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# Profitability Starts with a Live Calf

Management strategies from heifer and bull selection to assisting with delivery help assure calves get a good start in life.

by Troy Smith

**A**n axiom is defined as a premise so evident that it is accepted without argument. Perhaps a fitting axiom for the cow business is the statement: Profitability starts with a live calf. It's a statement that prompts no controversy. It requires no proof. It's obvious.

It's also a statement that should serve to remind cow-calf producers of the importance of reproductive efficiency. If a cow fails anywhere along the way from conception through gestation to parturition and delivery of a live, healthy calf, she produces no saleable product. The primary objective is that she does it right every year, for a good many years.

Of course, some cows will

fail. It's the producer's job to see that it's not the fault of management. So let's review some fundamental considerations for getting a live calf on the ground, including female selection and nutrition, the sire side of the breeding equation, and husbandry at calving time.

## Female selection

It's hard to come up with an axiom that applies to selection of breeding females, except that replacement heifers must have reached puberty prior to breeding season. Louisiana State University AgCenter Beef Cattle Specialist Karl Harborth says that's seldom a problem. He believes cow-calf producers,

in general, have done a good enough job of genetic selection that a vast majority of heifers achieve puberty as they near a year of age. Beyond that, individual producers typically apply their own selection criteria, based upon their particular goals.

Harborth cites significant differences in producers' views regarding replacement heifer development strategies. Some baby heifers along in hopes that all or nearly all candidates will ultimately enter the breeding herd. Others grow their heifers under a more challenging regimen, expecting quite a few of them to fail. Those females that pass the test are then considered best-suited to their production environment.

"I believe the greatest amount of data supports a target weight philosophy. The traditional target has been to develop heifers to about 65% of their expected mature weight, by breeding time. I think the target can range from 55% to 65%, depending on management," states Harborth. "I also think it's wise for heifers to be examined for reproductive soundness, including pelvic measurement. Pelvic size is a highly heritable trait."

Harborth recommends breeding replacement heifers to calve a month in advance of the mature cows. As first-calvers, they will have more time to recover, postpartum, and get ready to rebreed.

He advises careful monitoring of body condition of heifers and cows throughout the year. It often helps to evaluate cattle according to the nine-point body condition scoring (BCS) system, ranging from 1 (very thin) to 9 (extremely fat; see [www.cowbcs.info](http://www.cowbcs.info)). Research suggests cows with a BCS of less than 5 during late gestation, at calving time and on through breeding, may not rebreed in timely fashion. A score of 6 is often recommended for 2-year-old heifers, but heifers carrying excessive condition are more apt to experience calving difficulty.

## Female nutrition

With regard to nutrition, Harborth says maintaining adequate levels of energy and protein are the most important considerations. When pregnant females are shortchanged on energy, particularly during the 30 to 60 days prior to calving, the survivability of their calves declines. Underfed cows or heifers may have weak calves that are slow to nurse or just lack vigor. Such calves may not receive sufficient colostrum, or the dam's colostrum may be of low quality.

Harborth advises producers to keep breeding females on a steady or increasing plane of nutrition as calving time approaches, paying attention to energy and protein, but also vitamins and minerals.

"Our knowledge of vitamin and mineral



nutrition is still somewhat limited. We do know they're important to the general health and immune function of the cow and the calf she'll deliver. Dormant grazed (or harvested) forages are often deficient, and vitamin A and E supplementation is just too cheap of an insurance policy to ignore," says Harborth.

"Mineral supplementation, including trace elements, is recommended. There can be local issues, so consulting a veterinarian and nutritionist can help determine how to make sure cattle diets are balanced specifically for the producer's area," he adds.

The climate, feed resources and labor availability are considerations when choosing the best calving season. Harborth says breeding cows to calve during a period of least environmental stress will likely aid calf survivability and influence breed-back. Cattle breed and biological type matter, too, and Harborth recommends making choices suitable to the producer's climate and feed resources.

### Sire considerations

Harborth says sire selection for calving ease can also save a lot of headaches come calving time. Kansas State University geneticist and extension specialist Bob Weaber couldn't agree more. However, a pet peeve of Weaber's is that many producers still select bulls with the greatest emphasis on birth weight expected progeny difference (EPD) values, instead of calving ease EPDs. In their efforts to minimize dystocia, they often sacrifice growth when they could have it both ways.

A little heavier birth weight is okay, maintains Weaber, if it comes in a calving-ease package. He advises producers to think about the long-term effects of genetic selection and how calving ease can be improved in the herd over time.

"There's a bunch of information figured into calving ease EPDs that's not in a birth weight EPD," explains Weaber. "Calving ease EPDs include all the information included in a birth weight EPD plus all the information from reported calving ease scores. If a producer is keeping replacement females, I encourage continued selection pressure on calving ease maternal, remembering there is a negative relationship between that and calving ease direct. If you focus exclusively on calving ease direct, calving ease maternal will go in the ditch."

Environment can make a difference here, too, adds Weaber, calling calves with a little heavier birth weight "more fit" for northern climates, whereas calves with really low birth

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**— Russ Daly**

weights may be less likely to survive. When calving out on range in March, for example, a 50-pound birth weight might be a lethal genetic defect.

"Bottom line, though, continuous selection pressure on low birth weight will drive down, or at least impede, progress in selection for weaning weight," affirms Weaber.

Various genetic abnormalities can cause embryo loss or calf deaths. Most defects result when an individual animal receives an

associated gene from each of its parents. With modern DNA-testing technology, carriers of known genetic defects can be identified. Rather than buy trouble, Weaber recommends sourcing bulls that are free of known genetic defects, especially if carrier bulls have been used in the past.

### Prevent disease

Weaber also advises producers to guard against seedstock purchases that could introduce diseases that impact female fertility and embryo or calf survival. Producers are well-advised to buy bulls tested free of

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trichomoniasis, for example. South Dakota State University Extension Veterinarian Russ Daly calls “trich” a good example of why producers should take biosecurity measures seriously when bringing new animals to their operations.

“I like to see bulls and other new animals kept separate from the herd for 30 days,” states Daly. “Keep them quarantined and watch them until they recover from stress. During this period, they are at higher risk for shedding any number of infectious organisms, and getting new animals acclimated to the new environment is always a good idea anyway.”

Daly says the time for producers to chat with their veterinarian about disease testing

and vaccination recommendations is prior to purchase. Well before turnout is the time for all bulls to be subjected to breeding soundness examination.

“A breeding soundness exam is the cheapest form of insurance a producer has,” opines Daly. “It should include a careful look at all parameters of semen quality, plus an assessment of a bull’s physical ability to travel and service cows. It pays to have it done for every bull, before every breeding season.”

For optimum pregnancy rates, Daly also advises producers to make sure they use a sufficient number of bulls to cover the given number of females, with consideration for the size of pastures, terrain and other environmental conditions. A breeding

soundness examination cannot evaluate libido, so bulls should be observed to make sure they are willing to work.

According to Daly, recommendations can vary by area, so producers should work with their veterinarians to develop and apply effective programs for internal parasite control and immunization against infectious disease. Protection against viral diseases, including infectious bovine rhinotracheitis (IBR) and bovine viral diarrhea (BVD) are important to reproductive efficiency, and immunization against leptospirosis and campylobacter (vibriosis) is always recommended.

“We don’t see much vibrio anymore, and it’s probably because so many producers have

done a good job of vaccinating their herds for so long,” notes Daly. “It shows what routine vaccination can do, so we shouldn’t become complacent.”

Particularly for diseases that can impact embryo and calf survivability, Daly likes to see cows and heifers vaccinated four to eight weeks prior to breeding season. That way, a high level of immunity should exist during establishment of pregnancy and early gestation.

“For me, prebreeding vaccination is the way to go,” says Daly. “For some producers, that’s very difficult and the only way they get their herds vaccinated is when cows are pregnancy-tested. It’s not ideal, but it’s sometimes the only alternative. But pregnant

cow vaccination ought to be discussed with a veterinarian first, when use of modified-live virus vaccines are considered.”

### **Know when to help**

Regarding husbandry skills when attending calving cows, Daly advises producers to become familiar with the successive stages of the birthing process. They need to understand what’s normal and what is abnormal.

“You have to know when it’s time to intervene and be able to make that decision. A delay could be depriving the calf of oxygen and jeopardizing its survival,” emphasizes Daly. “Probably most important is knowing your limitations and when it’s time to call for help.”

Daly says a new calf needs to ingest colostrum as soon as possible, to get its nutritional “jump-start” and passive transfer of immunity. After 24 hours, he explains, the antibodies in colostrum are of little benefit to the calf. If producers are implementing an immunization program against calf scours, cows should be vaccinated precalving to make sure immunity is passed to calves through colostrum.

According to Daly, proper attention to herd nutrition and health, and thoughtful selection and management of bulls will go a long way toward assuring the delivery of live, healthy calves.

“Ideally,” he says, “they’ll all bounce up, nurse and get going.”

