



Where it all begins

Beef production is a natural system, but management means not leaving it to the whims of nature.

Everything in the cattle business begins with conception, so reproductive physiology has become a key area of study aimed at improving efficiency and beef quality.

That means understanding the points where intervention can result in better performance, and developing strategies that work.

Calves begin producing hormones as young as six weeks, but puberty usually waits until 10 to 12 months of age. Still, a few heifers are “precocious,” which is one of several reasons to make bull calves into steers early on. When weaning is very late or intact bulls penned with heifers after weaning, unplanned but not surprising pregnancies occur. These are often disastrous, and feedlots that buy mixed heifers deal with most of the results.

On the other hand, when nutrition is short, puberty may be delayed so that not all heifers are cycling even at a normal breeding age of 14 to 16 months. Older cows, too, can become “anestrous,” incapable of breeding, when their nutritional needs are not met.

Nutrition may be the single most important factor in successful cattle breeding. A rising plane of nutrition helps get things started, and if cows are too thin, you can help with a boost in feed energy or forage quality a couple of weeks before breeding.

To avoid the need for a supplemental flush, most producers plan breeding season to coincide with the lush pastures of late spring or fall regrowth. A nutrition program that works for 90% of the cattle is optimum, and it is generally not worth feeding extra in an attempt to get more bred.

One standard of efficiency is a two-month calving period, which allows for up to three breeding opportunities. There is little reason to allow more than 80 days, which gives every cow three chances.

Artificial insemination (AI) is one of the most important intervention strategies, particularly combined with estrus synchronization. Estrus, or “heat” is the day within the 21-day estrous cycle just before ovulation when cows are receptive to the bull or breeding.

Hormones govern the cycle, and synchronization affects them with a series of fed and injected treatments. These first stop all estrous cycles like resetting a stop watch, and then encourage secretion of hormones that restart most of them. Heat detection, based on observation of cows willing to stand for mounting, tells AI technicians to breed half a day later. Further synchronization to induce ovulation allows for timed breeding of any animals that don’t show signs of heat after a couple of days.

AI makes for rapid genetic progress through bull selection from the top trait leaders and selection of their daughters for replacements. It also allows strategic breeding to complement any gaps or enhance some traits in certain cows. Secure and convenient facilities are the main obstacle to using this technology, which most producers have yet to try.

Typically 60% to 70% efficient on one service, AI usually requires use of “cleanup” bulls, but in any case, you need bulls to breed cows. A veterinarian should evaluate them for breeding soundness prior to use. This may not be convenient, but neither is a strung out calving season or a large number of open cows. Nutrition and body condition is also a key to success in bull fertility.

Other environmental factors such as temperature, terrain, injury and disease can affect conception rates, fetal viability and calving results. Planning, observation and treatment can manage these.

Pregnancy, the period of about 280 days after the embryo implants in the uterus with its newly formed placenta, is regulated by hormones until the birth process. The placenta signals the uterus to contract and expel the calf and placenta in a few hours, after which the calf stands and drinks the first milk, or colostrum.

Lactation is the final phase of the reproductive cycle. Man domesticated cattle for their milk, but in beef production, it all goes to get the calf off to a good start. Volume peaks after a couple of months, but quality can remain high until weaning. A poor match of genetic milk output with environment or nutrition often results in anestrous cows that don't breed back even given several months.

Next time in *Black Ink*, we'll look at teachable moments. Questions? Call toll-free at 877-241-0717 or e-mail steve@certifiedangusbeef.com.

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