Discovering Value in North Dakota Calves; The Dakota Feeder Calf Show Feedout Project V

Progress Report Year 2005-2006

Karl Hoppe
NDSU Carrington Research Extension Center

ABSTRACT

Cow calf producers in North Dakota are questioning the value of the calves they produce by measuring feedlot performance and carcass characteristics. The Dakota Feeder Calf Show Feedout project was developed to discover the actual value of spring-born beef steer calves, provide comparisons between herds and benchmark feeding performance. Cattle consigned to the feedout project averaged 607.6 lbs. upon delivery to the Carrington Research Extension Center Livestock Unit on October 15, 2005. After an average 202-day feeding period with no death loss, cattle averaged 1249.4 lbs. (at plant, shrunk weight). Average daily feed intake per head, as fed, was 28.3 lbs. while lbs. of feed required per lb. of gain was 8.9. Diet dry matter was 72.8%. The pen-of-three calves averaged 388 days of age at harvest. Overall pen average daily gain was 3.20 lbs. Feed cost was $0.28 per lb. and total cost of gain without interest was $0.462. The cattle were marketed over a 21-day period and marbling scores averaged 435.1 (low choice). Profit before interest expense ranged from $54.77 per head for pen-of-three cattle with superior growth and carcass traits to a $-186.42 per head for poorer performance. The feeding and carcass value of spring-born calves can be determined with participation in a feedout project.

Introduction

Determining calf value is a continuing 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. At time of bull selection, a producer must also estimate the type of animal desired by buyers 1½- 2 years before sale. Marketplace premiums are provided for calves that have exceptional feedlot performance and produce a high quality carcass. In addition, superior cost effective feeding performance is needed to justify the expense of feeding cattle past weaning. Since North Dakota feeds are low cost and climate is favorable, low feeding cost per pound of gain can be accomplished (Hoppe et al.). This feedlot project was supported to provide cattle producers with an understanding of cattle genetics and cattle feeding in North Dakota.

Materials and Methods

The Dakota Feeder Calf Show was developed for cattle producers willing to consign steer calves to a show and feedout contest. The calves were received in groups of three or four on October 15, 2005, to the Turtle Lake Weighing Station, Turtle Lake, ND, for weighing, tagging, processing and showing. The calves were evaluated for conformity and uniformity with the judges providing a discussion to the owners at the beginning of the feedout.

The calves were then shipped to the Carrington Research Extension Center for feeding. Prior to shipment, calves were treated with prophylaxis tetradure (oxytetracycline). Calves were then sorted and placed on corn-based receiving diets containing varying inclusions of flax. After a two-week adaptation period, the calves were moved on to a corn-based 80% grain diet also containing varying inclusions of flax. Cattle were weighed periodically and reports provided to the owners.

An open house was held on February 6, 2006, at the Carrington Research Extension Center Livestock Unit, where the owners reviewed the calves and discussed marketing conditions. The calves were ultrasounded for backfat and marbling on March 15, 2006, and sorted into market groups based on back fat, marbling and live weight. Sorting criteria were USDA Yield Grade 3 Choice cattle with a carcass weight less than 950 lbs. and level of flax included in the diet.

The first market group of cattle (83 head) was harvested on April 25, 2006. The second sell group (84 head) was harvested on May 16, 2006. Cattle were sold to Tyson Fresh Meats, Dakota City, NE, on a grid basis with premiums and discounts. Carcass data was collected after harvest.

Ranking in the pen-of-three competition was based on the best score obtained. Overall score was determined by adding the index score for weight per day of age (20% of score), average daily gain on test (20% of score), marbling score (20% of score), and retail product value divided by weight per day of age (40% of score). The Dakota Feeder Calf Show provided cash awards for the top placing pens of steers.

Results and Discussion

Cattle consigned to the Dakota Feeder Calf Show Feedout project averaged 607.6 lbs. upon delivery to the Carrington Research Extension Center Livestock Unit on October 15, 2005. After an average 202-day feeding period cattle averaged 1249.4 lbs. (at plant, shrunk weight). No deaths occurred during the feeding period. The early sell group (83 head) averaged 1273.7 lbs. (shrunk) at harvest. The second sell group (84 head) averaged 1225.4 lbs. (shrunk) at harvest. Average daily feed intake per head was 28.3 lbs., as fed basis, and 20.6 lbs., dry matter basis. Pounds of feed required per lb. of gain were 8.90, as fed basis, and 6.48 lbs., dry matter basis.

Overall feed cost per pound of gain was $0.280. Overall yardage cost per pound of gain was $0.078. Combined cost per pound of gain including feed, yardage, veterinary, trucking and other expenses except interest was $0.462.

The number of cattle consigned was 167 of which 129 competed in the pen-of-three contest. Cattle were not implanted during the feeding period.

The carcass characteristics were collected and used in calculating indexes for scoring. The first market group, harvested April 25, 2006, contained USDA Quality Grades at 1.2% Prime, 50.6% Choice or better (including 1.2% Certified Angus Beef), 43.4% Select and 4.8% Standard and USDA Yield Grades at 12.0% YG1, 34.9% YG2, 36.6% YG3 and 14.5% YG4. The second market group, harvested May 16, 2006, contained USDA Quality Grades at 62.5% Choice (including 5.9% Certified Angus Beef), 34.5% Select, and 3% Standard and USDA Yield Grades at 2.4% YG1, 22.6% YG2, 59.5% YG3, 14.3% YG4 and 1.2% YG5.

Carcass value per cwt was calculated by using the actual base carcass price plus premiums and discounts. Grid prices were: April 25, 2006 - $133.03 Choice YG3 base with premiums of Prime $26.80, CAB $7.55, YG1 $6.50, YG2 $2.50, and discounts of Select $-13.20, Standard $-15.50, YG4 $-10 and May 16, 2006 - $130.81 Choice YG3 base with premiums of CAB $6.91, YG1 $6.50, YG2 $2.50, and discounts of Select $-15.70, Standard $-18, YG4 $-10.

Retail product value was calculated as carcass weight, lb. * percent retail product *(((carcass value per cwt /100)/ retail product yield) / retail product markup) where retail product yield = 0.65, and retail product markup = 0.75. Percent retail product value was calculated as 0.825 - (calculated yield grade *0.05).

Results from the calves selected for the pen-of-three competition are listed in Table 1. Overall, the pen-of-three calves averaged 388 days of age and averaged 1255.1 lbs. per head at harvest. Overall pen-of-three average daily gain was 3.20 lbs. while weight per day of age was 3.16 lbs. Overall pen-of-three marbling score was 435.1 or 35.1% into low choice/small marbling category. Retail product value averaged $1357.16 per head. Retail product value divided by day of age averaged $3.48.

Table 1. Feeding performance - 2005-2006 Dakota Feeder Calf Show Feedout.

Pen	Best Three Score Total	Average Birth Date	Average Harvest Weight	Average Daily Gain	Average Weight per Day of Age	Marbling Score	Avg Retail Product Value /DA	Ave Feeding Profit or Loss / Head
1	3.492	28-Mar-05	1418	3.96	3.56	447	$4.05	$54.77
2	3.481	5-Apr-05	1264	2.96	3.29	630	$3.97	($4.15)
3	3.291	7-May-05	1208	3.06	3.37	457	$4.02	($54.53)
4	3.253	16-Apr-05	1271	3.48	3.23	507	$3.57	($8.88)
5	3.224	23-Apr-05	1306	3.62	3.56	450	$3.46	($101.81)
6	3.221	14-Apr-05	1262	3.42	3.24	507	$3.50	($29.53)
7	3.211	7-Mar-05	1354	3.37	3.27	430	$3.80	($28.21)
8	3.204	15-Mar-05	1303	3.36	3.21	473	$3.64	($30.14)
9	3.202	11-Apr-05	1258	3.10	3.21	497	$3.68	($29.32)
10	3.200	17-Apr-05	1257	3.42	3.19	523	$3.40	($16.49)
11	3.162	16-Mar-05	1334	3.13	3.24	477	$3.62	($54.56)
12	3.162	6-Mar-05	1354	3.40	3.27	417	$3.70	($35.43)
13	3.157	29-Mar-05	1350	3.46	3.45	380	$3.69	($83.23)
14	3.138	31-Mar-05	1233	3.14	3.17	380	$3.69	($50.01)
15	3.137	23-Mar-05	1359	3.60	3.30	380	$3.64	($38.81)
16	3.136	30-Apr-05	1281	3.52	3.43	440	$3.37	($74.71)
17	3.131	6-Apr-05	1292	3.27	3.37	417	$3.62	($109.30)
18	3.097	23-Mar-05	1333	3.29	3.36	333	$3.85	($92.29)
19	3.095	11-Apr-05	1258	3.22	3.27	470	$3.39	($90.02)
20	3.076	13-Mar-05	1215	3.16	2.88	510	$3.42	($16.62)
21	3.074	3-Apr-05	1255	3.12	3.24	370	$3.79	($76.87)
22	3.066	28-Mar-05	1239	3.15	3.10	500	$3.31	($87.08)
23	3.044	2-Mar-05	1312	3.24	3.13	500	$3.19	($73.04)
24	3.029	15-Apr-05	1204	3.05	3.04	460	$3.46	($29.02)
25	3.017	7-Apr-05	1273	3.26	3.16	350	$3.51	($81.08)
26	3.009	19-Mar-05	1247	3.23	3.00	453	$3.35	($41.23)
27	2.999	23-Apr-05	1254	3.27	3.23	423	$3.29	($70.83)
28	2.991	28-Mar-05	1283	3.24	3.26	350	$3.56	($134.61)
29	2.990	3-Apr-05	1205	3.17	2.96	480	$3.25	($48.65)
30	2.989	24-Mar-05	1135	2.68	2.82	553	$3.28	($95.44)
31	2.985	24-Mar-05	1277	3.30	3.11	440	$3.24	($103.05)
32	2.974	24-Apr-05	1217	3.08	3.15	417	$3.40	($94.51)
33	2.920	21-Apr-05	1220	3.07	3.13	423	$3.23	($79.56)
34	2.920	27-Mar-05	1190	2.88	3.03	360	$3.64	($124.78)
35	2.914	24-Mar-05	1274	3.19	3.05	403	$3.28	($74.60)
36	2.910	15-Mar-05	1253	2.99	3.09	343	$3.59	($130.35)
37	2.884	31-Mar-05	1230	3.07	2.99	390	$3.34	($95.61)
38	2.877	12-Apr-05	1215	3.21	3.07	323	$3.47	($103.64)
39	2.845	5-May-05	1123	3.07	2.99	480	$3.23	($83.11)
40	2.758	11-Apr-05	1205	2.98	3.02	443	$2.80	($162.71)
41	2.742	9-Apr-05	1178	2.79	3.04	343	$3.25	($186.42)
42	2.736	15-Apr-05	1091	3.02	2.76	393	$3.06	($99.58)
43	2.730	29-Mar-05	1180	2.80	2.86	387	$3.13	($137.71)
Average	3.057	3-Apr-05	1,255.135	3.205	3.165	435.116	$3.48	-$72.25
Standard Deviation	0.175	15.904	65.905	0.239	0.182	65.422	0.262	45.963
n	43	43	43	43	43	43	43	43

The highest combined index score per pen-of-three was 3.92. While the highest overall scoring pen did not place first in marbling score, the pen was first in harvest weight, average daily gain, weight per day of age, percent retail product value divided by weight per day of age, and profit. Correlation between index score total and profit was fair (r = 0.7807). Correlations between profit and average daily gain, weight per day of age, marbling score, or percent retail product value divided by weight per day of age are shown in Table 2.

Table 2. Correlation between profit and various production measures.

	Correlation coefficient
Profit and Index Score	0.7807
Profit and Average Birth Date	-0.1076
Profit and Average Harvest Weight	0.4395
Profit and Average Daily Gain,	0.5548
Profit and Weight per Day of Age	0.3224
Profit and Marbling Score	0.5398
Profit and Percent Retail Product Value divided by day of age	0.5268

Profit or loss was calculated using initial calf price as price per lb., $ = 175.3239 – (0.075966 * initial calf weight). Profit or loss accounted for initial calf price, feed, yardage, veterinary, freight, brand inspection, beef check off, ultrasound and carcass data collection costs. Interest costs on cattle or feeding expenses were not included in calculating profit or loss. Final carcass value was assessed using the actual grid pricing for the harvest group.

Overall, cattle feeding provided an $-86.26 per head loss before interest was included. However, the top profit pen-of-three calves with superior genetics returned $54.77 per head while bottom pen-of-three calves returned $-186.42 per head loss.

Implications

Calf value is improved with superior carcass performance. Feedlot performance is also important for increased weight gain and heavier carcass weights. Exceptional average daily gains, weight per day of age, marbling score and retail product value can be found in North Dakota beef herds. Feedout projects provide a source of information for cattle producers to learn about genetics and discover cattle value.

Literature Cited

Hoppe, K.F., V.L. Anderson, H. Hughes and K. Alderin. 1997. Finishing North Dakota Calves in North Dakota or Kansas - Final Report. A Report on Agricultural Research and Extension in Central North Dakota. 38:7.

Reprinted from the 2006 NDSU Carrington Research Extension Center Feedlot Research Report. Volume 29. Oct 10, 2006