

Insuring feedlot health – Where does it all begin?

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Cattle that stay healthy in the feedlot produce greater revenue than those that become sick. Data from the Texas Ranch to Rail Program on over 16,000 calves showed healthy cattle returned \$67.32 per head while calves treated one or more times returned -\$20.28 per head.

Let's start at the beginning and examine factors that affect health in the feedlot.

Fetal programming

We are just beginning to examine this fascinating area of health and productivity. The nutrition of the dam during fetal development impacts the offspring's health and development. The bottom line is that anytime we "short" the cow, it could have negative effects on her and potentially negative effects on her developing fetus.

Dr. Rick Funston with the University of Nebraska, West Central Research and Education Center at North Platte, Nebraska is one of the pioneers in this developing field and I would encourage you to read his papers. We've all heard for years that 75% of the growth of the developing fetus happens during the last 2 months of gestation (Ferrell, et al. 1976). That does not mean the first 7 months are not important.

During early gestation the placenta and organs are formed with the placenta playing a major role in fetal growth. Despite much research, there is much we still do not understand. With organogenesis and, in particular, development of the cardiopulmonary system, early gestational nutrient deficiency could increase the susceptibility of that developing fetus to respiratory disease later in life (Funston et al. 2010).

We've known for years that underfeeding energy to a cow in the last trimester of gestation increases morbidity and mortality in her offspring. Colostrum quantity and quality may be decreased and calf vigor is impaired in underfed dams.

Steer calves from cows that were protein supplemented during late gestation while grazing protein deficient crop residue (5.2% CP) or stockpiled pasture (6.8% CP), had heavier carcasses, more IM fat and higher % overall body fat (Funston et al. 2010).

At all times of her life from about 14 months until she goes to market, the cow is eating for two or three.

Watch for continued research from this exciting area of fetal programming.

Calving time and environment

"When is the ideal time to calve?" is a question I've received throughout my career and my response is always, "I'll tell you a month after the fact." It is my belief that beef cows need to be low-input and low-maintenance along with highly productive and highly profitable. I think we can have all four. If this is the goal, calving in the middle of winter or middle of summer makes little sense. Calving season is a balancing act of weather at calving time balanced with weather and forage supply at rebreeding. The issue of labor at calving time should be a minor factor because low-maintenance cows that calve on their own need little labor. Tag the calf, castrate the bulls and record the data in your IRM book.

Calves born in weather conducive for a neonate to be born outside have many health advantages compared to calves born in a more confinement setting.

Calving ease in heifers

With the nearly industry-wide acceptance of Expected Progeny Differences (EPDs), rates of dystocia in beef heifers have decreased substantially over the past 30 years. The ideal situation is to breed heifers for at least one cycle via AI to highly proven (CED EPD > .70 accuracy) Angus or Red Angus bulls with CED EPDs in the top 5-10% of the breed (Angus > 11; Red Angus > 15).

Heifers experiencing dystocia have calves with decreased vigor at birth and decreased colostrum intake which is a risk factor for increased morbidity and mortality throughout life, even though the feedlot stage.

Calf vigor

Calf vigor at birth is influenced by birth weight, calving ease score, sex of calf, age of dam and breed of calf. Producers don't need to use calving ease bulls on cows but need to be reasonable with regard to birthweight (BW) EPD. While the goal is not to produce 120# calves, it is also not to produce 60# calves from mature cows. In a study in Nebraska with over 4000 calves born out of 2 year-old heifers, calf mortality was increased with calves that were significantly heavier or significantly lighter at birth than the mean (Gregory et al. 1991). Selecting for extremely low birth weight does not appear to be a sound production practice as both very heavy and very light calves at birth have reduced vigor and increased mortality to weaning. Crossbreeding/hybrid vigor will improve calf vigor, so cows should be mated to produce a crossbred calf. Cartwright et al. (1964) reported 6.1% heterosis for calf vigor at birth. That compares to 3.9% heterosis for weaning weight. One of the best ways to improve calf vigor is to crossbreed.

Colostrum

Colostrum production is influenced by dam age, genetics and nutrition. Cows should be in BCS 5.5-6.0 and heifers 6.5-7.0 at calving time to optimize colostrum production while also enhancing herd fertility. Cows produce a finite amount of immunoglobulin (Ig) and as milk EPD rises, colostrum Ig concentration will decrease as the Ig will be diluted out in a greater volume of colostrum. If the calf can nurse all the colostrum, it will still receive all of the Ig. If colostrum production is in excess of the calf's ability to ingest it, the calf will have less Ig absorption. Is this a major issue? Probably not, but it is a potential concern. Higher and higher milk EPDs are not positive in my opinion.

Research by Wittum and Perino (1995) showed that calves that had inadequate colostrum intake based on serum total protein ≤ 4.8 not only had increased sickness and death loss preweaning but also had 3.0 greater risk of feedlot morbidity. Colostrum intake and absorption of Ig is not just a neonatal calf concern.

Sandhills Calving System

An attainable goal for a cow-calf herd is 100% healthy calves year in and year out. The key is to allow all calves to be born into a "clean" environment. The definition of clean is no cattle for 2 or more months.

The Sandhills Calving System (SCS) has been well researched and adapted to herds across the country (Smith et al. 2004). It is important to understand that it is the "system" that is important, not the "sand". The system works in every state in the US and surely around the world.

In the SCS, all pregnant, adult cows are placed in a large calving lot approximately 7-10 days before calving is to start. After two weeks all cows that have already calved remain in paddock #1 with their calves while all cows yet to calve are moved to paddock #2. This allows those cows that have not yet calved to calve over the next 7 days in a new "clean" environment. After a week, cows yet to calve are moved to paddock #3, pairs remain in #2 and the process is repeated every week until calving has concluded. Bred heifers are put in a system similar and separate from the adult cows.

Calf diarrhea in herds that adopt the SCS plummets to zero in many instances. Medicine and veterinary expenses disappear and calf weaning weights improve. Calves that stay healthy on the farm or ranch of origin have a greater likelihood of health in the feedlot compared to calves that have neonatal disease.

Prewean/precondition/weaning

Preconditioning calves = win-win-win-win. Calves are healthier with improved animal welfare; cow-calf producers enjoy improved income; feedlot buyers see decreased morbidity and mortality with improved profits and consumers get an improved product. Keys include:

- timely vaccinations
- low-stress weaning
- proper nutrition
- targeted marketing
- feedlot acclimation

Benefits include:

- less antibiotic use
- improved beef quality assurance (BQA)
- decreased labor
- improved carcass quality

Data from the Ranch to Rail (TX) and Tri-County Carcass Futurity (IA) shows the benefit of using two doses of MLV BRD vaccine well before feedlot entry Lalman and Mourer (2012); Busby (2010). Timing of doses should be at least 3 weeks apart with the initial dose at least 9 weeks preweaning and the second dose at least 3 weeks before feedlot entry.

A study in Oklahoma by Kirkpatrick et al. (2008) showed the initial MLV can be given at a “normal” calf processing time (~2 months of age) with the second dose at weaning. The study showed equivalent outcomes to the more traditional 3-4 weeks prewean and at weaning with reduced labor.

Do you want to know how to make the sale of high-risk calves extinct in less than 6 months’ time? Today, every buyer of feeder cattle agrees that they will only buy PC calves and no one will bid on “high-risk” (unweaned/unvaccinated) calves at any price for the next month. I think the news of the auctioneer crying “No Sale! Take them back home!” on a group of 500# bawling calves with no vaccinations would spread like wildfire across the plains when the lot of PC calves selling before them brought \$1,250 each. While this surely will not happen, I do foresee the day that McDonald’s or Wal-Mart will say “We are only buying beef from feedlots that purchase 100% PC calves”; and that will change our industry.

Feedlot entry

To have the greatest chance for success in the feedlot, calves need proper nutrition, environment, and animal handling. The majority of calves entering the feedlot have not had access to high starch diets so feeding high fiber diets that they are accustomed upon entry seems prudent. Utilizing a professional nutritionist for balancing cost-effective rations is the norm in the well-managed feedlot. Many smaller feedlots may not feel they can afford nutritional consultation, but experience working with producers proves otherwise. With nutrition being upwards of 70% of the cost of finishing a calf, spending a relatively small amount to get the best advice is money well spent.

The ideal feedlot environment is dry but not dusty and protects against weather extremes. Shades and wind breaks should be standard features in Midwest feedlots. The use of bedding in cold and/or wet (and even extremely hot/sunny) environments has proven to be a cost-effective investment. Cattle comfort needs to have an increased focus in the feedlot.

The concept of low-stress cattle handling is gaining tremendous momentum and becoming the standard in many areas. The term “running” and “cattle” should never be used in the same sentence. A concept that likely seemed a bit “fluffy” only 10-20 years ago has become standard and it is simply the right way to treat our animals. They deserve the best we have at all times.

If you are the producer of calves, look how you can sell a premium product through improvements in:

- fetal programming/nutrition of the dam
- calving time and calving environment
- calving ease in heifers
- calf vigor with crossbreeding
- colostrum
- using the Sandhills Calving System
- prewean/precondition/weaning
- feedlot entry

If you are the buyer of feeder calves, find suppliers of calves that do “all of the above” so that you can feed a healthy, profitable calf that will produce the best possible product for the consumer.

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