

HEALTH & HUSBANDRY

Preparing calves to transition

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Calf marketing is an annual event that dramatically affects overall ranch profitability. Profit in cow-calf operations is highly variable — both among ranches and from year to year. Multiple factors

differ between herds in the top one-third of profitability compared to herds in the lower one-third. Higher-profit herds reported lower feed costs, higher prices for calves and more pounds of calves sold, according to an analysis of 2016-2020 Kansas Farm Management Association Cow-Calf enterprise records by Pendell and Herbel (see footnotes).

Striving to improve herd profitability is more than just maximizing the sale prices of calves. The strategy must include a method to optimize the relationships between expenses incurred and gross revenue.

One potential method to improve income through calf sales is through preconditioning — a series of practices to help prepare calves for the next phase of life. Implementing these procedures requires time, effort and expense.

Naturally, producers frequently ask: Does preconditioning pay? Before we can answer that, we first must understand what preconditioning entails.

Preconditioning: What's included and why?

The term “preconditioning” has become generic. By

itself the term does not provide enough information to determine if the management program will be valuable. Imagine someone is going to purchase a truck: How much should they spend on the truck? We don't know if they are considering a half-ton used truck from 20 years ago, or if they want to purchase a brand-new three-quarter-

Even with just a 5% increase in market price, results indicate preconditioning — properly done — can provide 100% ROI.

ton crew cab with all the bells and whistles. Our perception of the value of the truck would greatly change with a

more detailed description of the specifications.

The same is true when we discuss preconditioning.

The goal of preconditioning is to prepare calves for the next production phase by implementing a series of procedures and management techniques to minimize the chances of disease and increase growth performance during the feeding phase. Moving from the cow-calf operation to the next stages of beef production is a critical transition for calves. It involves changes in social structure, nutritional resources and often commingling with cattle from other herds.

Preparing calves to smoothly adjust to the new environment can provide long-term benefits to the overall efficiency of the production system. Because this

Continued on page 32



change in production system often involves a shift in calf ownership, a preconditioning program may need to be completed by one owner (the cow-calf ranch) and some of the long-term benefits may be accrued by the next owner (the feedlot).

Preconditioning programs include several components, such as vaccinations, weaning, castration and exposure to higher-carbohydrate rations. The timing and specific methods incorporated into each program vary, and these differences influence the overall effect in preventing disease and promoting future performance.

Building immunity

Bovine respiratory disease (BRD) is the major disease that affects beef calves postweaning. Approximately 16% of all cattle in feedlots suffer from BRD, according to a study by Dargatz and Lombard (see “References and additional reading, page 34). BRD is a syndrome caused by several known viral and bacterial

pathogens. Calves receive initial protection for many pathogens through the first milk from their dam (colostrum), but this immunity fades over time.

The colostrum provides several components to help ward off illness, but most of this passive protection is gone by the time the calf is 4 to 7 months of age. During this time the calf will start building active immunity to pathogens it is exposed to in the environment, but in many operations the exposure to disease-causing agents is relatively minimal prior to weaning.

One method to build active immunity without natural exposure to disease-causing pathogens is through vaccination. Commercial vaccines are available for many pathogens that cause BRD. The goal of a preconditioning program is to generate immunity in cattle prior to significant exposure to disease-causing agents.

One large value of a properly implemented preconditioning program is the opportunity to build immunity prior to exposure of cattle to new pathogens. A vaccine provides a nondisease-causing exposure to a specific pathogen, facilitating the creation of immunity to ward off future encounters with the same pathogen.

However, building high levels of long-lasting immunity may take two to four weeks, depending on the type of vaccine. The body has to create the building blocks to ward off future illness. Vaccinating at the time of exposure is

often not effective. Providing vaccinations prior to shipment can decrease the amount of BRD encountered by the group in the feeding situation, according to Fulton’s research, by providing additional time to develop an adequate defense against future pathogens.

Castration

Castration of male calves is another component of many preconditioning programs. Bull calves castrated at feedyard arrival have higher chances of disease and decreased performance relative to comparable steer mates, says research by Richeson.

In Pinchak’s study of stocker calves, bulls castrated at

arrival had a 13.5% reduction in daily gain and higher morbidity (60%) compared to purchased steers (28%). Thus, castration with time for adequate healing is beneficial for preventing performance loss and health issues.

Increased sale prices of calves may not always cover the costs associated with preconditioning, but adding weight to calves prior to sale in an economic fashion can make the entire program profitable.

Timing of castration is also important when considering calf management, as older calves will likely lose weight after castration. The procedure should be done when adequate time exists to regain the weight prior to sale. Castration at a younger age — at birth or within a few months of age — may be ideal if feasible.

Weaning

Weaning on the ranch of origin is an important part of preconditioning. At the time of weaning, calves change social structure and sources of nutrition. This leads to stress and often a transient weight loss. Several studies have shown calves retained on the farm after weaning are less likely to be treated and gain faster after arrival at the feedlot compared to calves weaned at the time of shipment.

Overcoming this challenge in an environment with low disease challenges is beneficial, and often calves weaned on the ranch go through the process without becoming ill. However, the calves will still likely lose weight in the short period following weaning.

This should be considered as part of the overall management and marketing plan.

The weight loss following weaning can be transitory, depending on the nutritional resources supplied to the calves; and the number of days cattle are kept on the

ranch following weaning affects the final sale weight.

The method of weaning matters. Implementing a low-stress weaning technique can ease the transition, resulting in less short-term weight loss, according to several studies. Low-stress weaning techniques are not one-size-fits-all and may need to be modified based on the labor and facility constraints on each ranch. This is a

good opportunity to evaluate current practices and determine if any changes can be incorporated to ease the weaning transition.

The period after weaning is an excellent time to begin preparing calves for the next production phase by acclimating them to diets

similar to what they will be eating in the feeding phase. In part, this is a social transition with calves becoming accustomed to eating supplied feed, often out of a bunk; but, the calves also need to adjust to moving from a milk-and-grass diet to a higher-carbohydrate diet.

Providing supplemental feed during this time can help limit weight loss postweaning and facilitate weight gain. Producers should use a strategy to purchase feed and provide it in an economically efficient manner.

Do preconditioned calves get a better price?

If I do all of these things, will I get a better price for my calves?

This is an oft-asked question rarely answered definitively. The common academic answer of “it depends” is as apt in this situation. The price of preconditioned calves varies based on the specific procedures performed, the marketing method, time of year sold, region of the country and demand. Similar to our analogy of purchasing a new truck, the specifics matter.

Preconditioned calves have higher potential value than calves that are not preconditioned, but the actual value difference varies by specific practices and calf type, says Dhuyvetter’s 2004 study. Several studies show a small, but significant (4%-5%) price increase based on performance of health procedures, such as vaccination, prior to sale. However, this does not apply in all situations, and a price premium may not be present in some areas of the country, according to Smith’s 2019 study.

Some programs have shown that despite certification of specific health procedures, a price premium was not

realized by producers at the time of sale, according to Garber’s 2022 study. Preconditioned calves may have more value, but several large factors influence the overall sale price, including distance from final destination, lot/group size at the time of sale, method of sale (auction/direct), current demand for preconditioned cattle, and overall beef market demands.

The goal of preconditioning is to prepare calves for the next production phase by implementing a series of procedures and management techniques to minimize the chances of disease and increase growth performance during the feeding phase.

One issue with calves sold in an auction or bidding format is that buyers pay the minimum necessary to purchase preconditioned calves, and this premium may be less than the expected value of these calves, indicated a study by

Avent. This purchasing behavior is logical and similar to pricing of any product or service. When demand is higher the price will be higher, but buyers will pay no more than necessary.

The difference in payment price and expected value is logical based on the inherent risk associated with owning calves through the finishing phase. The risk is related to information regarding the expected vs. actual performance of the calves and variability in animal health performance. The bottom line: While preconditioned calves have added value from the procedures performed, this value may not always be captured in a higher sale price per pound.

Keys to making preconditioning work for your operation

The good news is profit from a preconditioning program is not reliant on getting a higher sale price per pound for the calves.

One of the most efficient ways to capture value from preconditioning is using the postweaning growth program to create more total pounds of calves for sale. This method allows the cow-calf operation to generate higher revenues through selling more weight.

Costs must be considered, as the total cost for preconditioning ranges from \$80-\$120 per head, according to several studies in the last 10 years. These costs are associated with weaning, health procedures, feed, management and labor. The postweaning management strategy should be evaluated to consider the preconditioning costs as an investment in the calves.

Preconditioning calves can be very profitable, as reports suggest \$80 average returns after costs. Several

Continued on page 34

factors influence profit levels on preconditioning, including average daily gain of calves postweaning, number of days postweaning, and the total cost of gain.

Understanding the cost of gain for cattle postweaning is a key factor in determining if the venture will be profitable.

The Integrity Beef Alliance has illustrated that despite only an approximately 5% increase in market value for calves, members have an average profit per head of \$123.50 compared to a total cost of preconditioning of \$122.20. These results are outstanding and illustrate that — if properly implemented — preconditioning has shown more than 100% return on investment!

Conclusions

There is no doubt that preconditioning practices such as vaccination, weaning and initiating a good nutritional program are valuable to long-term calf health and

performance. Preconditioning can be profitable to cow-calf producers when an appropriate program is used and combined with a suitable marketing method.

Increased sale prices of calves may not always cover the costs associated with preconditioning, but adding weight to calves prior to sale in an economic fashion can make the entire program profitable.

Preconditioning is a great opportunity for cow-calf producers and the beef industry, but there is no singular approach to make it work. Work with your team to figure out how to customize a preconditioning program for your operation. ■

Editor's note: "Health & Husbandry" is a regular *Angus Beef Bulletin* column devoted to the care and well-being of the herd. Author Brad White is on faculty at Kansas State University College of Veterinary Medicine and serves as director of the Beef Cattle Institute. To learn more on this and other beef herd health topics, tune in to the weekly Beef Cattle Institute *Cattle Chat* podcast available on iTunes, GooglePlay or directly from www.KSUBCI.org.

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