

## Economic Considerations for Preconditioning Calves for Feedlots

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Cow-calf producers can add value to calves by using precondition programs — management practices that prepare calves to enter grazing or backgrounding programs, or into a feedlot.

Nebraska cow-calf producers could potentially add value to their calves by using preconditioning programs. Preconditioning programs consist of a series of management practices to prepare calves to enter a grazing or back-grounding program or to enter directly into a feedlot for finishing.

Preconditioning is designed to mitigate stress that occurs during the transitional period between weaning and going on feed for calves entering feedlots. The specific aspects of each preconditioning program may vary, but they typically involve a health protocol that includes a series of vaccinations, and management practices such as weaning, dehorning, castration, implanting, and transitioning the calves to dry feed. The basic concept of preconditioning programs is to implement management practices to boost the calf's health status prior to exposure to stressors and pathogens as they enter the beef production system. There is a greater potential for calves that have been handled properly prior to being placed in a feedlot to perform more efficiently and to increase profit potential. Preconditioning can add value to the owner of the cattle by reducing costs and risks, not only if cattle are retained but also if they are sold to a feedlot or to another producer. Buyers typically pay a premium for preconditioned calves, but the premium may vary depending on current market conditions. The cost to the producer for preconditioning will vary according to feed costs as well as current cattle prices.

### Example of Preconditioning Program

In developing a preconditioning program, the first step should be to consult with your veterinarian under a Veterinarian-Client-Patient Relationship (VPCR). Involving your veterinarian will ensure the program is designed

specifically for your operation, and potential pathogens or parasites the animals might encounter are addressed. A strong herd health program is recommended for the health of the herd involved. The following is a basic preconditioning program starting at birth or branding as recommended by Dr. Dee Griffin at the University of Nebraska Great Plains Veterinary Education Center.

- A. **Shortly After Birth:** Starting at 2-3 months of age, it is recommended that calves be vaccinated against Bovine Respiratory Diseases (BRD) and clostridial organisms. High quality Modified Live Vaccine (MLV) should be utilized for BRD vaccinations. These vaccinations should contain IBR, BVD, PI3, and BRSV. The calves vaccinated should be safe, as nursing females should not be bred and should have had annual vaccinations prior to this time.
- B. **Preconditioning:** Approximately 21-30 days prior to weaning, calves should receive a four-way BRD viral (IBR, BVD, PI3, and BRSV), BRD bacterial (at least Mannheimia hemolytica), and clostridial (Blackleg). The use of a killed vaccine is recommended on calves nursing bred females.
- C. **Weaning:** The recommendation is that a BRD MLV containing IBR, BVD, PI3, and BRSV be given as a booster. Clostridial vaccines, if given at both birth and precondition, may not be needed at this time.

When considering these programs it is also important to follow Beef Quality Assurance (BQA) guidelines by reading product labels to ensure proper handling, storage, and administration of product. It is recommended that proper needle size, administration technique, and location are used to prevent tissue damage to high quality beef cuts and products.

More information on preconditioning and weaning strategies can be found at the University of Nebraska Beef website, [beef.unl.edu](http://beef.unl.edu), or by obtaining the NebGuide G2057 *Management, Health, and Nutritional Considerations for Weaning Calves*, <http://www.ianrpubs.unl.edu/sendIt/g2057.pdf>

## Economic Considerations Related to Preconditioning

Prior to implementing a preconditioning program, producers need to estimate costs as well as potential economic benefits associated with a program. Potential gains attributed to a preconditioning program include any premium buyers are willing to pay for the preconditioned calves as well as their added weight. Costs of the precondition program that need to be considered include handling, vaccinations, death loss, and additional feed costs. An additional cost to be considered is interest expense on borrowed money. The interest expense accounts for the opportunity cost of holding calves during the preconditioning period instead of selling at weaning.

Two other factors need to be considered when estimating the price of preconditioned calves: seasonal patterns and weight increases. Calves will be marketed at a different time of year and thus price will need to be adjusted for seasonal patterns. Research has shown that the price slide due to selling a larger animal also needs to be taken into account. The producer must weigh the benefits and costs of selling today at a lighter weight versus selling after a 45-day precondition period at a heavier weight with a price discount.

### Preconditioning Example

*Table 1* provides an example of how a producer can estimate the break-even prices for calves placed in a precondition program. Producers should use their own estimates of prices and costs to analyze your situation. The current cost benefit examples given are neither guaranteed nor necessarily additive.

The example in *Table 1* assumes 550 pound calves could be sold in October for \$171.51 per hundredweight<sup>1</sup> (cwt) at weaning. Based on a 45-day preconditioning program, these calves would gain approximately 1.33 pounds per day to yield a 610 pound animal at the completion of the program.

Estimated costs of the program include death loss, vaccinations, added transportation expense, feed costs, marketing costs, and interest expense. This is a generic representation; thus, costs are estimated and do not represent specific ingredients or products. There is potential for some death loss due to maintaining ownership of the calves for the extended 45-day period. Transportation costs and marketing costs are included due to the fact that the price received for weaned calves assumed in the budget as a lost opportunity cost is a gross price and has not been adjusted for transportation or marketing costs had you actually sold them as weaned calves. Interest expense (line 14) is based on the full cost of the weaned calf for 45 days since this income could have been used to pay off debt or be invested elsewhere had the calves been sold. Interest also was charged for the labor,

vaccination, transportation, feed, and marketing costs. Labor costs may vary tremendously between operations due to the investment in facilities and equipment as well as the number of head being preconditioned. Feed costs are one of the major drivers of profitability of the preconditioning program coupled with the price of calves. This remains true whether calves are sold to another buyer or the producer retains them. As feed costs decline, less money is needed to cover costs; therefore, break-even price also declines. The total cost of the 45-day precondition period is \$70.58 per head. This equates to a cost of gain \$1.18 per cwt. Due to the variability between producers and preconditioning programs, producers need to estimate their own costs to precondition calves.

Based on the costs of the program, break-even price for the preconditioned calves can be determined. In this example, in order for the producer to cover all costs, the calves need to be sold for \$166.21 per cwt at the weight of 610 pounds. In order to determine whether or not the preconditioning program would be profitable, you need to also account for seasonality adjustments and weight gain within their sales price. Using historical market report data for Nebraska Direct Markets from 2004 to 2013, a seasonal price index for feeder steers weighing between 500 and 600 pounds was calculated (*Figure 1*). Historically, prices have increased on average from October (assumed time frame of weaning calves) until December (assuming a 45-day preconditioning program). Based on the \$171.51 per cwt price of weaned calves in October, we could expect prices to increase by \$4.80 per cwt by December. Price will also need to adjust to take into account the fact that the calves will be 60 pounds heavier. Estimation of the increase in weights could cause a discount in price of \$4.50 per cwt. Assuming no premium, this would estimate the price for the calves after the 45-day preconditioning period to increase to \$172.97 per cwt. Accounting for costs and the original value of the animal, the net return for preconditioning calves would be \$41.23 per head to the producer. If premiums were offered for preconditioned calves, the premium could be added to the price to obtain a new estimate. Numerous research studies have shown buyers willing to pay premiums for preconditioned calves; however, there is variability in the premiums paid.

As calf prices increase and/or feed costs decline, the probability of a profitable preconditioning program increases due to the fact that each pound of calf produced either is more valuable and/or costs less to produce. As calf prices increase, feedlots are incentivized to pay higher premiums for preconditioned calves to reduce possible death losses. Since a large portion of death losses experienced with calves occurs during the first few weeks following weaning, buyers are willing to pay more for preconditioned calves to shift the risk associated with death losses to producers conducting preconditioning programs. This suggests that preconditioning programs may be more profitable during periods of high calf prices compared to periods of low calf prices.

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<sup>1</sup>3-year (2011-2013) average Nebraska October price for 500 to 600 lb feeder steers.

**Table I. Break-Even Analysis for Calves Placed in a 45-Day Preconditioning Program.**

<i>Item</i>	<i>Example</i>	<i>Your Estimate</i>
<b>Costs of Program:</b>		
1. Beginning weight, lb/head	550	_____
2. Beginning price, \$/cwt <sup>a</sup>	\$171.51	_____
3. Current value, \$/head (Line 1 x Line 2 ÷ 100)	\$943.31	_____
4. Number of days in program	45	_____
5. Interest rate assumed	5%	_____
6. Average weight gain, lb/day	1.33	_____
7. Death loss during program, %	1%	_____
8. Death loss cost, \$/head (Line 3 * Line 7)	\$9.43	_____
9. Labor and equipment costs, \$/head	\$5.00	_____
10. Cost of vaccinations, \$/head	\$8.00	_____
11. Added transportation expense, \$/head	\$4.00	_____
12. Feed costs, \$/head	\$35.00	_____
13. Marketing costs, \$/head	\$3.00	_____
14. Interest expense, \$/head (Line 5 ÷ 365 x Line 4 x (Line 3 + Line 9 + Line 10 + Line 11 + Line 12 + Line 13))	\$6.15	_____
15. Total costs of program, \$/head (Line 8 + Line 9 + Line 10 + Line 11 + Line 12 + Line 13 + Line 14)	\$70.58	_____
16. Cost of gain, \$/lb of gain (Line 15 ÷ (Line 4 x Line 6))	\$1.18	_____
<b>Break-Even Analysis</b>		
17. Projected weight end of program, lb/head (Line 1 + (Line 4 x Line 6))	610	_____
18. Break-even price for preconditioned calves, \$/cwt (Line 3 + Line 15) ÷ Line 17 x 100	\$166.21	_____
<b>Estimated Price for 610 lb Calves:</b>		
19. Price discount due to weight gain (\$/cwt)	-\$4.50	_____
20. Price adjustment due to seasonality (\$/cwt)	\$5.96	_____
21. Estimated price (no premium) (Line 2 + Line 19 + Line 20)	\$172.97	_____
<b>Estimated Returns from Preconditioning (no premiums)</b>		
22. Preconditioned calf value (\$/head) (Line 17 x Line 21 ÷ 100)	\$1,055.12	_____
23. Net return from preconditioning (\$/head) <sup>b</sup> (Line 22 – Line 3 – Line 16)	\$41.23	_____

<sup>a</sup>2011-2013 average Nebraska October price for 500 to 600 lb feeder steers.

<sup>b</sup>This is the net return from preconditioning the calves with no premium given. If premiums are offered for preconditioned calves, the premium could be added to the price to obtain a new estimate.

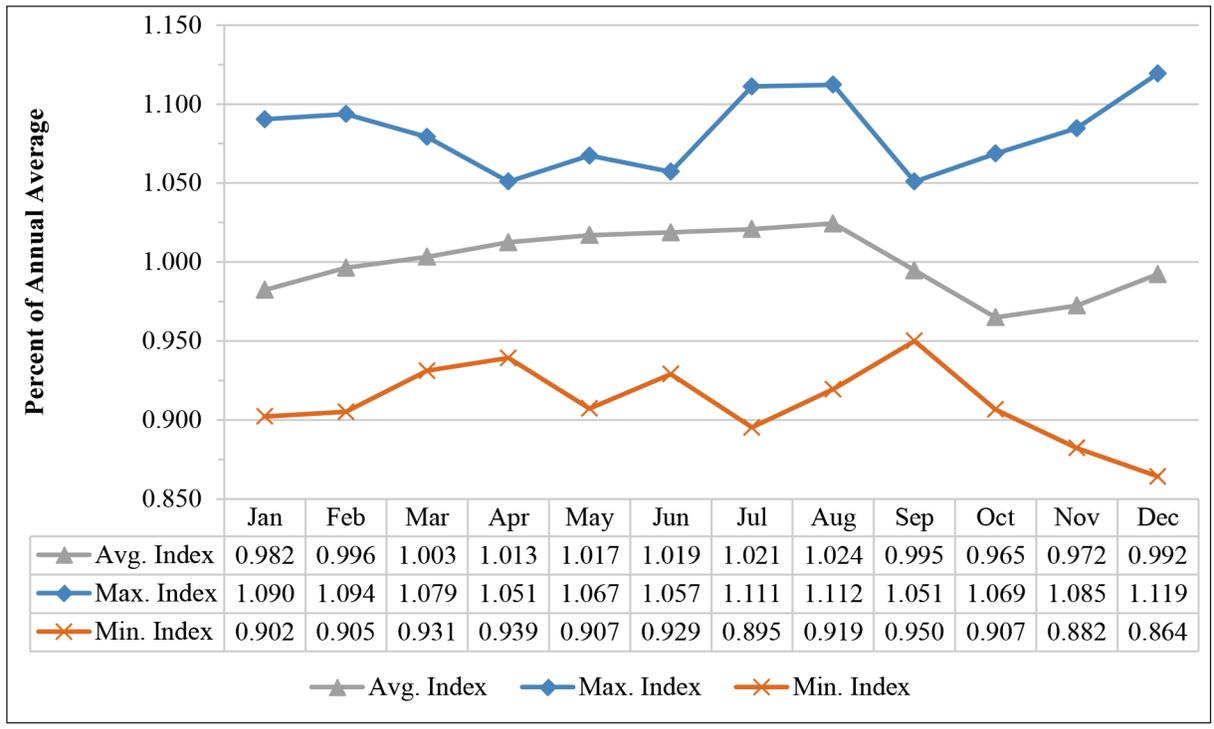


Figure 1. Seasonal price index for 500-600 lb feeder steers, Nebraska auctions, 2004-2013. Data Source: USDA-AMS, Compiled by LMIC

**Summary**

Preconditioning programs offer the potential of adding value to calves, especially during periods of relatively high calf prices. The programs require planning, management and market analysis. Prior to starting a preconditioning program, producers should consult with their veterinarian, livestock specialist, and marketing specialist to consider the health, management, and marketing conditions that may impact the success of the program.

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