373	9 89	14 50	022	2 66	277 00	27 05	2 15	75	1 78	2 97
" 11	139 00	361	10 87	23 50	035	2 76	250 00	28 62	2 10	84	1 65	3 24
" 18	139 50	363	11 21	28 00	042	2 76	230 00	25 00	2 07	91	1 62	3 32
" 25	144 50	376	12 79	24 00	036	3 02	268 00	31 36	2 01	91	1 44	3 78
January 1	162 50	422	14 74	12 00	018	3 19	282 00	34 36	1 94	90	1 28	4 31
" 8	136 00	354	12 72	19 00	029	2 66	242 00	29 64	1 82	115	1 49	3 70
" 15	166 50	433	12 44	11 00	016	2 42	246 00	27 30	1 87	131	1 55	3 59
" 22	156 50	407	12 23	6 50	010	2 21	235 00	26 80	1 89	146	1 60	3 51
" 29	125 50	323	13 95	14 00	016	2 35	205 00	30 34	1 83	137	1 39	3 99
February 5	138 00	353	13 03	8 50	013	2 35	201 00	30 30	1 80	146	1 39	4 00
" 12	116 50	303	16 92	13 00	019	2 78	205 00	36 36	1 84	128	1 14	4 47
" 19	139 50	363	15 79	7 00	010	2 49	285 00	33 53	1 85	146	1 22	4 47
" 26	134 50	350	15 44	2 00	003	2 03	260 00	38 10	1 89	158	1 25	4 36
March 4	116 50	303	14 75	8 00	012	2 31	250 00	30 25	1 88	182	1 36	3 96
" 11	128 00	333	14 75	10 50	016	2 11	260 00	34 63	1 88	182	1 36	3 96
" 18	123 00	319	15 03	15 50	023	2 14	227 00	32 23	1 86	186	1 26	4 24
Totals.....	2,807 75	\$7 300	.....	389 50	\$0 599	.....	5,993 00	.....	.....	.....	.....	.....

Grain eaten, 2,807.75 pounds.  
Total food eaten, 3,207.25 pounds.  
Total gain, 147 days, 186 pounds.  
Cost per pound of gain, 4.24 cents.  
Grain eaten per pound of gain, 15.09 pounds.  
Total food eaten per pound of gain, 17.23 pounds.  
Water drank to one pound of food consumed, 1.86 pounds.

Fodder eaten, 399.5 pounds.  
Total water drank, 5,996 pounds.  
Average daily gain, 736 pounds.  
Total cost of feed, \$7.891.  
Water drank per pound of gain, 32.23 pounds.

Table XXII. TOTALS OF LOT III.  
WEEKLY ACCOUNT OF FEED EATEN, WATER DRANK, AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.		FODDER.			WATER.			Gain of lot from Oct. 23, lbs.	Average daily gain of lot from Oct. 23, lbs.	Average daily gain per head from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Bar corn.		Cut corn-fodder.	Pounds fodder eaten per lb. of gain from Oct. 23.		Total amount drunk per lb. of gain from Oct. 23, lbs.	Amount drunk to 1 lb. of food from Oct. 23, lbs.					
	Weight, lbs.	Cost 26 cts. per cwt.		Weight, lbs.	Cost 15 cts. per cwt.							
October 23					1 59	1988 00	12 74	2 33	156	22 28	4 45	\$1 24
" 30	604 50	\$1 572	248 50	\$0 373	2 25	178 50	21 24	2 33	189	13 50	2 70	2 11
November 6	688 50	1 790	175 50	268	1 85	2036 00	18 11	2 23	384	15 90	3 18	1 90
" 13	794 50	2 068	191 00	287	1 74	2023 00	18 14	2 15	425	15 88	3 17	1 99
" 20	878 25	2 283	158 00	237	2 19	1702 00	23 00	2 09	425	12 14	2 42	2 61
" 27	770 50	2 003	157 50	236	2 51	1702 00	23 00	2 09	425	10 33	2 05	3 01
December 4	666 00	1 732	10 14	235	2 51	1626 00	26 27	2 04	434	10 20	2 04	3 01
" 11	666 00	1 953	10 14	281	2 72	1737 00	27 78	2 01	500	9 60	1 52	3 06
" 18	786 50	2 045	186 00	279	2 75	1903 00	27 78	2 01	538	9 60	1 52	3 27
" 25	848 00	2 045	160 00	240	2 81	1712 00	28 23	1 98	580	9 36	1 57	3 40
January 1	904 50	2 352	105 00	157	2 81	1538 00	28 68	1 93	613	8 75	1 75	3 68
" 8	843 00	2 192	84 50	127	2 60	1537 00	28 35	1 90	613	8 75	1 75	3 68
" 15	898 00	2 179	75 50	113	2 42	1552 00	28 35	1 89	780	9 03	1 85	3 48
" 22	796 00	2 069	72 50	109	2 47	1520 00	27 29	1 88	793	9 28	1 74	3 70
" 29	723 50	2 881	80 50	121	2 33	1428 00	28 76	1 87	873	8 71	1 78	3 59
February 5	772 00	2 077	76 50	115	2 44	1419 00	29 82	1 87	873	8 26	1 65	3 86
" 12	767 00	1 994	108 50	155	2 46	1482 00	30 02	1 86	903	8 06	1 61	3 94
" 19	761 00	1 979	98 00	140	2 39	1439 00	30 30	1 87	906	8 11	1 62	3 98
" 26	743 50	1 933	43 00	064	2 36	1584 00	30 68	1 87	997	7 91	1 58	3 86
March 4	697 00	1 812	90 00	135	2 26	1664 00	29 89	1 88	1079	8 11	1 62	3 86
" 11	737 50	1 917	111 50	167	2 29	1668 00	30 47	1 88	1113	7 95	1 59	3 93
" 18	744 00	1 934	117 00	175	2 32	1476 00	30 80	1 88	1149	7 81	1 56	3 99
Totals	16,114.75	\$41,898	2,675.00	\$4,014		35,397.00						

Grain eaten, 16,114.75 pounds.  
 Total food eaten, 18,740.75 pounds.  
 Total gain, 147 days, 1,149 pounds.  
 Average daily gain of lot, 7.81 pounds.  
 Average cost per pound of gain, 3.99 cents.  
 Average cost of feed per head, \$9.18.  
 Fodder eaten per pound of gain, 2.32 pounds.  
 Water drunk per pound of gain, 30.80 pounds.

Fodder eaten, 2,675 pounds.  
 Total water drunk, 35,397 pounds.  
 Average gain per head, 239.8 pounds.  
 Average daily gain per head, 1.56 pounds.  
 Total cost of feed, \$43,912.  
 Grain eaten per pound of gain, 14.02 pounds.  
 Total food eaten per pound of gain, 16.34 pounds.  
 Water drunk to one pound of food consumed, 1.88 pounds.

## LOT IV.

As already stated, this lot was fed in the yard but had access to a shed open to the south. They were fed on ear corn and cut cornstover, like lot III. They ran together, and could, therefore, not be fed individually.

Table XXIII shows the weight of each steer at the beginning and his gains each successive week. The table shows greater fluctuation in gain, and especially more frequent losses in weight, than was the case with any of the other lots. This, as already pointed out, however, may be due to the fact that, having access to water at all times, they would sometimes drink before they were weighed, as the others did not. But these fluctuations are also due in part to the fact that this lot scoured more than the others. There was only one steer in the lot, No. 18, that did not scour at some time or other during the experiment. This scouring may be due to two causes, viz., overeating and exposure. Being fed in bulk, so to speak, where each had access to more than his share, some were more greedy than others, and would eat more than was good for them, and as a result suffer from indigestion for one or more days, during which time they would lose in weight, and if it happened that a cold storm occurred when the steer was in such condition, it doubtless aggravated the effect. But it must be noted that, as a whole, the season was very favorable for outdoor feeding. The temperature was at no time very low, and snow and sleet storms were not numerous.

Table XXIV shows the average daily gain per head and the cost of this gain, as well as the grain and fodder eaten to produce it, and their cost.

Table XXIII. LOT IV. EAR CORN IN YARD.  
 WEEKLY ACCOUNT OF WEIGHT AND GAIN IN POUNDS.

DATE, 1895-'96.	Steer 5.		Steer 9.		Steer 14.		Steer 16.		Steer 18.		Total.		Average.	
	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.	Weight	Gain.
October 23.....	1124	.....	1231	.....	1134	.....	1127	.....	1367	.....	5983	.....	1197	.....
.. 30.....	1123	-1	1237	6	1144	10	1135	8	1400	33	6039	56	1208	11
November 6.....	1121	-2	1242	5	1176	32	1155	20	1410	10	6104	65	1221	13
.. 13.....	1141	20	1272	30	1193	17	1155	0	1414	4	6175	71	1235	14
.. 20.....	1142	1	1275	3	1207	14	1186	31	1440	26	6250	75	1250	15
.. 27.....	1170	28	1286	11	1220	13	1179	-7	1429	-11	6284	34	1257	7
December 4.....	1180	10	1285	-1	1258	38	1214	35	1459	30	6396	112	1279	22
.. 11.....	1167	-13	1301	16	1261	3	1235	21	1457	-2	6421	25	1284	5
.. 18.....	1188	21	1286	-15	1276	15	1220	-15	1478	21	6448	27	1289	5
.. 25.....	1217	29	1329	43	1308	32	1240	20	1508	30	6602	154	1320	31
January 1.....	1232	15	1320	-9	1280	-28	1233	-7	1473	-35	6538	-64	1307	-13
.. 8.....	1218	-14	1309	-11	1319	39	1245	12	1477	4	6568	30	1313	6
.. 15.....	1239	21	1335	26	1338	49	1261	16	1480	3	6653	85	1330	17
.. 22.....	1259	20	1331	-4	1354	16	1277	16	1475	-5	6696	43	1339	9
.. 29.....	1270	11	1344	13	1372	18	1283	6	1485	10	6754	58	1351	12
February 5.....	1261	-9	1326	-18	1368	-4	1290	7	1497	12	6742	-12	1348	-3
.. 12.....	1282	21	1328	2	1379	11	1320	30	1503	6	6812	70	1362	14
.. 19.....	1276	-6	1355	7	1369	-10	1324	4	1518	15	6822	10	1364	2
.. 26.....	1298	22	1360	25	1408	39	1318	-6	1540	22	6924	102	1385	21
March 4.....	1312	14	1348	-12	1438	30	1302	-16	1553	13	6953	29	1391	6
.. 11.....	1320	8	1382	34	1420	-18	1311	9	1570	17	7003	50	1401	10
.. 18.....	1336	16	1383	1	1441	21	1333	22	1576	6	7089	66	1414	13
Totals.....	.....	212	.....	152	.....	307	.....	206	.....	209	.....	1086	.....	217
Average daily gain.....	.....	1.44	.....	1.03	.....	2.08	.....	1.40	.....	1.42	.....	7.38	.....	1.47

Total gain of lot, 1,086 pounds.  
 Average daily gain, 7.38 pounds.  
 Average daily gain per head, 1.47 pounds.

Table XXIV. LOT IV.  
WEEKLY ACCOUNT OF FEED EATEN AND COST OF GAIN.

DATE, 1895-'96.	GRAIN.			FODDER.			Gain from Oct. 23, lbs.	Average gain per head from Oct. 23, lbs.	Cost per lb. of gain from Oct. 23, cts.
	Bar corn.		Pounds grain eaten per lb. from Oct. 23.	Cut corn-fodder.		Pounds fodder eaten per lb. of gain from Oct. 23.			
	Weight, lbs.	Cost 26 cts. per cwt.		Weight, lbs.	Cost 15 cts. per cwt.				
October 23	582 00	\$1 513	10 39	224 00	\$0 336	4 00	56	8 00	3 30
“ 30	608 00	1 581	9 83	214 00	382 00	3 62	121	8 64	3 10
November 6	754 00	1 960	10 12	193 00	290 00	3 28	192	9 13	3 12
“ 13	858 00	2 231	10 49	100 00	2 75	2 70	267	9 55	3 13
“ 20	814 00	2 116	12 01	82 00	1 23	2 70	301	8 60	3 52
December 7	741 00	1 927	10 54	100 00	1 50	2 21	413	9 83	3 57
“ 11	807 00	2 098	11 79	114 00	1 71	2 34	438	8 83	3 41
“ 18	755 00	1 963	12 72	106 00	1 59	2 43	465	8 30	3 67
“ 25	822 00	2 137	10 89	111 00	1 66	2 00	619	7 82	3 13
January 1	806 00	2 330	13 76	114 00	1 71	2 41	535	7 51	3 94
“ 8	823 50	2 141	14 46	105 00	1 57	2 50	536	7 39	4 13
“ 15	794 00	2 064	13 81	92 00	1 38	2 32	670	7 97	3 93
“ 22	830 00	2 158	14 14	62 00	0 93	2 26	713	7 86	4 01
“ 29	910 00	2 366	14 26	70 00	1 05	2 29	771	7 86	4 01
February 5	848 00	2 235	15 60	57 00	0 86	2 15	739	7 22	4 03
“ 12	787 50	2 048	15 23	92 00	1 38	2 31	829	7 40	4 29
“ 19	765 00	1 989	15 96	118 00	1 77	2 62	839	7 05	4 50
“ 26	859 50	2 235	15 14	103 00	1 54	2 18	941	7 46	4 26
March 4	864 00	2 246	15 58	85 00	1 28	2 30	970	7 29	4 38
“ 11	854 00	2 220	15 65	66 00	0 99	2 16	1,020	7 28	4 38
“ 18	888 00	2 369	15 52	77 00	1 15	2 10	1,086	7 38	4 35
Totals	16,860.50	\$43,887		2,285.00	\$3,427				

Grain eaten, 15,860.5 pounds.  
 Total food eaten, 19,145.5 pounds.  
 Average gain per head, 217.2 pounds.  
 Average daily gain per head, 1.47 pounds.  
 Total cost of feed, \$17,264.  
 Grain eaten per pound of gain, 15.52 pounds.  
 Total food eaten per pound of gain, 17.62 pounds.

Fodder eaten, 2,285 pounds.  
 Total gain, 147 days, 1,086 pounds.  
 Average daily gain of lot, 7.38 pounds.  
 Average cost per pound of gain, 4.35 cents.  
 Average cost of feed per head, \$9.45.  
 Fodder eaten per pound of gain, 2.10 pounds.

## MEAN DAILY TEMPERATURE IN BARN AND IN YARD.

The table following shows the mean daily readings in the barn and in the yard. It is noticeable on two points: First, the little cold weather the past winter, and, second, the slight difference in temperature between the barn and the yard. The mean readings, however, given here, fail to show one feature of considerable importance, namely, the daily fluctuations. It frequently happened that the thermometer would stand several degrees higher in the yard at noon than it did in the barn, and still it might be 15 degrees lower at the morning observation in the yard than it was in the barn. The temperature in the barn was not subject to any such fluctuations. It rarely fell below freezing, and only on one whole day during the feeding period was the temperature in the barn below freezing, while it was below freezing 36 days during the period in the yard. On the other hand, it stood higher in the yard than in the barn at noon on 38 days during the period.

It is not, however, the low temperature that tells disastrously on cattle not sheltered, as much as wet and stormy weather. It was too wet and stormy on 15 days during the period to turn the indoor steers out for their usual exercise. The steers in the yard were, of course, compelled to take this as it came, except when they sought shelter in the open shed, which they did in the severest of the weather. But even if the weather did not have any influence on the gain of the outdoor steers, it had a decided influence on their appearance, which was noticed at once by the buyer at the stock-yards. Their coats were rough, and they had not shed at all, whereas the indoor steers, in comparison, were smooth, slick, and short-haired, and, as there was comparatively little difference in the weights of lots III and IV, it is fair to assume that the difference in price which the buyer made in favor of lot III was due chiefly to their better appearance.

Table XXV. MEAN DAILY TEMPERATURE IN BARN AND YARD.

DATE, 1895.	Mean temperature.		DATE, 1895-'96.	Mean temperature.		DATE, 1896.	Mean temperature.	
	In yard.	In barn.		In yard.	In barn.		In yard.	In barn.
Oct. 23.....	41	50	Dec. 11.....	44	46	Jan. 30.....	46	49%
24.....	49	54½	12.....	31½	43	31.....	43%	48
25.....	47	54½	13.....	39	46	Feb. 1.....	43	46%
26.....	55	56	14.....	36½	47	2.....	39%	45½
27.....	48½	52½	15.....	35½	46	3.....	44%	44%
28.....	33½	42	16.....	54	52½	4.....	38	44½
29.....	32½	42½	17.....	35½	43½	5.....	36	39
30.....	37½	44	18.....	31½	42	6.....	34	42½
31.....	42	48½	19.....	33	41	7.....	23½	36%
Nov. 1.....	41½	48½	20.....	28½	36½	8.....	25%	37
2.....	55½	57	21.....	29	39	9.....	34	41
3.....	58	59	22.....	34	39½	10.....	39½	42%
4.....	65	66	23.....	35½	41½	11.....	34%	41%
5.....	62	65	24.....	34½	42	12.....	36	44
6.....	41½	50	25.....	28½	36½	13.....	40	44
7.....	39	50	26.....	28½	38½	14.....	47%	47
8.....	36	44½	27.....	33	39	15.....	31½	45%
9.....	31½	44½	28.....	37	42	16.....	35½	41
10.....	35½	45½	29.....	25½	35	17.....	35%	41½
11.....	41	47½	30.....	25	35½	18.....	43%	45½
12.....	43	49	31.....	29½	40	19.....	40	43
13.....	46	52½	Jan. 1.....	37	45	20.....	26%	39
14.....	38	47	2.....	30½	42½	21.....	42	44
15.....	41½	48½	3.....	10	30½	22.....	49	50%
16.....	45	51½	4.....	23	32%	23.....	52%	51½
17.....	52½	55½	5.....	35½	39½	24.....	53	51%
18.....	45	50½	6.....	42½	44½	25.....	57	54%
19.....	31	46	7.....	29%	40½	26.....	64%	59
20.....	38	49	8.....	39	39	27.....	53	54
21.....	43	50½	9.....	41	43	28.....	42%	45%
22.....	26	38	10.....	40%	43½	29.....	38%	47
23.....	24	38	11.....	49½	49	Mar. 1.....	27½	41
24.....	28½	41	12.....	34	39	2.....	28	36½
25.....	26½	39½	13.....	32½	36	3.....	29%	40%
26.....	21½	38½	14.....	35	38½	4.....	30%	40
27.....	34	42½	15.....	34%	39½	5.....	51	49%
28.....	44	48	16.....	34%	38%	6.....	35	41%
29.....	31½	40½	17.....	39	42½	7.....	38	43%
30.....	35	43	18.....	26	37½	8.....	43%	45
Dec. 1.....	27	39½	19.....	35%	41½	9.....	47	48
2.....	11	32½	20.....	43	42%	10.....	45	47½
3.....	23	33½	21.....	37%	42%	11.....	28%	40
4.....	25½	37	22.....	35%	40	12.....	29	39
5.....	23½	37½	23.....	22	34½	13.....	20%	35%
6.....	40	45½	24.....	24	36%	14.....	23	36½
7.....	33½	42½	25.....	24	36½	15.....	31	38%
8.....	25	30	26.....	26½	35	16.....	41%	38½
9.....	26	40	27.....	31	38	17.....	41½	46½
10.....	43	45	28.....	38	43½	18.....	38%	44%
			29.....	53%	51½			

RELATION OF WATER TO GAIN AND FEED.

The facts in regard to the amount of water drank, and the relation it bears to each pound of gain and to each pound of food consumed, are given in the several tables for the three lots fed indoors, and it is here only necessary to call attention to them. In the case of lot I, the amount of water drank from week to week remained reasonably constant throughout the experiment. In the beginning, when they gained rapidly, they gained twice as much for the water consumed as they did at the close of the experiment, but the gain is the only factor that varies much. Comparing the amount of water with the food consumed, it appears that they drank a little more for each pound of food in the beginning than they did later, and there is a gradual

decrease, though but slight, in the ratio of water to food consumed, as the feeding progresses. The lot as a whole drank 25.5 pounds of water for each pound of gain made, and 2.56 pounds of water for each pound of food consumed.

In the case of lot II, we find that they drank more at the beginning of the experiment than they did later on. Like the others, they gained fast during the first few weeks, and, therefore, the amount of water to the gain is less than it is later on. As a whole, the lot consumed 24 pounds of water to each pound of gain, and 2.14 pounds for each pound of food eaten. In this case, also, they drank relatively more for each pound of food consumed at the beginning of the experiment, with a gradual decrease until the close.

The same remarks apply also to lot III. They drank more in the beginning of the experiment than they did later on, and more for each pound of food consumed, with a gradual decrease to the close. As a whole, the lot drank 30.8 pounds of water for each pound of gain made, and 1.80 pounds for each pound of food eaten.

The amount of water drank is almost the same for lots II and III, but lot I drank very much more than either. The reader is referred to tables VIII, XV and XXII for detailed information on this point.

COMPARISON OF LOTS.

The facts brought out in the preceding tables show that lot I, fed on a balanced ration, both ate more and gained more than any of the other lots, and also that their ration was more nutritious than the corn ration to which the others were confined. But they gained more in proportion to the amount of food consumed than did any of the others. These facts agree with the results of our first feeding experiment, in which the lot fed on a balanced ration also gained more for the food consumed than any of the other three lots; but, as in the present case, the total food consumed by them was also somewhat more than that of the others. It would be folly to ascribe their better gains wholly to the fact that they ate more, although it undoubtedly has an influence in that direction. Their better gains must be due chiefly to the fact that their food was more nutritious than the corn ration given to the others. These facts will be better comprehended and more briefly summarized when presented in the following tabular form:

	<i>Lot I.</i>	<i>Lot II.</i>	<i>Lot III.</i>	<i>Lot IV.</i>
Total grain eaten, lbs.	15,277	13,231	16,114	16,860
Total fodder eaten, lbs.	4,863	3,036	2,676	2,285
Total food eaten, lbs.	20,141	16,267	18,790	19,145
Gain of lot, 147 days, lbs.	2,030	1,451	1,149	1,086
Grain eaten per pound of gain, lbs.	7.52	9.11	14.02	15.52
Fodder eaten per pound of gain, lbs.	2.39	2.09	2.32	2.10
Total food eaten per pound of gain, lbs.	9.91	11.20	16.34	17.62
Cost per pound of gain, cents.	3.94	3.50	3.99	4.35
Price per pound at stock-yards, cents.	4.10	4.00	3.90	3.80

This gives us a bird's-eye view of the leading facts brought out by the experiment. Although lot I made the best gains, and that with the least consumption of food per pound of gain, the gain cost more in the case of lot II, owing to the higher-priced feed stuffs, oil-meal and bran, which were given the first lot. But it will be seen from the financial data that, owing to their better condition, they sold for a better price than the others. All the steers were fed at a loss, yet the loss was less for lot I or for lot II or either of the others.

Lot II, it will be seen, made better gains than lots III and IV, and in this respect results differ from those of our first feeding experiment, in which the lot fed corn-meal gained less than the lots fed ear corn. It took 1.59 pounds more of corn-meal for a pound of gain than it took of the balanced ration. The feed required per pound of gain for lots I and II is not comparable with the feed required by lots III and IV, because the latter were fed ear corn. But the experiment shows that in this case we got better and cheaper returns from the corn-meal than from the ear corn.

SALE OF STEERS.

The steers were shipped to Kansas City stock-yards and sold March 24. They were sold strictly on their merits. The market was ruinously low, and all four lots sold at a loss. Lot I sold for \$4.10 per cwt., which was the highest figure reached that day; lot II sold for \$4 per cwt.; lot III for \$3.90, and lot IV for \$3.80. It is evident that when fat steers sell for but a trifle more than their purchase price as feeders, or even less, as was the case with lot IV, to say nothing of freight, commission, and shrinkage, they must be sold at a loss. The details are set forth in the following

FINANCIAL DATA.

*Lot I—Dr.*

To 5 steers, first cost, 5,890 pounds @ \$3.85 per cwt.....	\$226.76
To preliminary feeding:	
549.25 pounds ear corn @ 26 cents per cwt.....	\$1.43
35 pounds oil-meal @ 88 cents per cwt.....	.31
227.5 pounds corn-meal @ 35 cents per cwt.....	.79
716 pounds cut corn-fodder @ 15 cents per cwt.....	1.07
	3.60
To feed during experiment:	
9,963.56 pounds corn-meal @ 35 cents per cwt.....	34.87
2,656.97 pounds bran @ 50 cents per cwt.....	13.28
2,656.97 pounds oil-meal @ 88 cents per cwt.....	23.38
2,442.5 pounds cut corn-fodder @ 15 cents per cwt.....	3.66
2,421 pounds alfalfa @ 20 cents per cwt.....	4.84
Preparation for shipping:	
349.56 pounds corn-meal @ 35 cents per cwt.....	\$1.22
93.22 pounds bran @ 50 cents per cwt.....	.47
93.22 pounds oil-meal @ 88 cents per cwt.....	.82
4.77 pounds ear corn @ 26 cents per cwt.....	.01
14 pounds shelled corn (soaked) @ 32½ cents per cwt.....	.04

26.2 pounds cut corn-fodder @ 15 cents per cwt. . . . .	.04	
38.44 pounds Kafir-corn fodder @ 15 cents per cwt. . . . .	.06	
16.64 pounds alfalfa @ 20 cents per cwt. . . . .	.03	
9.25 pounds prairie hay @ 17 cents per cwt. . . . .	.02	
18.49 pounds oat straw @ 10 cents per cwt. . . . .	.02	
		2.73
To freight and expense of sale. . . . .		12.52
		15.25
Total . . . . .		\$325.64

*Cr.*

By 5 steers, 7,630 pounds @ \$4.10 per cwt. . . . .		312.83
Balance . . . . .		\$12.81

*Lot II—Dr.*

To 5 steers, first cost, 5,856 pounds @ \$3.85 per cwt. . . . .		\$225.46
To preliminary feeding:		
534.75 pounds ear corn @ 26 cents per cwt. . . . .	\$1.39	
276 pounds corn-meal @ 35 cents per cwt. . . . .	.96	
716.5 pounds cut corn-fodder @ 15 cents per cwt. . . . .	1.07	
		3.42
To feed during experiment:		
13,231 pounds corn-meal @ 35 cents per cwt. . . . .		46.31
3,036.5 pounds cut corn-fodder @ 15 cents per cwt. . . . .		4.55
Preparation for shipping:		
430.5 pounds corn-meal @ 35 cents per cwt. . . . .	\$1.51	
4.77 pounds ear corn @ 26 cents per cwt. . . . .	.01	
7 pounds shelled corn (soaked) @ 32½ cents per cwt. . . . .	.02	
47.71 pounds cut corn-fodder @ 15 cents per cwt. . . . .	.07	
8.03 pounds Kafir-corn fodder @ 15 cents per cwt. . . . .	.01	
20.88 pounds alfalfa @ 20 cents per cwt. . . . .	.04	
6.43 pounds prairie hay at 17 cents per cwt. . . . .	.01	
14.46 pounds oat straw @ 10 cents per cwt. . . . .	.01	
		1.68
To freight and expense of sale. . . . .		12.52
		14.20
Total . . . . .		\$293.94

*Cr.*

By 5 steers, 6,950 pounds @ \$4 per cwt. . . . .		278.00
Balance . . . . .		\$15.94

*Lot III—Dr.*

To 5 steers, first cost, 5,850 pounds @ \$3.85 per cwt. . . . .		\$225.22
To preliminary feeding:		
809.25 pounds ear corn @ 26 cents per cwt. . . . .	\$2.10	
722.5 pounds cut corn-fodder @ 15 cents per cwt. . . . .	1.08	
		3.18
To feed during experiment:		
16,114.75 pounds ear corn @ 26 cents per cwt. . . . .		41.90
2,676 pounds cut corn-fodder @ 15 cents per cwt. . . . .		4.01
Preparation for shipping:		
429.5 pounds ear corn @ 26 cents per cwt. . . . .	\$1.12	
4.77 pounds corn-meal @ 35 cents per cwt. . . . .	.02	
10.5 pounds shelled corn (soaked) @ 32½ cents per cwt. . . . .	.03	
35.59 pounds cut corn-fodder @ 15 cents per cwt. . . . .	.05	
7.74 pounds Kafir-corn fodder @ 15 cents per cwt. . . . .	.01	
20.11 pounds alfalfa @ 20 cents per cwt. . . . .	.04	
6.19 pounds prairie hay @ 17 cents per cwt. . . . .	.01	
13.92 pounds oat straw @ 10 cents per cwt. . . . .	.01	
		1.29
To freight and expense of sale. . . . .		12.52
		13.81
Total . . . . .		\$288.12

<i>Cr.</i>	
By 5 steers, 6,830 pounds @ \$3.90 per cwt.. . . . .	266.37
Balance . . . . .	<u>\$21.75</u>
<i>Lot IV—Dr.</i>	
To 5 steers, first cost, 5,903 pounds @ \$3.85 per cwt.....	\$227.27
To preliminary feeding:	
741.25 pounds ear corn @ 26 cents per cwt....	\$1.93
712 pounds cut corn-fodder @ 15 cents per cwt. . . . .	1.07
	<u>3.00</u>
To feed during experiment:	
16,860.5 pounds ear corn @ 26 cents per cwt....	43.84
2,285 pounds cut corn-fodder @ 15 cents per cwt. . . . .	3.43
Preparation for shipping:	
517 pounds ear corn @ 26 cents per cwt. . . . .	\$1.34
4.77 pounds corn-meal @ 35 cents per cwt. . . . .	.02
10.5 pounds shelled corn (soaked) @ 32½ cents per cwt. . . . .	.03
21.59 pounds cut corn-fodder @ 15 cents per cwt. . . . .	.03
7.74 pounds Kafir-corn fodder @ 15 cents per cwt....	.01
20.11 pounds alfalfa @ 20 cents per cwt.. . . . .	.04
6.19 pounds prairie hay @ 17 cents per cwt. . . . .	.01
13.92 pounds oat straw @ 10 cents per cwt.. . . . .	.01
	<u>1.49</u>
To freight and expense of sale. . . . .	12.52
Total . . . . .	<u>\$291.55</u>
<i>Cr.</i>	
By 5 steers, 6,810 pounds @ \$3.80 per cwt. . . . .	258.78
Balance . . . . .	<u>\$32.77</u>

UNDIGESTED GRAIN IN THE MANURE.

For eight weeks previous to January 1, the manure from each lot was most carefully collected and washed out, in order to ascertain the per cent. of grain that is passed through the steer undigested. In the case of lots I and II, fed on ground feed, a large part of which was very fine, it was difficult to separate all the fine undigested particles in the manure, as they were too light to settle, and would float away with the manure in the process of washing. It is, therefore, probable that the percentages given for these two lots are too small. The results obtained were as follows: The undigested feed in the manure for lot I was 3.69 per cent.; for lot II, it was 6.62 per cent.; for lot III, it was 15.59 per cent.; and for lot IV, 15.95 per cent. The work was undertaken with a view to ascertain the relative amount of hog feed that the droppings of the several lots of steers contained. The grain thus washed out was dried before weighing, until it approximated in its water content the feed given. It will be seen from the results that it is possible for hogs following steers fed whole corn to get about 15 pounds of feed out of the droppings for every 100 pounds of ear corn given the steers. But, on the other hand, when the steers are fed ground feed there is apparently

but little valuable material for hogs. These facts are of much importance to the practical feeder, who frequently is saved from loss on his feeding operations solely by the hogs which follow the steers.

#### SUMMARY OF RESULTS.

1. The results of the present experiment in the main confirm the results obtained in a similar experiment, and published in Bulletin No. 34.

2. The "balanced ration" produced much the best gains, and at a less consumption of food per pound of gain than the corn ration, whether fed as corn-meal or as ear corn. The lot made one pound of gain on 7.52 pounds grain fed, and 2.39 pounds fodder, while the lot fed corn-meal required 9.11 pounds grain and 2.09 pounds fodder to make a pound of gain.

3. But the lot fed a balanced ration consumed a greater total weight of food than the lot fed corn-meal. During the 147 days they were fed, each steer in the lot ate an average of 20.8 pounds grain feed and 6.6 pounds fodder daily, on which he made an average gain of 2.76 pounds daily. The steers fed on corn-meal ate 18 pounds meal and 4.13 pounds fodder daily per head, on which they gained 1.97 pounds per head.

4. The lot fed a balanced ration gained .79 of a pound daily per head more than the lot on corn-meal, for which gain they consumed only 2.8 pounds of grain and 2.47 pounds of fodder daily more than the lot fed corn-meal; or at the rate of 3.5 pounds of grain and 3.1 pounds of fodder per pound of gain, while we have seen that it required 7.52 pounds of grain and 2.39 pounds of fodder to produce a pound of gain. These facts prove that the better gain of this lot was due more to the quality of the food than to the fact that they had better appetites.

5. The mixed-grain ration stimulates the appetite more than the corn ration and induces the steer to eat more heartily of it than he will of corn-meal.

6. The steers fed on the mixed-grain ration brought a better price on the market than either of the other lots, because they were in better condition. They averaged, on day of sale, 136 pounds per head more than the lot fed corn-meal, 160 pounds more than the lot fed ear corn in the barn, and 164 pounds more than the outdoor lot.

7. The experiment shows that, for rapid gains and top prices, the balanced ration excels any corn ration.

8. But this does not necessarily imply that the balanced ration affords the cheapest gain. At the cost of feed in this case, 88 cents for oil-meal, 50 cents for bran, and 35 cents for corn-meal, per cwt.,

the gain produced by the mixed feed cost 3.94 cents per pound, while the gain produced by the corn-meal cost but 3.5 cents per pound.

9. At the same price for the two lots in the stock-yards, the lot fed corn-meal would have been the more profitable. As it was, the lot on a balanced ration brought 10 cents more per cwt. than the lot on corn-meal; but, even then, there is but a slight margin of \$3 on the whole lot in its favor, or only 60 cents per steer.

10. The results, therefore, do not warrant an indiscriminate use of oil-meal and bran when corn is cheap. Look well to their cost before you purchase.

11. In this experiment, the corn-meal gave better returns than ear corn. In our first feeding experiment, reported in Bulletin No. 34, the ear corn gave better returns than corn-meal. The question whether it pays to grind is, therefore, not settled.

12. The steers on ear corn voided in manure upwards of 15 per cent. of their grain undigested, while those on corn-meal voided but 6½ per cent. The per cent. of grain found in the droppings when whole corn is fed agrees with the results of a previous experiment to the same effect.

13. The cost of the gain on ear corn was, in this experiment, half a cent per pound higher than the cost on corn-meal. It is probable, however, that when hogs follow the steers, this difference will be more than balanced by the larger per cent. of hog food furnished when ear corn is fed.

14. In spite of the fact that it was a favorable winter for outdoor feeding, the outdoor steers gained less and ate more than the indoor steers, though fed the same. This confirms our former experiment, in which it was found that the two lots gained alike but the outdoor steers ate a good deal more.

15. In the present experiment, the cost per pound of gain on ear corn was 3.99 cents for the indoor lot, and 4.35 cents for the outdoor lot. While the showing is thus in favor of barn feeding, the feeder should, nevertheless, count the cost of providing adequate barn room, and of the extra labor stabling involves, before he abandons the open yard with the conventional sheds.