



Managing for Today's Cattle Market and Beyond

Preconditioning Calves for Feedlots

By

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What is Preconditioning and Why Is It Done?

With cattle prices the lowest they have been in over a decade, cow/calf producers are investigating methods to increase the value of the calves they produce. Preconditioning calves is one possible method for adding value to calves. Preconditioning prepares calves to enter feedlots by putting them through a health program of different vaccinations, weaning them from their mothers, and getting the calves on dry feeds. Preconditioning is designed to mitigate the transitional period between weaning and dry feeding for calves entering feedlots. By increasing the calf's resistance to respiratory diseases prior to weaning and boosting that resistance at weaning where exposure to pathogens is generally minimal while calves are still at the ranch, they are better prepared to enter the marketing system or other phases of beef production. A preconditioning system is designed to significantly reduce sickness, lower death loss, reduce the number of calves pulled to sick pens, reduce losses in weight gain, and increase feed efficiency once cattle arrive at a feedlot or other destination.

As calf weaning weights have increased in the cattle industry over the past decade more calves are going directly into feedlots for a growing/finishing program. This allows for many calves to reach market

weight and finish by the time they are 14-15 month of age. Cattle that have been properly handled prior to being placed in a feedlot have a much greater potential to perform efficiently in a feedlot and be profitable. This should add value to the owner of the cattle whether ownership is retained by the producer or the cattle are sold to a feedlot operator or other buyer. Consequently, preconditioning does add value to calves since it reduces costs and risks to buyers. Buyers normally are willing to pay premiums for preconditioned calves, but these premiums vary depending on market conditions. Producers' costs for a preconditioning program also vary according to feed costs and the price of cattle, as will be explained latter.

Example of a Preconditioning Program

The following is an example of a preconditioning program developed by Dr. Norris J. Stenquist at Utah State University. This is presented as an example and anyone considering starting a preconditioning program should consult with their local livestock extension specialist and a veterinarian before beginning a program. This will assure that the program is designed for the producer's own ranch, financial, and climatic conditions.

Steps in a Preconditioning Program

A. Shortly after birth:

Calves are vaccinated against the Clostridial organisms (Blackleg, etc.) when they are worked at approximately 2-4 months of age. Products labeled for subcutaneous administration are used to reduce injection site tissue lesions. A minimum of a 4-way vaccine (Blackleg, Malignant Edema, Black Disease, and Clostridium Sordelli) should be used. Other clostridials can be a problem in certain areas, so again, consult your local veterinarian for specific recommendations. Vaccinating against more pathogenic agents than necessary places additional demands on the calf's immune system and this is another reason for consulting a veterinarian before starting a preconditioning program.

B. At 21-30 days pre-weaning:

Calves should be vaccinated against IBR-PI3-BVD-BRSV and only vaccines that have been attenuated with label approval for use in calves nursing cows should be used. Also, vaccinate against Pasteurella haemolytica, Haemophilus somnus, Clostridium haemolyticum, Leptospirosis and other diseases if a problem in your area.

C. At weaning:

Place calves in a well-fenced area with free choice access to good quality hay and clean water and avoid weaning calves into dusty lots. The animals should then be vaccinated against IBR-PI3-BVD-BRSV (use a modified live vaccine). Do not allow vaccinated calves to be exposed to pregnant females. After weaning, begin supplemental feeding by gradually increasing the level of supplement fed over a 5-7 day period. The cattle can then be turned out on good quality pasture or pasture plus good quality hay when possible. Producers should be sure to monitor cattle closely for health problems. The following are two possible feeding program options for the calves:

Option 1. Feed 2 lbs./head/day of a 41% crude protein equivalent.

Option 2. Feed 1% of body weight of a 14-16% crude protein ration/head/day (example: 500 lb. calf - 5 lbs.)

D. Market calves for delivery a minimum of 45 days after weaning.

Vaccinations 21-30 days pre-weaning will provide optimum levels of resistance against the challenge of pathogens at weaning. However, if it is not possible to gather calves at that time, producers could follow one of the two alternatives listed below:

Option A. The calves could be vaccinated against IBR-PI3-BVD-BRSV at weaning with an attenuated vaccine with label approval for use in calves nursing cows. With this option the calves should also be

vaccinated against Pasteurella haemolytica. Also, booster the IBR-PI3-BVD-BRSV with a modified live vaccine 14 days later.

Option B. With this option, vaccinate against IBR-PI3-BVD-BRSV when the calves are worked with an attenuated vaccine with label approval for use in calves nursing cows and booster with a modified live vaccine at weaning.

Deworming also may need to be done if the calves have been on wetlands. Due to stress, the calves will likely gain only an average of 1 lb./head/day for the first 30 days in the program and 1.75 lbs. - 2 lbs./head/day thereafter. One feed ration used in the USU program was 5 lbs. of barley and 10 lbs. of alfalfa hay/head/day (about 11.5 lbs. of hay/day if one accounts for waste). During the spring of 1996, feed costs for this ration would have been about \$0.72/head/day. Feed costs vary by location and will influence the financial success of the preconditioning program.

Economic Considerations Related to Preconditioning

Before considering a preconditioning program, producers must estimate the likely costs and the potential economic benefits obtained from the program. The potential gains from a preconditioning program include any premium buyers are willing to pay for preconditioned calves and the added weight calves will have after going through a preconditioning program compared to selling at weaning. The costs associated with preconditioning calves in a 45+ day program include the costs of handling, vaccinations, death loss, and additional feeding costs.

Another cost for which producers must account is the price decline which is normally experienced as cattle become heavier. After completion of a preconditioning program, calves will weigh more than if they are newly weaned. Consequently, even though calves may be paid a premium because they are preconditioned, buyers will still usually pay a somewhat lower price on a per lb. basis for say a 530 lb. preconditioned calf than they would for a 500 lb. preconditioned calf. One estimate of how calf prices decline as weight increases is provided by research conducted at Utah State University which found that calf prices declined an average of \$0.055/cwt.¹ for each additional pound of weight. This estimate will be used later in this paper to provide a method to estimate the market price for calves as their weight increases.

Preconditioning Example

An example is provided in Table 1 to illustrate how producers can estimate break-even prices for calves placed in a preconditioning program. Producers should use their own estimates of prices and costs to do this estimation. One important factor not considered in Table 1 is any risk associated with changes in overall market prices between weaning and when calves finish the preconditioning program. This risk is an important consideration. Producers may wish to reduce this risk by forward pricing calves using futures contract(s) or a regular cash forward contract before placing the calves in a preconditioning program.

In the example presented in Table 1, it is assumed that 500 lb. calves could be sold for \$65/cwt. at weaning. The calves are anticipated to gain an average of 1.33 lbs./day over the 45 day program to yield a 560 lb. animal at completion of the program.

The profitability of a preconditioning program is related to the cost of feed and the price of calves. This is true whether the calves are being sold to a buyer or whether the producer places them in a retained ownership program. Obviously, as feed costs decline less money is needed to cover costs and the break-even price also declines. Because of stress, the calves will not perform very well during the first part of their preconditioning program (1 lb. gain/day in this example). This causes the cost of gain to be abnormally high for the calves during the first part of the program. In our example, costs of gain are \$0.93/lb. (Item 16 in Table 1). This indicates that preconditioning programs have the most potential to be profitable when calf prices are relatively high so that the relatively high cost of gain associated with a preconditioning program can be covered. As calf prices increase and or feed costs decline the probability of a profitable preconditioning program increases because each pound of calf produced either is more valuable and/or costs less to produce.

It is also interesting to note that the incentive for feedlots to pay higher premiums for preconditioned cattle increases as calf prices increase because calves are more valuable and there is more incentive to reduce death losses if possible. It is also the case that the value of preconditioned calves in a retained ownership program will also increase with market prices because the risk associated with retained ownership is greater the higher prices are. Since a large portion of the death loss experienced with calves

occurs during the first few weeks following weaning, as calves become more valuable buyers are willing to pay more for preconditioned calves in order to shift the risk associated with death losses to producers who conduct preconditioning programs. This suggests that preconditioning programs will be the most profitable during periods of high calf prices such as existed during 1989-93. The converse also suggests that during periods of low calf prices preconditioning programs may not be profitable, as is the case now. Producers retaining calves will also have more incentive to precondition them during periods of high prices since death losses are reduced.

Summary

Preconditioning programs require planning, management, and some market analysis. They do, however, offer the potential of adding a significant amount of value to calves, especially during periods when calf prices are relatively high. Before considering a preconditioning program, consult with your veterinarian, livestock specialist, and extension economist to consider the health, management, and marketing conditions that may impact the success of your program.

References:

Bailey, D., B. W. Brorsen, and C. Fawson. "Buyer Concentration at Feeder Cattle Auctions." *Review of Agricultural Economics*, 15(January 1993):103-119.

Schroeder, T. J. Mintert, F. Brazle, and O. Grunewald. "Factors Affecting Feeder Cattle Price Differentials." *Western Journal of Agricultural Economics*, 13(July 1988):71-81.

¹ This estimate is taken from a study using video auction data between 1987 and 1992. It should be regarded only as an average since market conditions change and this adjustment for weight may increase or decrease especially as feed costs change.

Table 1. Break-Even Analysis for Calves Placed in a 45-Day Preconditioning Program.^a

Item	Cost/Price	Your Estimate
Costs of Program:		
1. Weight Going Into Program (lbs./head)	500	_____
2. Price at Beginning of the Program (\$/cwt.)	\$65	_____
3. Current Value/head 1x2	\$325	_____
4. Interest Rate Assumed	10.00%	_____
5. Labor Costs (\$/day/head)	\$0.12	_____
6. Cost of Vaccinations (\$5/head)	\$5.00	_____
7. Feed Costs (\$/day/head)	\$0.70	_____
8. Yardage Costs (\$/day/head)	\$0.15	_____
9. Interest Per Day on Calf $4 \times 1/365 \times 3$	\$0.09	_____
10. Death Loss (\$/head) $1\% \times (3+(5+6+7+8))/2$	\$3.28	_____
11. Average Interest on Other Costs (\$/day/head) $4 \times 1/365 \times (5+7+8+(6/12))$	\$0.0002	_____
12. Number of Days in Program	45	_____
13. Average Weight Gain (lbs./day/head)	1.33	_____
14. Cost Per Day in the Program (\$/day/head) $5+7+8+9+11+((6+10)/12)$	\$1.24	_____
15. Total Cost of Program (\$/head) 12×14	\$55.94	_____
16. Cost of Gain (\$/lb. of gain) $15/(12 \times 13)$	\$0.93	_____
Break-even Analysis:		
17. Projected Weight After Preconditioning (lbs./head) $1+(12 \times 13)$	560	_____
18. Break-even Price for Preconditioned Calves (\$/cwt.) $(3+15)/17 \times 100$	\$68.04	_____
Estimated price for 560 lb. calves:		
19. Price Discount Due for Each lb. Gained Beyond Initial Weight Going into the Program (\$/cwt.)	\$0.055	_____
20. Price Discount Anticipated for Weight Gain (\$/cwt.) $19 \times (17-1)$	\$3.30	_____
21. Estimated Price for 560 lb. Steers Assuming No Premium for Preconditioned Calves ^b 2 - 20	\$61.70	_____

^a The values used in this table are for conditions in Utah during the Spring of 1996. Numbers in the "Item" column correspond to specified calculations indicated throughout the table. Complete items 1, 2, 3, 4, 12, and 13 first to facilitate the other calculations.

^b This is the estimated price for 560 lb. calves assuming that overall market prices did not change during the preconditioning program. If premiums are offered for preconditioned calves, the premium could be added to this price to obtain a new estimate.