

Retained Ownership of Calves – A Year to Remember

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The Dakota Feeder Calf Show feedout project assists cattle producers in identifying cattle with superior growth and carcass characteristics. The spread in average profitability between consignments from the top five herds and the bottom five herds was \$224.84 per head for the 2016-2017 feeding period. Overall feeding profitability was \$632.74 per head.

Summary

The Dakota Feeder Calf Show feedout project was developed to discover the actual value of spring born beef steer calves, provide comparisons among herds, and benchmark feeding and carcass performance. Cattle consigned to the feedout project were delivered to the Carrington Research Extension Center Livestock Unit on Oct. 15, 2016. After a 213-day feeding period with 2.93 percent death loss, cattle averaged 1,334.9 pounds (shrunk harvest weight). Feed required per pound of gain was 6.77 (dry-matter basis). Overall pen average daily gain was 3.14 pounds. Feed cost per pound of gain was \$0.494 and total cost per pound of gain was \$0.743. Profit ranged from \$790.79 per head for pen-of-three cattle with superior growth and carcass traits to \$456.82 per head (no death loss). Substantial variability in the feeding and carcass value of spring-born calves continues to be discovered through participation in the feedout project.

Introduction

Determining calf value is a learning experience for cow-calf producers. To remain competitive with other livestock and poultry in the meat industry, cow-calf producers need to identify superior genetics and management. Marketplace premiums are provided for calves that have exceptional feedlot performance and produce a high-quality carcass.

In addition, cost-effective feeding performance is needed to justify the expense of feeding cattle past weaning. Because North Dakota has low-cost feeds and a favorable climate, low cost per pound of gain can be accomplished.

Combining the low cost of gains with the identification of superior cattle, this ongoing feedlot project provides cattle producers with an understanding of cattle feeding and cattle selection in North Dakota.

Experimental Procedures

The Dakota Feeder Calf Show was developed for cattle producers willing to consign steer calves to a show and feedout project. The calves were received in groups of three or four on October 15, 2016, at the Turtle Lake Weighing Station, Turtle Lake, N.D., for weighing, tagging, veterinary processing and showing. The calves were evaluated for conformation and uniformity, with the judges providing a discussion to the owners at the beginning of the feedout. The number of cattle consigned was 205, of which 179 competed in the pen-of-three contest.

The calves were then shipped to the Carrington Research Extension Center, Carrington, N.D., for feeding. Prior to shipment, calves were vaccinated, implanted, dewormed and injected with a prophylactic long-acting antibiotic. Cattle were implanted with Synovex S upon arrival.

Calves then were sorted and placed on corn-based receiving diets. After an eight-week backgrounding period, the calves were transitioned to a 0.62 megacalorie of net energy for gain (Mcal NEg) per pound finishing diet. Cattle were weighed every 28 days, and updated performance reports were provided to the owners. Cattle were reimplanted with Revlor S.

An open house was held on February 7, 2017, at the Carrington Research Extension Center Livestock Unit, where the owners reviewed the calves and discussed marketing conditions.

The cattle were harvested on May 17, 2017 (199 head). The cattle were sold to Tyson Fresh Meats, Dakota City, Nebraska, on a grid basis, with premiums and discounts based on carcass quality. Carcass data were collected after harvest. Ranking in the pen-of-three competition was based on the best overall score. The overall score was determined by adding the index values for feedlot average daily gain (25 percent of score), marbling score (25 percent of score) and profit (25 percent of score) and subtracting index value for calculated yield grade (25 percent of score). The Dakota Feeder Calf Show provided awards and recognition for the top-ranking pen of steers.

Results and Discussion

Cattle consigned to the Dakota Feeder Calf Show feedout project averaged 623.8 pounds upon delivery to the Carrington Research Extension Center Livestock Unit on October 15, 2016. After an average 213-day feeding period, cattle averaged 1,334.9 pounds (at plant, shrunk weight). Death loss was 2.93 percent (six head) during the feeding period.

Average daily feed intake per head was 32.4 pounds on an as-fed basis and 21.4 pounds on a dry-matter basis. Pounds of feed required per pound of gain were 10.25 on an as-fed basis and 6.77 pounds on a dry-matter basis.

The overall feed cost per pound of gain was \$0.494. The overall yardage cost per pound of gain was \$0.100. The combined cost per pound of gain, including feed, yardage, veterinary, trucking and other expenses except interest, was \$0.743.

Calves were priced by weight upon delivery to the feedlot. The pricing equation (\$ per 100 pounds = $(-0.035172919 \times \text{initial calf weight, pounds}) + 145.5825919$) was determined by regression analysis on local livestock auction prices reported for the weeks before and after delivery.

Overall, the carcasses contained U.S. Department of Agriculture Quality Grades at 3.5 percent Prime, 73.4 percent Choice or better (including 11.5 percent Certified Angus Beef), 22.1 percent Select, 0.5 percent Standard and 0.5 percent other, and USDA Yield Grades at 9 percent YG1, 45.2 percent YG2, 40.2 percent YG3, 5 percent YG4 and 0.50 percent YG5. One carcass (0.50 percent) was greater than 1,050 pounds.

Carcass value per 100 pounds (cwt) was calculated using the actual base carcass price plus premiums and discounts for each carcass. The grid price received for May 17, 2017, was \$224.84 Choice YG3 base with premiums: Prime \$20, CAB \$6, YG1 \$6.50 and YG2 \$2, and discounts: Select minus \$15, Standard (no roll) minus \$15, YG4 minus \$8, YG5 minus \$20 and carcasses greater than 1,050 pounds minus \$20.

Results from the calves selected for the pen-of-three competition are listed in Table 1.

Overall, the pen-of-three calves averaged 410 days of age and 1,403.9 pounds per head at harvest. The overall pen-of-three feedlot average daily gain was 3.36 pounds, while weight gain per day of age was -3.27 pounds. The overall pen-of three marbling score was 461.2 (low choice, small marbling).

The top-profit pen-of-three calves with superior genetics returned \$790.79 per head, while the bottom pen-of-three calves returned \$456.82 per head. The average per head profit of the five top-scoring pens of steers averaged \$739.62 per head, while the average per head profit of the bottom five scoring pens of steers averaged \$514.77 per head. For the pen-of-three competition, average profit was

\$632.83 per head. The spread in profitability between the top and bottom five herds was \$224.84 per head.

Implications

Calf value is improved with superior carcass and feedlot performance. Exceptional average daily gains, weight per day of age, harvest weight and marbling score can be found in North Dakota beef herds. Feedout projects provide a source of information for cattle producers to learn about feedlot performance and individual animal differences, and discover cattle value.



Steers consigned to the Dakota Feeder Calf Show Feedout study, February, 2017.

Table 1. Feeding performance - 2016-2017 Dakota Feeder Calf Show Feedout

Pen of three	Best Three Score Total	Average Birth Date	Average Weight per Day of Age, lbs	Average Harvest Weight, lbs.	Average Daily Gain, lbs.	Average Marbling Score ¹	Ave Calculated Yield Grade	Ave Feeding Profit or Loss / Head
1	1.834	30-Mar-16	3.605	1558.3	4.037	546.3	3.538	\$ 747.56
2	1.794	9-Mar-16	3.156	1433.3	3.364	482.7	2.643	\$ 745.63
3	1.782	24-Mar-16	3.277	1435.0	3.426	494.3	2.762	\$ 732.49
4	1.758	21-Feb-16	3.160	1493.3	3.522	571.7	3.752	\$ 790.79
5	1.752	8-Apr-16	3.529	1493.3	3.717	459.0	2.670	\$ 681.63
Average Top 5 Herds	1.784	19-Mar-16	3.345	1482.667	3.613	510.800	3.073	\$ 739.62
6	1.750	17-Apr-16	3.533	1460.0	3.724	434.3	2.471	\$ 671.68
7	1.749	12-Apr-16	3.327	1391.7	3.490	520.3	2.909	\$ 687.42
8	1.738	18-Apr-16	3.456	1423.3	3.686	544.7	3.504	\$ 729.39
9	1.715	2-Mar-16	3.328	1536.7	3.645	425.3	3.026	\$ 782.68
10	1.679	30-Mar-16	3.355	1451.7	3.391	503.0	3.256	\$ 741.30
11	1.666	3-Apr-16	2.934	1255.0	3.201	542.7	2.763	\$ 612.72
12	1.660	5-Mar-16	3.263	1496.7	3.342	479.3	2.948	\$ 703.99
13	1.640	5-Apr-16	3.086	1313.3	3.438	422.3	2.466	\$ 649.04
14	1.637	11-Apr-16	3.680	1543.3	3.636	585.7	4.102	\$ 720.77
15	1.634	18-Apr-16	3.476	1431.7	3.793	459.7	3.048	\$ 644.67
16	1.624	9-Apr-16	3.212	1355.0	3.397	501.7	2.775	\$ 598.76
17	1.600	19-Mar-16	3.230	1433.3	3.170	441.0	2.816	\$ 711.66
18	1.592	24-Mar-16	3.261	1430.0	3.170	509.3	3.122	\$ 675.30
19	1.589	22-Mar-16	3.361	1481.7	3.431	485.3	3.290	\$ 689.95
20	1.586	18-Mar-16	3.260	1453.3	3.399	543.7	3.192	\$ 594.94
21	1.583	20-Apr-16	3.465	1420.0	3.858	449.0	3.306	\$ 657.15
22	1.559	28-Mar-16	3.248	1411.7	3.237	516.7	3.336	\$ 668.16
23	1.541	25-Mar-16	3.189	1391.7	3.000	490.3	2.871	\$ 639.59
24	1.532	16-Apr-16	3.411	1415.0	3.727	443.0	3.087	\$ 602.86
25	1.521	13-Apr-16	3.357	1401.7	3.340	469.0	3.014	\$ 616.63
26	1.505	19-Apr-16	3.408	1401.7	3.558	444.0	3.337	\$ 661.78
27	1.501	25-Feb-16	3.111	1455.0	3.219	542.3	3.751	\$ 673.08
28	1.484	3-Apr-16	3.006	1286.7	3.358	385.0	2.323	\$ 555.32
29	1.441	16-Mar-16	2.944	1315.0	2.978	394.0	2.121	\$ 537.71
30	1.421	20-Apr-16	3.119	1278.3	3.204	441.0	2.868	\$ 566.81
31	1.413	28-Apr-16	3.546	1423.3	3.514	370.7	2.641	\$ 550.74
32	1.399	12-Apr-16	3.444	1443.3	3.588	410.0	3.302	\$ 606.40
33	1.391	12-Mar-16	3.171	1431.7	3.287	419.3	2.540	\$ 488.83
34	1.384	10-Mar-16	2.909	1316.7	2.791	407.7	2.116	\$ 506.20
35	1.384	24-Apr-16	3.331	1351.7	3.336	359.3	2.383	\$ 523.26
36	1.355	23-Mar-16	3.340	1468.3	3.068	401.3	3.288	\$ 676.64
37	1.348	15-Apr-16	3.469	1438.3	3.285	458.3	3.769	\$ 650.69
38	1.339	19-Mar-16	2.920	1295.0	3.045	421.3	2.793	\$ 539.61
39	1.316	21-Mar-16	3.151	1391.7	3.101	427.7	3.362	\$ 617.31
40	1.313	30-Mar-16	3.197	1381.7	3.181	369.7	2.505	\$ 503.80
41	1.277	2-May-16	2.881	1146.7	2.704	407.3	2.229	\$ 456.82
42	1.178	12-Apr-16	3.084	1293.3	2.983	395.3	3.077	\$ 510.28
43	1.171	28-Apr-16	3.374	1355.0	3.343	409.0	3.406	\$ 485.66
Average Bottom 5 Herds	1.251	12-Apr-16	3.137	1313.7	3.062	401.8	2.916	\$ 514.77
Overall average pens of three	1.538	1-Apr-16	3.269	1404.3	3.365	460.1	2.988	632.74
Standard deviation		17.7	0.2	83.0	0.3	58.4	0.5	86.6
number		43	43	43	43	43	43	43

¹ Marbling score 300-399 = select, 400-499 = low choice, 500-599 = average choice, 600-699 = high choice, 700-799 = low prime

