

## Feeding North Dakota-born Calves to Finish in North Dakota – DFCS

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Over two decades ago, CREC Researchers and Extension Specialists sought to reverse the perspective that it was too cold in North Dakota to feed cattle to slaughter weight. The number of cattle fed to finish in North Dakota has increased since then. However, of the almost 900,000 calves raised in North Dakota, only about 120,000 calves are fed to finish.

Documenting cattle performance has stimulated cattle producers to feed cattle in North Dakota. Knowing the genetic performance of calves born and raised in North Dakota helps reduce the economic risk in feeding cattle to finish.

The Dakota Feeder Calf Show Feedout project was developed to discover the actual final value of spring-born beef steer calves, provide comparisons between herds, and benchmark feeding and carcass performance.

For the 2017-18 feeding period, cattle consigned to the feedout project were delivered to the Carrington Research Extension Center Livestock Unit on October 17, 2017. Prior to shipment, calves were vaccinated, implanted with Synovex-S, dewormed and injected with a prophylactic long-acting antibiotic. Calves were then 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 re-implanted with Synovex-Choice on January 3, 2018.

The cattle were harvested on May 17, 2018 (139 head). The cattle were sold to Tyson Fresh Meats, Dakota City, Neb., on a grid basis, with premiums and discounts based on carcass quality. Carcass data were collected after harvest.

Cattle consigned to the Dakota Feeder Calf Show feedout project averaged 634.19 pounds upon delivery. After an average 207-day feeding period, cattle averaged 1,311.1 pounds (at plant, shrunk weight). Death loss was 2.11 percent (three head) during the feeding period.

Average daily feed intake per head was 32.0 pounds on an as-fed basis and 21.1 pounds on a dry-matter basis. Pounds of feed required per pound of gain were 10.2 on an as-fed basis and 6.74 pounds on a dry-matter basis.

The overall feed cost per pound of gain was \$0.474. The overall yardage cost per pound of gain was \$0.111. The combined cost per pound of gain, including feed, yardage, veterinary, trucking and other expenses except interest, was \$0.748.

Calves were priced by weight upon delivery to the feedlot. The pricing equation (\$ per 100 pounds =  $(-0.069506177 * \text{initial calf weight, pounds}) + 212.8378297$ ) 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 1.4 percent Prime, 79.8 percent Choice or better (including 17.9 percent Certified Angus Beef), 18.7 percent Select, 0 percent Standard and 0 percent other, and USDA Yield Grades at 4.3 percent YG1, 48.2 percent YG2, 38.1 percent YG3, 8.6 percent YG4 and 0.71 percent YG5.

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, 2018, was \$195.04 Choice YG3 base with premiums: Prime \$20, CAB \$6, YG1 \$6.50 and YG2 \$3, and discounts: Select minus \$12,

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.

**Table 1. Feeding performance - 2017-2018 Dakota Feeder Calf Show Feedout**

Pen of three	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	8-Mar-17	3.652	1582.5	3.788	587.7	3.151	\$ 168.46
2	1-Apr-17	3.547	1453.2	3.928	630.0	4.045	\$ 209.07
3	12-Mar-17	3.120	1339.5	3.388	457.3	2.426	\$ 195.77
4	21-Mar-17	3.318	1393.2	3.623	575.0	3.355	\$ 185.29
5	9-Apr-17	3.441	1382.2	3.682	498.0	3.134	\$ 179.11
<b>Average Top 5 herds</b>							
	22-Mar-17	3.416	1430.115	3.682	549.600	3.222	\$ 187.54
6	28-Mar-17	3.335	1380.6	3.529	451.3	2.693	\$ 166.13
7	10-Apr-17	3.097	1240.1	3.310	611.0	2.752	\$ 70.78
8	22-Apr-17	3.257	1265.4	3.319	527.3	3.080	\$ 114.21
9	9-Apr-17	3.385	1358.5	3.495	486.7	3.396	\$ 153.14
10	26-Mar-17	3.589	1489.4	3.459	444.7	3.837	\$ 227.75
11	3-Apr-17	3.332	1356.9	3.383	456.3	3.001	\$ 118.02
12	22-Apr-17	3.659	1423.2	3.655	477.3	3.526	\$ 124.89
13	11-Apr-17	3.466	1385.3	3.319	404.3	2.585	\$ 102.28
14	7-Apr-17	3.267	1317.5	3.369	458.7	2.542	\$ 47.28
15	12-Mar-17	2.862	1229.1	2.951	439.3	2.115	\$ 52.10
16	13-Apr-17	3.553	1413.7	3.689	414.7	2.970	\$ 85.27
17	2-Apr-17	2.986	1221.2	3.114	470.3	2.777	\$ 80.78
18	1-Apr-17	2.966	1214.9	3.051	498.0	2.912	\$ 68.03
19	18-Apr-17	3.316	1303.3	3.357	551.0	3.271	\$ 32.97
20	7-Apr-17	3.291	1326.9	3.004	449.3	3.431	\$ 159.66
21	16-Apr-17	3.455	1361.6	3.414	442.3	2.819	\$ 51.54
22	16-Apr-17	3.375	1330.1	3.382	420.0	2.970	\$ 87.48
23	13-Apr-17	3.258	1295.4	3.480	436.0	3.100	\$ 61.53
24	24-Apr-17	2.968	1148.6	2.940	515.7	3.251	\$ 58.11
25	18-Apr-17	3.448	1353.7	3.086	525.7	3.659	\$ 80.04
26	10-Mar-17	2.901	1254.3	3.024	450.7	2.797	\$ 27.41
27	13-Apr-17	3.131	1244.9	2.978	477.7	3.337	\$ 71.77
<b>Average bottom 5 herds</b>							
	30-Mar-17	3.136	1286.9	3.159	470.1	3.259	\$ 17.37
<b>Overall average - pens of three</b>							
	4-Apr-17	3.270	1328.1	3.328	484.6	3.101	95.80
Standard deviation number	15.0	0.2	93.2	0.3	59.6	0.5	64.5
	32	32	32	32	32	32	32

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

The top-profit pen-of-three calves with superior genetics returned \$227.75 per head, while the bottom pen-of-three calves returned \$-15.02 per head. The average of the five top-scoring pens of steers averaged \$187.54 per head, while the average of the bottom five scoring pens of steers averaged \$17.37 per head.

For the pen-of-three competition, average profit was \$95.80 per head. The spread in profitability between the top and bottom five herds was \$170.16 per head for 2017-18 feeding period. Over the past 10 years, this spread has averaged \$166.52 per head (Table 2).

**Table 2. Dakota Feeder Calf Show Feedout Profit Spread between Top 5 and Bottom 5 herds**

Ave Feeding Profit or Loss per Head Year	Average Top 5 Herds	Average Bottom 5 Herds	Profitability Spread
2008-2009	\$ 64.79	\$ (16.93)	\$ 81.72
2009-2010	\$ 371.02	\$ 177.66	\$ 193.36
2010-2011	\$ 239.53	\$ 129.84	\$ 109.69
2011-2012	\$ 179.78	\$ 38.29	\$ 141.49
2012-2013	\$ 54.90	\$ (37.05)	\$ 91.95
2013-2014	\$ 441.30	\$ 292.37	\$ 148.93
2014-2015	\$ 188.11	\$ (114.72)	\$ 302.83
2015-2016	\$ (5.03)	\$ (205.24)	\$ 200.21
2016-2017	\$ 739.62	\$ 514.77	\$ 224.85
2017-2018	\$ 187.54	\$ 17.37	\$ 170.17
Average	\$ 246.16	\$ 79.64	\$ 166.52



**Calves consigned to the Dakota Feeder Calf Show Feedout project.**

Understanding cattle performance and profitability helps producers decide to feed cattle to harvest weight in North Dakota and also to consider genetic purchases for the cow herd.