

# ECONOMICS AND PRODUCTION FACTORS ASSOCIATED WITH BACKGROUNDING BEEF CALVES IN EAST-CENTRAL NORTH DAKOTA

**Steve Metzger**

*Carrington Area Farm Business Management Program*

## **Introduction**

As today's beef producers enjoy the higher returns associated with the present segment of the beef cattle cycle, consideration should be given to methods by which the returns of raising beef cattle can be further extended. Many producers today may be able to strengthen their cash flow position by becoming either involved for the first time or simply further involved in the process of backgrounding beef cattle. Producers who do become involved in backgrounding beef cattle need to be aware of the production and economic figures associated with this phase of the beef cattle business and how their individual numbers fit within this industry.

## **Procedure**

Data for this study was compiled through the Carrington Area Farm Business Management Program in conjunction with the North Dakota Farm Business Management Education Program. The Carrington program is one of 14 farm business management programs in the state wide North Dakota program and one of 6 programs located within what is known as Region III, that area including the south-eastern one-fourth of the state, up to the western edge of the Red River Valley. The Carrington Area program includes farms and ranches located primarily in the counties of Eddy, Foster, Griggs, Sheridan, Stutsman, and Wells.

The beef backgrounding information for this study was drawn from the total farm and enterprise data, collected during the years 1996 through 2005. The minimum number of lots of backgrounded calves involved in any one year was 12 with a maximum of 23. The minimum number of calves included in any one year was 1,260 with the maximum being 2,553 head. A total of 159 lots with 17,654 calves were included over the 10 years.

The enterprise data collected for backgrounding followed the normal production cycle. The enterprises were begun when the calves were weaned and concluded when the calves were sold and/or transferred out into a replacement heifer or finishing calf enterprise. The time frame was typically from about November of one year until approximately mid-February or early March of the following year.

While producers were encouraged to use sale or purchase weight slips whenever possible, it must be acknowledged that some producers did not weigh all calves when they were entered into the backgrounding enterprises and used estimated weights, based off of calves that were sold or transferred out. For calves that were kept and entered into breeding or finishing enterprises at the conclusion of the backgrounding enterprise, weights were often based off the herdmate calves that were sold. This does lead to some judgmental calls on calf weights. Feed quantities, feed values and other expenses were recorded for the individual enterprises and are part of the total calculations for these backgrounding enterprises.

## **Results and Discussion**

The average number of calves involved per year was 1,765. The average amount spent for feed, as shown in Table 1, was \$30.69 per hundred-weight (cwt.) of production or \$55.70 per head. Of the per head amount, \$38.51 was for concentrates, protein supplements, minerals, and vitamins. The balance of \$17.19 was used for forages including grass hay, alfalfa, stover, straw, and others. Veterinary costs and livestock supplies accounted for an average of \$4.91 per head while other direct costs including marketing, fuel, repairs, bedding, and operating interest accounted for \$13.97 per head or \$7.69 per cwt. of production. Overhead costs averaged \$4.26 per head or \$2.34 per cwt. of production.

The total average cost of production for a hundred pounds of gain averaged \$43.41 for the 10-year period. The lowest cost of production of \$38.42 occurred in 2004 and the highest cost of production was in 2003 when it reached \$50.59 per cwt. produced. Since this study was seeking the cost of production it did not include the cost of the calf when it was purchased or transferred into the backgrounding enterprise. Only the additional weight gain, expenses, and increase in total value are considered here. The average weight per calf entering the backgrounding enterprise was 541 lbs. and varied from an annual low of 518 lbs. to a high of 580 lbs. The average sale or transfer out weight for the 10-year period was 722 lbs. with an average annual range from 682 lbs. in 1996 to 767 lbs. in 2005. The data revealed a trend towards heavier weaned calves and towards feeding backgrounded calves to a heavier weight.

The 10-year average daily gain was calculated at 1.83 lbs. per day with a feed conversion rate of 10.91 pounds of feed per lb. of gain. The 10.91 lbs. average feed conversion rate reflected 5.49 lbs. of concentrates and 5.42 lbs. of forages. Over the 10-year period, the concentrate to forage ratio was quite stable and usually did not vary more than 10% from a 50-50 ratio. With a range of (\$-16.89) to \$68.92 per head, a 10-year average net return of \$21.00 per head or \$11.97 per cwt. was achieved.

For comparative purposes, 10 years of net return per cow for cow-calf producers in the program, are also listed. The listed net return per cow is the net return of the prior year, the year when the backgrounded calves were actually weaned. As noted in Table 1 the 10-year average net return for cow-calf operators, many of whom are the same operators that were involved in the backgrounding study, was \$56.20 per cow.

**Table 1. Backgrounded Calves 1996-2005, Production and Economic Factors.**

Item	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	10 Year Tot.or Avg
Number of Lots	15	17	19	23	19	15	14	12	13	12	Total 159
Total No. Calves	1,260	1,326	1,748	2,553	2,204	1,710	2,086	1,380	1,911	1,476	Total 17,654
Average Weight In (Lbs.)	550	543	525	522	540	519	518	580	549	565	Average 541
Average Value In \$	310.15	320.14	424.77	377.14	497.50	510.70	483.14	503.51	603.76	670.97	470.18
Average In Value/Cwt.	56.391	58.958	80.909	72.249	92.13	98.401	93.27	86.812	109.97	118.76	86.91
Average Gain/Head(Lbs)	132	161	181	186	163	193	214	179	194	202	181
Daily Gain per calf (Lbs.)	1.72	1.69	1.96	1.72	1.66	1.60	1.83	1.83	2.13	2.14	1.83
Average Weight Out(Lbs)	682	704	706	708	703	712	732	759	743	767	722
Gross Income/Head \$	380.70	468.43	536.80	497.45	591.51	601.33	571.86	576.95	688.89	786.32	570.02
Average Value/Cwt. \$	55.82	66.54	76.03	70.26	84.14	84.46	78.12	76.01	92.72	102.52	78.99
Gross Return/Head \$	70.55	148.29	112.03	120.31	94.01	90.63	88.72	73.44	85.13	115.35	99.84
Direct Costs/Cwt. \$											
Concent., S-P-M \$	21.45	25.01	19.96	18.60	17.81	20.15	20.17	29.85	19.71	19.53	21.22
Forages \$	10.05	11.98	8.44	10.47	9.37	10.36	7.99	7.59	8.22	10.23	9.47
Vet. And Supplies \$	2.31	2.79	2.49	2.09	3.05	2.07	2.63	3.20	2.72	3.57	2.69
Other Direct Costs \$	7.88	7.60	7.16	7.73	9.82	8.41	7.71	7.37	5.25	8.00	7.69
Total Direct Costs/Cwt.\$	41.69	47.38	38.05	38.89	40.05	40.99	38.50	48.01	35.90	41.33	41.07
Overhead Costs/Cwt. \$	1.77	1.93	1.53	2.28	3.47	2.70	2.27	2.58	2.52	2.30	2.34
Total Costs/Cwt. Prod. \$	43.46	49.31	39.58	41.17	43.52	43.69	40.77	50.59	38.42	43.63	43.41
Gross Return/Cwt. \$	46.84	92.13	61.81	64.57	57.81	46.95	41.45	41.13	43.89	57.24	55.38
Over Calf Cost											
Net Return/Cwt.Prod'n\$	3.38	42.82	22.23	23.40	14.29	3.26	0.68	(9.46)	5.47	13.60	11.97
Total Costs/Head \$	65.46	79.37	71.73	76.72	70.77	84.33	87.27	90.33	74.52	87.94	78.84
Net Return/Head \$	5.09	68.92	40.30	43.59	23.24	6.30	1.45	-16.89	10.61	27.41	21.00
Lbs. Concent./Lb. gain	5.11	5.65	4.74	5.98	5.92	5.54	5.31	6.57	4.59	5.47	5.49
Lbs. Forage/Lb. gain	5.52	6.92	4.53	5.92	5.39	5.72	4.84	4.80	4.72	5.86	5.42
Lbs. Feed/Lb. gain	10.63	12.57	9.27	11.90	11.31	11.26	10.15	11.37	9.31	11.33	10.91
Feed Cost/Cwt. gain \$	31.52	36.98	28.40	29.08	27.19	30.51	28.16	37.44	27.92	29.76	30.69
Feed Cost/Head \$	47.47	59.52	51.49	54.18	44.21	58.89	60.27	66.85	54.16	59.98	55.70
Net Return /Cow for \$ prior yr.Cow-Calf Prod'n.	(51.00)	(82.46)	(4.65)	(9.73)	61.27	89.98	71.18	106.07	156.47	224.89	56.20

\*Source: Carrington Area Farm Financial and Enterprise Analysis Reports, 1996-2005

### Implications

Two concerns that should be addressed in backgrounding are feed conversion and marketing. Segregating calves based on sex and/or calf size can enhance feed conversion. Calves with the potential to create additional pounds and profits should not be held back because they are fed a ration designed to grow out replacement heifers in the same lot or pen. The other concern that needs to be addressed is that of marketing. Futures and options, as well as cash-forward contracting, are tools available to help producers take the price risk out of backgrounding and feeding cattle. Futures and options can also be used to lock in feed prices, thus taking the risk out of the largest expense, after the value of the calf itself.

As beef producers continue to seek out methods of gaining additional dollars and profits for their efforts, more attention may well be paid to backgrounding calves as a method of creating additional income. For many producers, backgrounding calves is a natural continuation of the beef growing process. The feeding of healthy weaned calves is an enterprise that can be completed with a minimum amount of labor and overhead expense and in many instances can be contracted out to commercial feedlots. Backgrounding is an enterprise that can be short term or continued on into a full beef-finishing project as the market dictates. By addressing these concerns, beef producers may be able to enhance their profitability and thus their chances for success in their farming or ranching operation.

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