

# Eastern Dakota Cattle Feedout Project IV: Discovering Value in North Dakota Calves

Progress Report Year 2007-2008

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## Abstract

The Eastern Dakota Cattle Feedout project was developed to discover the actual value of spring-born beef steer calves, provide comparisons between herds, and benchmark feeding and carcass performance for contributing North Dakota cow herds. Cattle consigned to the feedout project averaged 668.9 lbs. upon delivery to the Pipestem Feeders Feedlot, Carrington, ND, on November 29, 2007. After an average 167-day feeding period with 2.67% death loss, cattle averaged 1217.0 lbs. (at plant, shrunk weight). Average daily feed intake per head, as fed, was 30.3 lbs. while pounds of feed required per pound of gain were 10.1. Diet dry matter was 65%. The calves averaged 423 days of age at harvest. Overall pen average daily gain with death loss included was 3.00 lbs. Feed cost was \$0.585 per pound and total cost of gain without interest was \$0.846. The cattle were harvested on April 18, May 16 and June 3, 2008. Marbling scores averaged 421.9 (low choice). Overall loss before deducting interest expense per head was \$-33.92. Average profit before interest expense for the top five groups of six head of calves with superior growth and carcass traits was \$61.84 per head while bottom five groups of poorer performing calves averaged \$-61.65 loss per head. The wide range in profitability indicates the diversity of the cattle consigned by North Dakota cattle producers into a feedout project.

## Introduction

Determining calf value is a continuing experience for cow calf producers. A companion project, the Dakota Feeder Calf Show, was developed to identify differences in cattle fed to finish under similar conditions. The Eastern Dakota Cattle Feedout commences 1½ months later than the Dakota Feeder Calf Show feedout. Previous trials (Hoppe et al., 1997) support cost-effective feeding of cattle to finish in North Dakota. These feedout projects were developed to explore differences in feedlot and carcass performance in cattle fed in North Dakota.

## Materials and Methods

The Eastern Dakota Feedout Project was developed for cattle producers willing to consign steer calves to a feedout project where cattle are comingled. The calves were received in groups of six or more calves on either November 28, 2007, at Lake Region Livestock Auction, Devils Lake, ND, or November 29, 2007, at Pipestem Feeders feedlot, Carrington, ND. The calves were individually weighed, ear tagged, vaccinated and treated with an antiparasiticide.

The calves were transitioned to a finishing diet (80% grain) through a series of step-up rations containing increased amounts of grain. After a six-week step-up period, the calves were moved on to an 80% grain diet.

An open house was held on February 14, 2008, at the NDSU Carrington Research Extension Center Livestock Unit, Carrington, ND, and Pipestem Feeders where the owners reviewed the calves and discussed marketing conditions. The calves were weighed every 6-8 weeks and updated performance reports were sent to the owners.

Cattle (245 head) were harvested at Tyson Fresh Meats, Dakota City, NE, using a grid basis with premiums and discounts. Carcass data was collected after harvest. Ten head were not harvested due to small cattle size and returned to the owner.

Consignee meetings were held in Napoleon, Park River and Devils Lake, ND, to discuss cattle performance after the project was completed.

### Results and Discussion

Cattle consigned to the Dakota Feeder Calf Show Feedout project averaged 665.2 lbs. upon delivery to the Pipestem Feeders Feedlot, Carrington, ND, on November 29, 2007. After an average 167-day feeding period cattle averaged 1198.8 lbs. (at plant, shrunk weight). Seven deaths or 2.67% death loss occurred during the feeding period. Average daily feed intake per head was 30.3 lbs., as fed basis, and 19.7 lbs., dry matter basis. Pounds of feed required per pound of gain were 10.1, as fed basis, and 6.5 lbs., dry matter basis.

The number of cattle consigned was 262. Ten head were removed from the feedout prior to harvest and returned to the owner due to low beginning weight and reduced feedyard performance. Seven head died due to respiratory infections. Cattle were implanted with Revalor IS 42 days after arrival at the feedyard.

Overall feed cost per pound of gain was \$0.585. Overall yardage cost per pound of gain was \$0.083. Combined cost per pound of gain including feed, yardage, veterinary, trucking and other expenses except interest was \$0.846. Trucking to Tyson Fresh Meats, Dakota City, NE averaged \$48.04 per head.

Cattle were ultrasounded to determine backfat and marbling on April 8, 2008. Cattle were sorted by weight and backfat thickness and harvested on April 18, May 15, or June 3, 2008. The carcass characteristics were collected after harvest (Table 1).

**Table 1. Carcass Characteristics and Grid Prices for EDFP Cattle.**

Harvest date	8-Apr-08		15-May-08		3-Jun-08	
	%	\$/cwt*	%	\$/cwt	%	\$/cwt
carcass						
Prime	2.30	13.43	0.00	11.23	0.00	10.68
CAB	18.60	2.40	8.80	4.75	3.90	3.50
Choice	58.20	0.00	57.60	0.00	44.80	0.00
Select	18.60	-2.32	29.60	-3.29	43.40	-4.41
Standard	2.30	-13.22	4.00	-10.61	7.90	-12.56
YG 1	2.30	4.00	13.60	4.00	10.50	4.00
YG 2	18.60	2.00	56.00	2.00	68.50	2.00
YG 3	69.80	0.00	30.40	0.00	19.70	0.00
YG 4	9.30	-13.50	0.00	-13.50	1.30	-13.50
YG 5	0.00	19.33	0.00	19.33	0.00	19.33
No. of head	43.00		125.00		77.00	
Base price		143.83		148.10		149.78

\*discount or premium with grid pricing

Cattle performance was reported individually to the consignees. Average cattle performance by consignee is reported in Tables 2 and 3.

**Table 2. Cattle performance by herd, Eastern North Dakota Feedout 2007-2008.**

	Average Birth Date	Average Delivery wt	Average Harvest wt	Average ADG	Average WDA	Average Dressing %	Average carcass wt	Average \$/cwt	Average
Herd 1	15-Feb-07	821.2	1,340.5	3.09	2.95	63.4%	849.7	\$ 151.58	\$ 1,287.62
Herd 2	13-Mar-07	744.8	1,241.7	2.79	2.84	65.9%	818.5	\$ 149.70	\$ 1,225.33
Herd 3	21-Feb-07	780.6	1,233.4	2.76	2.80	64.1%	790.5	\$ 150.23	\$ 1,188.09
Herd 4	15-Mar-07	731.0	1,408.7	3.62	3.17	62.8%	883.7	\$ 150.20	\$ 1,326.68
Herd 5	17-Mar-07	565.3	1,130.2	3.02	2.55	66.3%	747.7	\$ 152.48	\$ 1,140.66
Herd 6	30-Jan-07	691.4	1,221.1	3.23	2.63	64.7%	789.3	\$ 147.92	\$ 1,168.13
Head 6	17-Feb-07	732.5	1,266.3	3.18	2.85	62.4%	789.7	\$ 150.03	\$ 1,184.70
Herd 7	22-Jan-07	751.5	1,273.2	3.41	2.74	62.8%	799.0	\$ 147.53	\$ 1,177.95
Herd 8	2-Apr-07	573.7	1,227.2	3.49	2.87	63.7%	780.3	\$ 152.26	\$ 1,187.82
Herd 9	14-Mar-07	789.2	1,247.6	2.73	2.93	62.8%	782.5	\$ 147.42	\$ 1,155.91
Herd 10	1-Mar-07	682.5	1,223.0	3.24	2.78	62.6%	765.2	\$ 150.49	\$ 1,151.20
Herd 11	5-Mar-07	621.1	1,182.6	3.18	2.66	63.4%	748.8	\$ 152.52	\$ 1,141.98
Herd 12	8-Apr-07	601.3	1,190.0	3.20	2.84	62.5%	742.1	\$ 152.01	\$ 1,128.28
Herd 13	3-Mar-07	698.0	1,345.8	3.81	3.06	60.2%	809.3	\$ 145.98	\$ 1,178.99
Herd 14	15-Mar-07	635.9	1,127.9	3.01	2.67	62.3%	703.9	\$ 149.84	\$ 1,055.67
Herd 15	21-Feb-07	716.4	1,242.4	3.73	2.95	61.7%	765.7	\$ 143.50	\$ 1,098.80
Herd 16	19-Apr-07	610.3	1,161.7	3.42	3.02	62.3%	723.3	\$ 148.47	\$ 1,073.99
Herd 17	16-Mar-07	662.3	1,247.7	3.43	2.91	60.4%	751.7	\$ 149.08	\$ 1,121.93
Herd 18	30-Mar-07	757.5	1,278.0	2.97	3.04	62.3%	795.0	\$ 149.66	\$ 1,188.90
Herd 19	1-Apr-07	617.5	1,153.7	3.19	2.82	61.9%	713.7	\$ 149.53	\$ 1,067.09
Herd 20	24-Mar-07	549.6	1,111.8	3.54	2.72	62.4%	693.7	\$ 149.46	\$ 1,038.72
Herd 21	7-Apr-07	511.3	1,133.7	3.66	2.79	61.5%	697.1	\$ 150.97	\$ 1,052.63
Herd 22	26-Mar-07	723.9	1,160.5	3.10	2.99	61.8%	717.2	\$ 143.35	\$ 1,026.60
Herd 23	17-Apr-07	587.5	1,129.7	3.12	2.84	63.2%	713.8	\$ 148.58	\$ 1,060.61
Herd 24 - returned to ranch	16-Mar-07	402.3							
Herd 25 -- deads removed	29-Mar-07	757.5	1,195.4	2.82	3.03	62.1%	741.8	\$ 147.85	\$ 1,097.83
Herd 26 -- deads removed	12-Apr-07	678.6	1,147.2	2.82	2.89	62.4%	714.4	\$ 150.60	\$ 1,076.18
Herd 27 -- deads removed	16-Mar-07	735.8	1,239.3	2.85	2.82	62.8%	775.6	\$ 147.77	\$ 1,146.88
Overall Average	15-Mar-07	668.95	1217.04	3.20	2.86	62.76%	763.08	\$ 149.22	\$ 1,138.86
Overall Count	28	28	27	27	27	27	27	27	27
Overall Standard Deviation	21.95	95.91	73.53	0.31	0.14	0.01	47.07	2.36	73.09
average top 5 herds	5-Mar-07	728.59	1,270.88	3.06	2.86	64.51%	818.01	\$ 150.84	\$ 1,233.67
Average middle 5 herds	12-Mar-07	678.43	1,237.83	3.23	2.85	62.28%	769.57	\$ 149.68	\$ 1,151.27
Average bottom five herd with no deads	3-Apr-07	597.95	1,137.88	3.32	2.83	62.16%	707.10	\$ 148.38	\$ 1,049.13
Average bottom five herd with deads	26-Mar-07	643.55	1,193.96	2.83	2.91	62.41%	743.92	\$ 148.74	\$ 1,106.96

**Table 3. Cattle performance by herd, Eastern North Dakota Feedout 2007-2008.**

	Average Backfat	Average REA	Average YG Calculate	Average Yield Grade	Average Marbling Number	Pen Profit (loss) Average
Herd 1	0.36	<b>14.00</b>	2.64	2.15	415.38	110.80
Herd 2	0.40	<b>13.82</b>	2.72	2.33	410.00	67.42
Herd 3	0.41	<b>14.07</b>	2.50	2.17	443.33	57.00
Herd 4	0.34	<b>14.30</b>	2.60	2.17	380.00	48.52
Herd 5	0.43	<b>13.30</b>	2.67	2.50	436.67	25.43
Herd 6	0.39	<b>14.27</b>	2.37	2.17	376.67	23.55
Head 6	0.43	<b>13.25</b>	2.84	2.39	441.11	21.06
Herd 7	0.59	<b>13.23</b>	3.28	3.17	513.33	19.90
Herd 8	0.33	<b>12.77</b>	2.65	2.17	428.33	12.53
Herd 9	0.47	<b>12.70</b>	3.06	2.67	376.67	9.88
Herd 10	0.35	<b>14.16</b>	2.21	2.06	420.00	-4.65
Herd 11	0.34	<b>13.17</b>	2.43	2.15	447.69	-10.48
Herd 12	0.37	<b>13.19</b>	2.51	2.27	431.33	-22.16
Herd 13	0.53	<b>12.72</b>	3.29	2.83	423.33	-41.51
Herd 14	0.37	<b>12.89</b>	2.46	2.18	453.64	-47.46
Herd 15	0.64	<b>12.73</b>	3.43	3.17	586.67	-51.37
Herd 16	0.44	<b>13.30</b>	2.51	2.30	407.00	-53.23
Herd 17	0.36	<b>13.57</b>	2.40	2.17	405.00	-54.14
Herd 18	0.23	<b>14.79</b>	1.82	1.45	332.73	-54.64
Herd 19	0.45	<b>12.70</b>	2.73	2.50	385.00	-58.22
Herd 20	0.43	<b>12.50</b>	2.65	2.50	455.00	-58.86
Herd 21	0.32	<b>12.68</b>	2.40	2.29	436.25	-60.54
Herd 22	0.62	<b>12.89</b>	3.12	3.00	508.89	-62.83
Herd 23	0.34	<b>12.78</b>	2.43	2.08	380.00	-67.79
Herd 24 - returned to ranch						-133.72
Herd 25 -- deads removed	0.36	<b>14.02</b>	2.23	2.00	412.00	-157.90
Herd 26 -- deads removed	0.29	<b>12.82</b>	2.31	1.80	366.00	-183.24
Herd 27 -- deads removed	0.32	<b>13.96</b>	2.23	1.89	350.00	-216.48
Overall Average	0.40	<b>13.35</b>	2.61	2.32	423.04	-33.68
Overall Count	27.00	<b>27.00</b>	27.00	27.00	27.00	28.00
Overeal Standard Deviation	0.10	0.64	0.37	0.39	53.06	74.85
average top 5 herds	0.39	13.90	2.63	2.26	417.08	61.84
Average middle 5 herds	0.41	13.19	2.70	2.40	419.81	-13.78
Average bottom five herd with no deads	0.43	12.71	2.67	2.47	433.03	-61.65
Average bottom five herd with deads	0.32	13.60	2.26	1.90	376.00	-172.84

Overall, calves averaged 422.7 days of age and averaged 1217.04 lbs. per head at harvest. Overall average daily gain was 3.20 lbs. while weight per day of age was 2.86 lbs. Overall pen-of-three marbling score was 423.0 (low choice/small marbling).

Profit or loss was calculated using initial calf price as price per 100 lbs., \$ =175.77703– (0.10246 \* initial calf weight). Profit or loss (-) accounted for initial calf price, feed, yardage, veterinary, freight, brand inspection, beef checkoff, 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 a \$-33.68 per head loss before interest expense was deducted. However, the top profit herd of calves returned \$110.80 per head while the bottom pen of calves with no dead loss returned \$-67.79 per head loss. The bottom pen of calves with death loss included returned \$(216.48) per head loss.

The average of the top five pens of steers averaged \$61.84 per head while the average of the bottom five pens of steer with no deads \$-61.65 per head and with deads \$-172.84 per head.

### **Implications**

Calf value is unknown until cattle are fed to finish. Feedlot performance is 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.

### **Citations**

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. ◆