

Alternative Production/Marketing Strategies for the 2001 Calf Crop

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Backgrounding 400-pound calves, putting on at least 350 pounds with a relatively high rate of gain, offers the best opportunity for backgrounding profits with limited downside risk. The return for backgrounding heavier calves (550 pounds starting weight) is in line with long term returns to backgrounding this type of animal. The higher rates of gain result in more favorable returns. Backgrounding at a low rate of gain is projected to result in significant negative returns.

Wintering 400-pound animals at a low rate of gain and returning them to pasture to be marketed at 825 pounds in late summer is projected to result in reasonable returns for labor, management and risk. This strategy delays marketing for nine months thereby increasing the uncertainty relative to other strategies evaluated.

Weaning represents the cow-calf producer's harvest. As with any other enterprise, the producer has more than one choice as to when and how to market this production following harvest. These alternatives include:

- Sell at weaning
- Backgrounding
- Wintering and returning to pasture
- Finishing with retained ownership

The alternatives of backgrounding, wintering and returning to pasture and finishing involve retained ownership. The decision objective is to determine whether retaining ownership will increase returns to labor, management, and facilities. Retained ownership could involve the cow-calf producer taking the animal all the way to slaughter in his own feedlot. More likely, however, would be the situation of the cow-calf producer completing the backgrounding or wintering phase in his own lot and then moving the animals into a custom lot for finishing. Another possibility could involve the use of a custom lot for both the backgrounding and finishing phase.

Profit Potential

The justification for considering retained ownership is the opportunity to capture a larger part of the potential profit available from all phases of the beef production cycle. Profit refers to return over all costs including a fair market charge for noncash costs such as the owner's labor, management, and equity in facilities. To simplify, we will use the word profit to mean profit plus returns to labor, management and facilities.

Three phases of the production cycle of a beef animal are the calf, backgrounding, and finishing phases. Now assume that a given amount of potential profit exists through each of the three phases. Therefore, the profit potential constitutes the total of all three phases. The rationale for retained ownership is for the original owner (cow-calf producer) to obtain the potential

profit from more than just the first phase. However, if profitability was a sure thing, most cow-calf producers would retain ownership all the way to slaughter.

Making the decision on retained ownership more difficult is that not only can the total profit potential change, but also the profit may move from one phase of the production cycle to another. This occurs due to competition for the available supply of feeder cattle relative to the overall price level of finished animals. In addition, farmers and ranchers are operating under conditions of uncertainty. It is important to remember that the longer the investment in the animal is at risk, the greater the chance for adverse conditions to occur, which could reduce or eliminate the potential profit.

Partial Budget

After weaning, the choice of alternatives should be based on the prospects of increasing returns to labor, management and facilities. Profitability, or the lack of it, up to the time of weaning should not influence this decision.

This is an example of a partial budgeting problem. The steps in the decision-making process are straight forward. The difficulty lies in the fact that a price in the future and the performance of the animals during the feeding period must be estimated.

A partial budget estimates the change in net income derived from subtracting additional costs plus reduced receipts from additional income plus reduced costs. If the starting point for evaluating marketing alternatives is weaning time, then we would not be concerned with reduced receipts or reduced costs, only additional income and additional costs.

In this case, the change in net income refers to change in returns to labor, management and facilities. The decision to retain ownership beyond the time of weaning assumes that the end result will be a greater return for inputs of labor, management and facilities than if the calves were sold at weaning.

Calculating the Additional Income Side of the Partial Budget

The first step in calculating the additional income from retaining ownership is to determine the value of the calf at weaning. This is the cash price times the weight less any costs of marketing the animal.

Next it is necessary to determine the length of time the producer wishes to retain ownership. Will it be all the way through the finishing phase, just through the backgrounding phase, or is the intention to winter the animals and return them to grass in the spring? Once this has been determined, then the weight of the animals at the end of that period must be estimated. Past experience is helpful in this estimation. Various computer programs are available that simulate growing conditions and are quite accurate at estimating rate of gain.

The most difficult part of determining the potential for additional income is to project the price at the end of the period of retained ownership. Sources of information include outlook information from university specialists, private marketing analysts, seasonal price patterns, and deferred contracts months in the future market. If forward pricing tools such as cash contracts, futures or options offer the potential to “lock in” a favorable price, much of the uncertainty can be eliminated. The risk is then reduced to the degree of accuracy involved in estimating the basis, in the case of futures or options, and production costs. Basis refers to the difference between the local cash price and nearby futures contract value.

The value at the end of the period of retained ownership would be calculated by multiplying the expected weight times the most likely price and subtracting any marketing costs. The beginning value is then subtracted from the final value to determine the best estimate of additional income from retaining ownership.

Calculating the Additional Cost Side of the Partial Budget

Calculating the additional costs associated with retained ownership is the next step in analyzing the potential for profit. It is important to differentiate the variable and fixed costs for this analysis. Any cost that will be incurred at the same level, whether the calves are sold at weaning or retained for some period of time, is a fixed cost and should not be included in this calculation. Examples would be labor and management of the owner-operator, unpaid family labor, and ownership costs of buildings and equipment.

Feed is likely to be the largest variable cost that applies. The quantity consumed is important as well as the value. The value used should be fair market value, in other words, what a producer must pay for purchased feed delivered to the farm or what someone else is willing to pay for home-raised feeds. With home-raised feeds, market value is often overestimated. If the market price is below the cash cost of production, an evaluation of whether or not to produce the feed is needed. However, for feed on hand, that evaluation does not apply.

All other variable costs are relatively easy to price but may be difficult to quantify. These costs would include veterinary and medicine, fuel, electricity, repairs, hired labor, death loss, interest on feed, and other variable costs plus interest on the beginning value of the calf.

In the case of retaining ownership in a custom feedlot, a common method of charging would be to sell feed at market price plus charge a yardage fee to cover all other variable costs. The yardage fee would include a charge for labor and management in the custom lot. The advantage of keeping the animals in one's own lot is to not pay the charge for labor and management to someone else.

Deciding Whether or Not to Retain Ownership

The decision concerning selling at weaning or retaining ownership and for how long should be based on the potential for profit calculated from the procedure just described. It would be apparent that this decision should not be based solely on the price or availability of feed or the price of calves at weaning. Rather, the net result after considering all the interrelated factors is what should determine the marketing alternative.

It is useful to look at the impact that the major factors such as feed price, beginning value and ending value have on this decision. Feed prices are directly affected by availability. Since feed makes up a major portion of the added cost of retained ownership, it has considerable influence in the calculation. As this cost increases, the total profit potential decreases. Also, the percent of the total profit going to each phase of production changes.

On the additional revenue side, the net increase will be the difference between the beginning and ending values. It should be apparent that if the price of calves at weaning is bid up relative to the value of feeders and / or slaughter cattle, the potential profit will change and more of the total potential profit will go to the calf phase of production. Consequently, the potential benefit of retained ownership through additional stages of production is reduced. If calf prices are low relative to feeder and / or slaughter prices, the reverse is true.

It is important to have an understanding of the interrelationship of all the factors that affect the outcome. Focusing too much attention on any one factor will distort the picture and increase the chances of foregoing potential profit.

Situation for the 2001 Calf Crop

Following are several budgets for backgrounding 2001 crop calves and one for wintering and returning to grass in 2002. Included with each budget is the ration used in preparing this analysis. These budgets should be used for comparison only. Individual producers should prepare their own budgets using their own inputs and values in order to make an informed decision. These budgets indicate the potential for increasing returns to labor, management and risk through retained ownership for the 2001 calf crop. However, there is considerable variability in returns for the alternative strategies, and with some alternatives the return may not justify the risk.

Producers weaning 550-pound steers can expect to realize an additional \$26 (Table 2) to \$35 (Table 1) per head for their labor, management and risk if they choose to add 200 pounds to these steers and market them 2.5 to 3 months after weaning. The expected prices used in the analysis are \$90 per cwt. for 550-pound steers and \$82 per cwt. for 750-pound steers. Another way to evaluate the benefit from backgrounding these steers is, if sold at weaning, the producer would have about \$480 per steer sold to apply to farm and ranch expenses and family living costs. If these steers are backgrounded the amount available to apply to the same set of expenses would be \$506-\$515 per steer after paying the additional costs associated with backgrounding.

The profitability of backgrounding steers weighing 400 pounds varies greatly by the ration fed. If these steers are backgrounded to 750 pounds, with a rate of gain of 2.36 pounds per day for 150 days, the return to labor, management and risk for backgrounding is about \$50 per head (Table 3). This would provide the cow-calf producer \$453 per steer to cover farm and ranch expenses and family living costs as opposed to \$403 if the calf is sold at weaning.

Another alternative examined is starting with the same 400 pound steer but feeding it a lower energy ration, gaining only 1.28 pounds per day for 200 days (Table 4). Sale weight for this strategy

Table 1. BACKGROUNDING 550 LB. STEERS — HIGH RATE of GAIN

Weaning weight	550 lbs.	
Average Daily Gain	2.77 lbs.	
Days on Feed	72	
Market Weight	749 lbs.	
Projected Selling Price	\$82.00 per cwt.	
Total Income		\$614.54
Beginning Value	\$90.00 per cwt.	
minus shrink if sold	3 percent	\$480.15
Gross Margin		\$134.39
Feed Cost	\$0.65 per day	\$46.67
Return Over Feed Cost		\$87.72
Interest on Beginning Value	9 percent	\$8.52
Interest on Feed, Vet & Med	9 percent	\$0.50
Vet. and Med.		\$10.00
Lot Cost	\$0.10 per day	\$7.20
Trucking (additional)	\$0.75 cwt.	\$1.50
Shrink	3 percent	\$18.44
Death Loss	1 percent	\$6.15
Direct Cost Subtotal		\$52.30
Return to Labor, Management and Risk		\$35.41

Ration for Backgrounding – 2.77 lbs. ADG

Feed	Price	Ration % as fed	Lb/hd/day as fed
Alf-grass hay	\$55.00	24.7%	5.00
Corn grain	\$1.65	71.7%	14.50
Limestone	\$110.00	0.5%	0.10
Sunflower meal	\$180.00	3.0%	0.60
TM salt	\$190.00	0.1%	0.024
Vit ADE premix	\$1.00	0.0%	0.009
Ration Cost per day	\$0.65		20.2

is about 650 pounds. This strategy results in a loss of about \$47 per head for labor, management and risk. In other words, the cow-calf producer ends up with \$47 less cash available for farm and ranch expenses and family living costs after feeding the calf all winter than would have been available at weaning in the fall.

The final strategy analyzed wintering 400-pound calves at weaning on the same low energy winter ration and returning the calves to grass for 2.5 months (Table 5). Final sale weight is expected to be 825 pounds. Rate of gain assumed on pasture is 2.25 pounds per day. Projected sale price in July is \$85 per cwt. This alternative returns about \$48 per steer for labor, management and risk.

Table 2. BACKGROUNDING 550 LB. STEERS — MEDIUM RATE of GAIN

Weaning weight	550 lbs.	
Average Daily Gain	2.15 lbs.	
Days on Feed	93	
Market Weight	750 lbs.	
Projected Selling Price	\$82.00 per cwt.	
Total Income		\$614.96
Beginning Value	\$90.00 per cwt.	
minus shrink if sold	3 percent	\$480.15
Gross Margin		\$134.81
Feed Cost	\$0.56 per day	\$51.68
Return Over Feed Cost		\$83.13
Interest on Beginning Value	9 percent	\$11.01
Interest on Feed, Vet & Med	9 percent	\$0.71
Vet. and Med.		\$10.00
Lot Cost	\$0.10 per day	\$9.30
Trucking (additional)	\$0.75 cwt.	\$1.50
Shrink	3 percent	\$18.45
Death Loss	1 percent	\$6.15
Direct Cost Subtotal		\$57.12
Return to Labor, Management and Risk		\$26.02

Ration for Backgrounding – 2.15 lbs. ADG

Feed	Price	Ration % as fed	Lb/hd/day as fed
Alfalfa hay	\$55.00	27.7%	7.00
Corn grain	\$1.65	31.7%	8.00
Corn Silage	\$18.00	39.6%	10.00
Sunflower meal	\$100.00	0.8%	0.20
TM salt	\$190.00	0.1%	0.024
Vit ADE premix	\$1.00	0.0%	0.009
Ration Cost per day	\$0.56		25.2

The primary factors affecting the price of weaned calves and yearlings are: 1) feed price, 2) price of slaughter cattle, and 3) availability of calves and yearlings. The size of the U.S. cow herd has been reduced, reducing the number of calves available. The expansion phase of the cattle cycle has not yet started, however. As a result, heifers are still being fed rather than retained as replacements for the cow herd, so the competition for feeders has not yet reached a feverish pitch. Feed prices have increased marginally from last year but are still low enough to permit feedlot operators to bid aggressively for available feeders. Feed prices are a significant factor in the level of prices being offered for feeders today. The price of slaughter cattle is the anchor holding down the price of feeders. Current cash slaughter prices of \$65-67

**Table 3. BACKGROUNDING 400 LB. STEERS —
MEDIUM RATE of GAIN**

Weaning weight	400 lbs.	
Average Daily Gain	2.36 lbs.	
Days on Feed	150	
Market Weight	754 lbs.	
Projected Selling Price	\$82.00 per cwt.	
Total Income		\$618.28
Beginning Value	\$104.00 per cwt.	
minus shrink if sold	3 percent	\$403.52
Gross Margin		\$214.76
Feed Cost	\$0.62 per day	\$92.57
Return Over Feed Cost		\$122.19
Interest on Beginning Value	9 percent	\$14.92
Interest on Feed, Vet & Med	9 percent	\$1.90
Vet. and Med.		\$10.00
Lot Cost	\$0.10 per day	\$15.00
Trucking (additional)	\$0.75 cwt.	\$2.66
Shrink	3 percent	\$18.55
Death Loss	1.5 percent	\$9.27
Direct Cost Subtotal		\$72.30
Return to Labor, Management and Risk		\$49.90

Ration for Backgrounding – 2.36 lbs. ADG

Feed	Price	Ration % as fed	Lb/hd/day as fed
Alf-grass hay	\$55.00	10.6%	3.00
Oats	\$1.30	17.7%	5.00
Barley	\$1.45	13.9%	3.91
Corn Silage	\$18.00	55.7%	15.71
Soybean meal	\$180.00	1.5%	0.41
Limestone	\$110.00	0.4%	0.12
TM salt	\$190.00	0.1%	0.024
Vit ADE premix	\$1.00	0.0	0.009
Ration Cost per day	\$0.62		28.2

per cwt. for animals placed with breakeven prices in the mid \$70s per cwt. is resulting in losses approaching \$100 per head. With the futures market projecting only about a \$4/cwt. improvement by April and then backing off \$3/cwt. in June and August, current cash prices paid for feeder cattle will remain under pressure. This factor is putting a lid on feeder prices at current levels and increases the risk of additional price weakness for feeder cattle through January of 2002.

Table 6 presents a sensitivity analysis of returns to labor and management for backgrounding 550-pound steers at 2.77 pounds average daily

**Table 4. BACKGROUNDING 400 LB. STEERS —
LOW RATE of GAIN**

Weaning weight	400 lbs.	
Average Daily Gain	1.28 lbs.	
Days on Feed	200	
Market Weight	656 lbs.	
Projected Selling Price	\$85.00 per cwt.	
Total Income		\$557.60
Beginning Value	\$104.00 per cwt.	
minus shrink if sold	3 percent	\$403.52
Gross Margin		\$154.08
Feed Cost	\$0.60 per day	\$120.71
Return Over Feed Cost		\$33.37
Interest on Beginning Value	9 percent	\$19.90
Interest on Feed, Vet & Med	9 percent	\$3.22
Vet. and Med.		\$10.00
Lot Cost	\$0.10 per day	\$20.00
Trucking (additional)	\$0.75 cwt.	\$1.92
Shrink	3 percent	\$16.73
Death Loss	1.5 percent	\$8.36
Direct Cost Subtotal		\$80.13
Return to Labor, Management and Risk		(\$46.77)

Ration for Backgrounding – 1.28 lbs. ADG

Feed	Price	Ration % as fed	Lb/hd/day as fed
Alf-grass hay	\$55.00	69.5%	12.38
Oats	\$1.30	30.4%	5.42
TM salt	\$190.00	0.0%	0.008
Vit ADE premix	\$1.00	0.0%	0.008
Ration Cost per day	\$0.60		17.8

gain. This table summarizes the results when the beginning value ranges from \$86/cwt. to \$94/cwt.; the ending value ranges from \$78/cwt. to \$86/cwt.

Table 7 presents a sensitivity analysis of returns to labor and management for backgrounding 400-pound steers at 2.36 pounds average daily gain. This table summarizes the results when the beginning value ranges from \$104/cwt. to \$112/cwt.; the ending value ranges from \$83/cwt. to \$91/cwt.

In summary, backgrounding 400-pound calves and putting on at least 350 pounds with a relatively high rate of gain offers the best

**Table 5. WINTERING 400 LB. STEERS —
RETURN to GRASS**

Weaning weight	400 lbs.	
Average Daily Gain	1.28 lbs.	
Days on Feed (Winter)	200	
Market Weight	825 lbs.	
Projected Selling Price	\$85.00 per cwt.	
Total Income		\$701.25
Beginning Value	\$104.00 per cwt.	
minus shrink if sold	3 percent	\$403.52
Gross Margin		\$297.73
Winter Feed Cost	\$0.60 per day	\$120.71
Pasture - 2.5 months		\$30.00
Return Over Feed Cost		\$147.02
Interest on Beginning Value	9 percent	\$27.36
Interest on Feed, Vet & Med	9 percent	\$4.50
Vet. and Med.		\$12.00
Lot Cost	\$0.10 per day	\$20.00
Trucking (additional)	\$0.75 cwt.	\$3.19
Shrink	3 percent	\$21.04
Death Loss	1.5 percent	\$10.52
Direct Cost Subtotal		\$98.61
Return to Labor, Management and Risk		\$48.41

Ration for Backgrounding - 1.28 lbs. ADG

Feed	Price	Ration % as fed	Lb/hd/day as fed
Alf-grass hay	\$55.00	69.5%	12.38
Oats	\$1.30	30.4%	5.42
TM salt	\$190.00	0.0%	0.008
Vit ADE premix	\$1.00	0.0%	0.008
Ration Cost per day	\$0.60		17.8

opportunity for backgrounding profits with limited downside risk. The return for backgrounding heavier calves (550 pounds starting weight) is in line with long term returns to backgrounding this type of animal. Backgrounding at low rates of gain is projected to result in significant negative returns. Wintering 400-pound animals at a low rate of gain and returning them to pasture to be marketed at 825 pounds in late summer is projected to result in reasonable returns for labor, management and risk.

In all cases the added profit potential represents a return to labor, management and risk. If the opportunity exists for the producer to put that labor to use

**Table 6. RETURN to LABOR and MANAGEMENT
at ALTERNATIVE PRICES. STEERS FED
from 550 LBS. to 750 LBS. @ 2.77 LBS. ADG.**

\$/CWT 550 LBS.	\$/CWT - 750 LBS.				
	86	84	82	80	78
94	42.47	28.08	13.70	-0.69	-15.08
92	53.33	38.94	24.55	10.17	-4.22
90	64.19	49.80	35.41	21.02	6.64
88	75.05	60.66	46.27	31.88	17.49
86	85.91	71.52	57.13	42.74	28.35

**Table 7. RETURN to LABOR and MANAGEMENT
at ALTERNATIVE PRICES STEERS FED
from 400 LBS. to 750 LBS. @ 2.36 LBS. ADG.**

\$/CWT 400 LBS.	\$/CWT - 750 LBS.				
	91	89	87	85	83
112	62.60	48.20	33.80	19.40	5.00
110	70.65	56.25	41.85	27.45	13.05
108	78.70	64.30	49.90	35.49	21.09
106	86.75	72.34	57.94	43.54	29.14
104	94.79	80.39	65.99	51.59	37.19

earning income other than through backgrounding calves, one would want to compare that income potential with the potential from feeding cattle. However if no alternative source of income is available for that labor, than backgrounding offers a chance to earn something for it.

Price projections for calendar year 2002 are presented in Table 8. These price ranges are intended to reflect the average price during the quarter. Seasonally, fourth quarter prices are the lowest of the year. These projections are stronger in the fourth quarter of 2002 than would normally be expected. This is based on the assumption that herd rebuilding will begin and a higher percentage of heifers will be retained for replacements rather than fed for slaughter.

**Table 8. FEEDER STEER PRICE PROJECTIONS
for 2002.**

	400-500 lb Steers	500-600 lb Steers	600-700 lb Steers	700-800 lb Steers
	\$ per cwt			
First quarter	108-112	98-102	90-95	85-88
Second quarter	110-115	102-106	94-98	84-88
Third quarter	110-120	102-106	94-98	86-90
Fourth quarter	106-112	98-102	92-96	85-88

Looking ahead to 2002, feed prices are not likely to go any lower and, without a near record crop next year, may begin to rise.

Feedlot placements were down sharply in September and October of this year; however, there is a large supply of nearly finished cattle in the feedlots that need to be marketed before the cash price can make a significant recovery. This can be expected to increase slaughter prices, assuming other factors such as the state of the economy (consumer demand) and other meats (competition) remain neutral.

Feedlot replacements are almost certain to be fewer in the year ahead due to the smaller cow herd size and the high probability of increased numbers of heifers retained for breeding.

Current calf prices are favorable and short of a crop disaster somewhere in the world in 2002, we can expect to see higher prices offered for next year's calf crop.

For more information on this and other topics, see: www.ag.ndsu.nodak.edu

