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Preconditioning Programs for Beef Calves

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Introduction

The demand for preconditioned feeder calves continues to surge in the beef industry as value-based marketing and information streams increase. The goals of a preconditioning program are to utilize available resources to efficiently and cost effectively increase the value of weaned calves and decrease the costs associated with calf illness.

When implemented successfully, cattle buyers spend less resources treating sick cattle, sale barns provide healthier calves that, in turn, attract new buyers, and sellers often receive market incentives that compensate for vaccine costs. Furthermore, retaining ownership of the calves in the short-term may lead to increased market weights and total sale dollars.

Preconditioning programs offer the opportunity for producers to initiate health management procedures that can serve as a foundation for maximal response of calves to procedures commonly performed at weaning. This allows for additional enhancement to immune system function while minimizing stress.

To cow-calf producers, preconditioning will aid in developing a reputation for high-quality cattle, add value to home-raised calves and capture increased revenue via retained ownership. Producers planning to retain ownership of calves past weaning through a stocker phase may also benefit from implementing preconditioning management practices.

Preconditioning requires additional labor, management and expense on the part of the cow-calf producer. The process usually consists of weaning calves at least 45 days prior to sale, although the largest financial return has been observed for producers who wean their calves 60 or more days prior to sale. Along with weaning time, preconditioning also includes following an appropriate vaccination program under the supervision of a licensed veterinarian and allowing calves the opportunity to learn to eat and drink from water troughs and feed bunks. Preconditioning may also include castrating bull calves and ensuring that horned cattle are dehorned, and that the animals have healed completely prior to marketing.

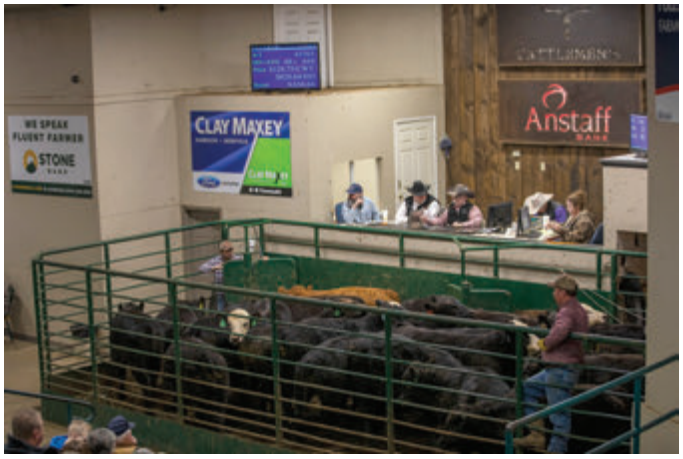
Research shows that preconditioned calves have a reduced incidence of health problems post-weaning. Data from the Arkansas Steer Feedout Program and similar programs in surrounding states have demonstrated the dramatic effects that health and medicine costs have on cattle finishing profitability.

Results from a nine-year summary of the Arkansas Steer Feedout Program indicated that sickness in the feedlot reduces a calf's ability to grade USDA Choice. This nine-year summary also indicated that 15.7 percent of cattle placements were affected with bovine respiratory disease and estimated associated treatment cost at $41.55 per animal. Wise buyers are willing to pay premiums for

preconditioned calves. They recognize that the extra cost of a preconditioned calf may be more than offset by reduced sickness, lower medicine costs, decreased labor requirements, improved performance and enhanced beef product quality.

Targeted Sales

It is important for producers to know the preconditioning program's requirements to qualify calves for targeted sales as the requirements may differ from sale to sale. Preconditioning programs in Arkansas have been offered directly by the sale barns or through animal health companies. Most sale barns in Arkansas recognize the requirements set forth by



Natural State Preconditioned Calf Program – GoGreen Auction.

the Natural State Preconditioned Calf Program (or GoGreen) offered through Extension. To enroll in the Arkansas GoGreen Program, producers must become certified through Arkansas Beef Quality Assurance (BQA) by taking online modules or attending an in-person training. By doing so, producers pledge to manage cattle using best practices developed by experts in the beef industry. Best practices addressed by BQA include cattle care and husbandry, treatment and product use records, feed additives and medications, feedstuffs and cattle identification. For more information on the Arkansas GoGreen program, visit www.uaex.uada.edu/GoGreen. For more information on the Arkansas BQA program, visit www.uaex.uada.edu/BQA.

Calf Ownership and Identification

Preconditioning program guidelines may include ownership requirements. Many programs set a minimum length of time that a producer must own a set of calves in order for them to qualify for the program. Individual calf identification is a critical part of proper record keeping for herd improvement and performance monitoring. The most common form of identification is a plastic ear tag. For the GoGreen program, producers identify their preconditioned calves using a special green ear tag.

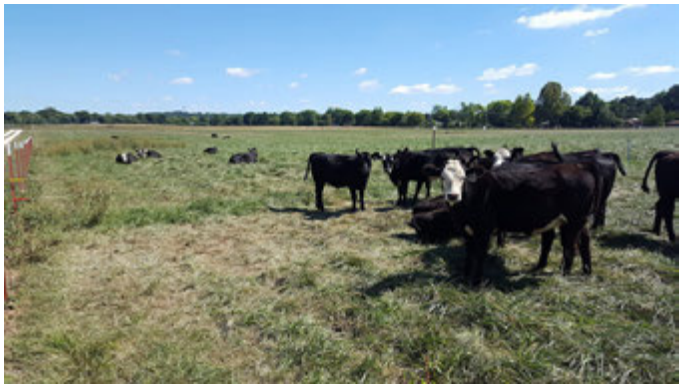
Because ear tags may be lost from time to time, a permanent identification method such as tattoos may be useful. In the future, electronic identification will likely become the norm as this type of identification system allows for faster traceability and the storage of performance data. Information associated with preconditioning requirements can also be linked to the electronic ID system. Furthermore, expansion into international markets will likely require electronic ID systems for age and source verification.

Weaning

Calves should be weaned at least 45 days prior to sale or according to the requirements of the specific preconditioning program. A large amount of stress is associated with weaning. Techniques that minimize or lessen stress during this time may benefit calf health and growth performance. Oklahoma State University reported that sorting and hauling freshly weaned calves to the sale facility the day before the auction can result in increased shrink compared to preconditioned calves or calves weaned the day of the sale. By preconditioning, calves are transitioned smoothly from milk to solid feedstuffs, which can ultimately minimize shrink associated with transport and add additional sale weight.

Weaning techniques for preconditioning programs should focus on reducing calf stress. Additional stress results when calves are introduced to unfamiliar surroundings post-weaning. Giving calves access to the weaning area a few days before weaning may be useful. Corrals, drylots or small pastures can serve as calf weaning facilities. These facilities must have good fencing that will prevent nursing. Small lots have the advantage of reducing fence walking or pacing, but dust can become a problem in dry conditions.

Fenceline weaning, where calves remain in sight of and in close proximity to their mothers, may reduce weaning stress. One weaning technique involves


Fenceline weaning can help reduce stress for both cows and calves during the weaning process.

initial nose-to-nose contact between cows and calves followed by gradual increases in separation distance by moving electrified wires or tapes further from each side. Training cattle to respect electric fencing prior to weaning can facilitate the weaning process. Fenceline weaning also allows high-quality pastures to be used as weaning facilities in place of dusty drylots. Recent research findings show that fenceline contact with dams at weaning minimizes losses in weight gain in the days following separation. In addition, calves totally and abruptly separated from their dams did not compensate for losses in weight gain even after 10 weeks post-weaning compared to fenceline-weaned calves. Properly weaned calves will be "bawled out" and readily consuming feed and water well before the preconditioning period ends. Additional research has shown that fenceline weaned calves have a reduced morbidity at the feedlot.

Training Calves to Feed Away From the Dam

The profitability of a preconditioning program can hinge on calf weight gains during the preconditioning period. Feed costs typically account for a large proportion of preconditioning costs, so productive calf weight gains are needed to recover these costs. During weaning, calves must transition from a milk diet to a forage/concentrate-based diet. Calves exposed to eating from a feed bunk and drinking from a water trough prior to weaning may go on feed faster after weaning.

Training calves to use a feed bunk or watering trough can be readily accomplished. Remove water until calves fill up on hay. Cattle may drink faster if they can hear the water, so a temporary drip system may be useful. Small troughs that are frequently refilled with cool, clean water may be more attractive to calves during hot weather than larger troughs containing warmer water. Position feed bunks perpendicular to fencelines where calves will find the feed bunks faster when they walk the fence. Feed bunks and water troughs should be highly visible and accessible. Provide adequate bunk space (at least 18 to 24 linear inches per head) to prevent crowding. Calves should have access to clean water and adequate mineral supplement at all times.

An effective nutritional program provides a desirable level of growth performance during the preconditioning period. Feedstuff availability and cost should be considered in developing feed supplementation programs. Economical nutritional programs can often be designed around farm forages with forage testing being critical for determining forage quality and matching a supplementation program to the forage program. Balancing a ration using forage test results helps ensure that calf nutrient needs will be met. County Extension personnel can assist producers in balancing rations and designing supplementation programs that target specified levels of calf gains. Because calf nutrient requirements change with increasing body weight, collecting weights at weaning is valuable for accurately accounting for calf size in nutrient requirement estimates.

Castration

The USDA National Animal Health Monitoring System survey of cow-calf management practices in 2007 revealed that 56.1 percent of operations in the south central United States did not castrate bull calves before they were sold. Castrating bull calves reduces aggressive behavior and prevents unwanted pregnancies where male calves are commingled with heifers. If weaned bull calves are sold, then the cow-calf producer is essentially paying the next owner to castrate the calves via discounts for intact bull calves. Although bulls typically gain faster than steers, most feeders are not interested in feeding bulls due to their aggressive behavior. For this reason, bull calves at a normal weaning age are typically discounted $5 to $10/cwt. Utilizing growth implants in steers is a strategy that provides similar gains to intact bulls. Implants allow the potential for steers to gain up to an additional 0.5 lbs per day for the duration of the implant, which translates to an increase of approximately 5 percent in weaning weight when compared to non-implanted steers.

Castration becomes increasingly stressful as bulls get older. According to the National Cattlemen's Beef Association Cattle Care and Handling Guidelines, castration should performed by 90 days of age or at the first available handling opportunity beyond 90 days of age. Bulls under 90 days of age experience less pain, bleeding, infection and weight gain depression than older bulls. Seedstock producers sometimes wait until weaning to decide which bull calves to castrate and which to develop as future breeding stock, but those late decisions come with calculated risks.

For commercial cow-calf operators, castration of bull calves should be performed as early in a calf's life as possible, ideally within the first 36 hours of life after the calf has consumed adequate colostrum. Restraining and handling younger calves is less stressful than working older, larger bulls. Producers can wait and castrate large groups of calves at once as long as all of the calves are less than 120 days old, which is in keeping with guidelines established by the American Association of Bovine Practitioners (AABP).

Times to avoid castration to lessen the risk of infections include during fly season and on cold, wet

days when the calf may be lying in mud. AABP recommends the use of a rubber ring or surgical removal as preferred methods of castration.

The most appropriate method of castration reflects the best interest of the health and well-being of the animal and the environment in which it is being raised. Producers should consult with a cattle veterinarian to determine the best castration method for their operation.

Dehorning

Cattle buyers often discount calves for the presence of horns because horn-related bruising may occur during shipping and in the feedlot. Bruises are detrimental to the overall value of a beef carcass because they can result in a loss of weight and product yield. Results from the 2016 National Beef Quality Audit indicated that 16.7 percent of cattle evaluated on the harvest floor had horns, down from 23.8 percent in 2011. The decline in horned cattle is reflective of mass education efforts that have taken place in the past 5 years.

The simplest way to produce calves without horns is by selective breeding using a homozygous polled herd sire. Otherwise, horns can be removed by a variety of methods that differ by animal age and stage of horn development. Horn tissue is formed in specialized cells in a small ring surrounding the horn button. Mechanical dehorning involves the physical removal of the horn along with the small ring of skin surrounding it. As for mechanical methods of dehorning young calves, AABP recommends cautery of the horn bud and cutting/scooping of small horns using small Barnes-type dehorners. Ideally, animals should be dehorned prior to one month of age.

Cattle with well-developed horns require special consideration. Sharp, disinfected dehorning instruments are essential when dehorning adult cattle. Because damaged bone tissue may be more susceptible to infection, bone tissue should be cut rather than crushed. Dehorning instruments should be disinfected prior to use on each animal to prevent wound infections and the spread of infectious diseases. Wound treatment with blood coagulant powder and fly spray will also reduce the chance for infection. For the welfare of the animal, a veterinarian should be involved to address pain control during and after the chosen procedure. For more information on dehorning adult cattle, consult with a cattle veterinarian.

Dehorning requirements for preconditioning programs may involve complete dehorning or only tipping horns back to the hairline. In either case, dehorned calves should be fully healed prior to shipment.

Vaccination and Deworming

Vaccination and deworming requirements may differ among targeted preconditioning sales. For GoGreen, calves must be vaccinated and boostered against respiratory disease using a modified-live or a killed viral vaccine for IBR-PI3-BVD-BRSV and vaccinated and boostered against Clostridial bacteria using a Clostridia (Blackleg) 7-way bacterin prior to sale. These vaccines are considered “core” vaccines among the animal health community and serve as the minimum vaccination protocol. Immunizing calves prior to 120 days of age (initial vaccination plus the booster) has been shown to provide better immune response to disease than waiting to vaccinate after 120 days of age. In addition to vaccines, producers must also show evidence that calves have been treated at least once for internal parasites to qualify for the GoGreen program.

According to the 2007 USDA NAHMS Survey, 35 percent of cow-calf operations did not vaccinate calves for respiratory disease prior to sale. Preconditioning programs have the potential to decrease the number of unvaccinated calves at sale barns, thus reducing the spread of deadly infectious disease. Other vaccines may be needed for a particular cow-calf operation depending on the herd disease status, regional disease incidence and the environment. To learn more about different vaccines available for beef cattle and how to properly use them, see Extension fact sheet FSA3009, *Beef Cattle Herd Health Vaccination Schedule*. It is important to note that modified-live vaccines given to nursing calves can cause an unvaccinated pregnant cow to abort, so care must be taken when considering vaccine options. For this reason, producers should consult with a cattle veterinarian to determine the best vaccine schedule for their animals.

Cost Effectiveness of Preconditioning

Many producers have shied away from preconditioning programs in the past based on a perception that the buyer receives most of the benefits and may not adequately compensate the cow-calf producer for the added value. USDA-Agriculture Marketing Service data consistently demonstrates that preconditioned calves bring between 5 percent to 10 percent higher price per cwt, which in 2018 was $35 to $50 per preconditioned calf sold. When utilizing available resources, the cost per pound of gain is significantly lower than the value of each pound gained. A 2001 Colorado State University survey of feedlot managers revealed that they would be willing to pay premiums for several value-added practices should they fit the purchase criterion, including the willingness to pay more for calves managed using a

proper vaccination schedule (83.3 percent). Vaccinated calves are even more desirable today due to interest in antimicrobial stewardship and the added cost of treatment for respiratory illness.

According to a 2007 study by Oklahoma State University and the Samuel Roberts Noble Foundation, the number of days preconditioned, average daily gain and the cost of nutrition have a significant impact on the economic returns from preconditioning. They also found that benefits from preconditioning relied on three factors: marketing heavier calves after preconditioning than at weaning, marketing calves at a higher seasonal price after preconditioning than at weaning and receiving a price premium from buyers for healthier and better performing preconditioned calves.

Premiums for preconditioned calves in Arkansas currently vary from $3 to $15/cwt. It is important to note that the cost-effectiveness of a preconditioning program may vary according to market and production conditions. A 2002 study at the University of Florida, in which preconditioning was not cost effective, determined that weight gains alone may not offset feed and overhead cost. In cases where added returns from weight gains alone do not cover preconditioning costs, calves must return an adequate premium at sale for preconditioning to be profitable.

Summary

The keys to a successful preconditioning program include maintaining a reasonable cost of gain and finding a market that is willing to pay for the added value. It is important to have a good idea of what it costs to precondition a set of calves to assess whether preconditioning is an attractive marketing option. Preconditioned feeder calves should be healthy, adapted to feed and water, castrated, dehorned and ready to start eating and gaining weight upon arrival at the pasture or feedlot.

Properly preconditioned calves may command a premium that more than pays for the cost of the preconditioning program. Management strategies such as dehorning and castrating at a young age, minimizing weaning stress and implementing effective and economical nutritional and herd health programs can improve the chances for profitable preconditioning. Although the cost-effectiveness of preconditioning will vary with market fluctuations and input costs, the potential benefits to the cattle buyer remain.

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