



CATTLEMAN'S CORNER



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What cow-calf producers should maximize

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Cow-calf production occurs across most of the U.S. in a wide variety of production environments. I had a very enjoyable opportunity to visit several ranches in southern Florida last week and learn more about the challenges of cow-calf production in one of the most unique production environments in the country. Producers in this region are keenly aware of the need to match cattle to the environment and of the tradeoffs between production targets and costs of achieving those targets. Though perhaps not as obvious in less extreme environments, the decision principles used by the Florida producers are the same for cattle producers everywhere.

It is easy for ranchers to focus on various production attributes and get caught up maximizing technical measures of production such as weaning weights, conception rates or stocking rates. However, as those Florida producers are keenly aware, it is obvious that maximizing narrow production measures will not be economical. For example, attempting to maximize conception rates will result in increasing cost to achieve the last increments of additional conception. The correct approach is to optimize by increasing conception rates until the value of the last percent of additional conception is equal to the cost of achieving that level of conception. In a more adverse environment such as southern Florida, that optimal level of conception is likely to be lower than it would be in more moderate situations. The need to optimize rather than maximize applies to other production measures such as weaning weights, stocking rates, and the rest. The biggest weaning weights or highest calving percentages may provide coffee shop bragging rights but it is usually a costly gloat.

Producers around the country are increasingly aware that optimization begins with matching cows to their environment. More and more, producers are recognizing that cow weights have trended up over time and now exceed the efficient size in many situations. Often, this happened as a result of chasing higher weaning weights which led to selection of bigger and bigger replacement heifers. Putting values on inputs and outputs translates technical efficiency measures into economic efficiency and highlights that changes in values also affects optimal decisions. Thus, for example, either lower calf prices or higher input costs should lead to marginal decisions to use fewer inputs and adjust output despite the fact that technical efficiency of inputs has not changed. Net returns per cow put values on inputs and outputs and combines many production measures into a single value but even that is a limited measure.

Land is the primary resource used in cattle production and cattle are simply a convenient means to harvest the forage produced on the land. The most important measure for cow-calf producers and the one that should be maximized is net returns per acre. Maximizing net returns per acre highlights that the ultimate objective of cow-calf producers is to market forage to the highest value. Maximizing net returns per acre is accomplished by optimizing the array of production parameters that contribute to cow-calf production. Additionally, a focus on net returns per acre means that ranchers should think beyond narrowly defined weaned calf production and evaluate the potential for retained calves or complementary stocker enterprises in conjunction with cow-calf production to boost net returns per acre. The level of production; the method of production; and the mix of production enterprises are all subject to change as input and output market values change. With a new production season approaching, January is a good time to evaluate the cow-calf operation relative to production efficiency and changing input and output values to determine if all components of the ranch are being optimized and contributing to maximum net returns per acre.

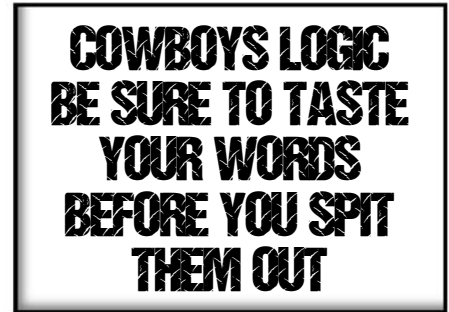
The 3 stages of parturition (calving)

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Animal scientists and veterinarians agree that there are three important stages of any cow's delivery of the baby calf. Understanding what to expect during the normal delivery can help to determine when a cow needs assistance due to a problem that occurs during calving.

Stage 1

The first stage of parturition is dilation of the cervix. The normal cervix is tightly closed right up until the cervical plug is completely dissolved. In stage 1, cervical dilation begins some 4 to 24 hours before the completion of parturition. During this time the "progesterone block" is no longer present and the uterine muscles are becoming more sensitive to all factors that increase the rate and strength of contractions. At the beginning, the contractile forces primarily influence the relaxation of the cervix but uterine muscular activity is still rather quiet. Stage 1 is likely to go completely unnoticed, but there may be some behavioral differences such as isolation or discomfort. At the end of stage one, there may be some noticeable behavioral changes such as elevation of the tail, switching of the tail and increased mucous discharge.



Stage 2

The second stage of parturition is defined as the delivery of the newborn. It begins with the entrance of the membranes and fetus into the pelvic canal and ends with the completed birth of the calf. So the second stage is the one in which we really are interested. This is where all the action is. Clinically, and from a practical aspect we would define the beginning of stage 2 as the appearance of membranes or water bag at the vulva. The traditional texts, fact sheets, magazines, and other publications that we read may state that stage 2 in cattle lasts from 2 to 4 hours.

However, data from Oklahoma State University (Putnam, et al. 1985) and the USDA experiment station at Miles City, Montana (Doornbos, et al. 1984), would indicate that stage 2 is much shorter being approximately 1 hour for heifers and 30 minutes for adult cows. In these studies, assistance was given if stage 2 progressed more than 2 hours after the appearance of water bag at the vulva. The interesting thing about the data was that heifers calving unassisted did so in an average time of about 55 minutes after the initiation of stage 2 and adult cows did so within about 22 minutes of the initiation of stage 2. Those that took longer needed assistance. These and other data would indicate that normal stage 2 of parturition should be redefined as approximately 1 hour for heifers and 30 minutes for cows. In heifers, not only is the pelvic opening smaller, but also the soft tissue has never been expanded. Older cows have had deliveries in previous years and birth should go quite rapidly unless there is some abnormality such as a very large calf, backwards calf, leg back or twins.

Stage 3

The third stage of parturition is the shedding of the placenta or fetal membranes. In cattle this normally occurs in less than 8-12 hours. The membranes are considered retained if after 12 hours they have not been shed. Years ago it was considered necessary to remove the membranes by manually "unbuttoning" the attachments. However, research has shown that improper manual removal can be detrimental to uterine health and future conception rates. Administration of antibiotics usually will guard against infection and the placenta will slough out in 4-7 days. **Contact your veterinarian for the proper management of a retained placenta.** Before the spring calving season begins, download and read [Calving Time Management for Beef Cows and Heifers \(Oklahoma State University E-1006\)](#).

How will cattle and beef markets be different in 2016?

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Cattle markets in 2015 transitioned from what 2014 was to more like what 2016 will be. Beef production will be up three to four percent annually from 2015 levels, which was the lowest since 1993. Increased beef production in 2016 is still a low number historically. That increase began with a two percent year over year increase in beef production in the fourth quarter of 2015. Beef production will grow more in the second half of 2016 as limited recent feedlot placements will constrain beef production the first few months of the year.

Beef herd expansion was aggressive in 2015. The annual inventory numbers due out on January 29 will confirm just how aggressive and how the stage is set for 2016. Herd expansion will continue in 2016, though perhaps a bit slower than earlier expected as a result of the market shake-up in late 2015. Feeder cattle supplies will increase on a projected 1.2 percent higher 2015 calf crop but will be tempered by continued heifer retention and lower cattle imports. Cattle imports from Canada were down 27 percent year over year through October and Mexican cattle imports, though up nearly five percent for the year, dropped an estimated 30 percent year over year in the fourth quarter of 2015. Herd rebuilding in both Canada and Mexico and lower U.S. cattle prices will likely keep cattle imports down in 2016.

Changes in meat trade and the situation for competing meats will modify 2016 meat consumption significantly relative to 2015. For beef, 2015 consumption was fractionally higher year over year from 2014 as a surge in beef imports more than offset decreased beef production. In 2016, sharply lower beef imports will likely offset much of increased domestic production and lead to an expected one percent increase in domestic beef consumption. Beef imports began dropping in late 2015 with October imports (latest data) down 13 percent, led by a 33 percent year over year drop in imports from Australia. 2016 beef imports are projected down year over year by 12 to 15 percent. Beef exports are expected to be plus or minus equal to 2015 levels after dropping by nearly 14 percent in 2015. Beef export recovery will be slow but may begin in 2016. Lower beef prices will support beef exports but continuing global economic concerns, especially regarding China, will likely keep the dollar value high and limit beef (and other meat) exports.

Pork production, after jumping 7.4 percent year over year in 2015, will grow much more modestly in 2016, perhaps around one percent. Most of that growth will be in the first quarter of 2016 as peak market hog inventories move through meat markets. The December Hogs and pigs report confirmed that current hog numbers are record high but also showed that peak production is on the ground now and sow farrowings are expected decrease into 2016. Pork exports, up a sluggish 1.9 percent in 2015, are projected to increase six to seven percent in 2016. Modest production increase and better pork exports mean that domestic pork consumption may actually decline fractionally in 2016.

Broiler production is also expected to grow more modestly in 2016; perhaps two to three percent compared to nearly 4 percent in 2015. More importantly, in the absence of any more avian influenza, broiler exports are projected to increase seven to eight percent year over year, compared to a 12 percent drop in 2015. Domestic broiler consumption is projected to increase 1.5 percent in 2016; compared to a 6.2 percent increase year over year in 2015.

Taken together, these changes in meat production mean that total meat production will increase less than 2 percent in 2016, compared to a 2.7 percent year over year increase in 2015. More importantly, meat production combined with trade impacts mean that total meat consumption will only increase fractionally in 2016 following a 4.5 percent year over year increase in 2015. While beef production will increase the most, the overall meat situation will be more favorable in 2016 compared to 2015.

Passive immunity status and long-term health and performance of calves

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

You have heard the warning: “What happens in Las Vegas, stays in Las Vegas!!!” Perhaps you have not heard: “What happens in the first 24 hours, impacts the rest of a calf’s life”! Veterinary scientists, while with the USDA experiment station at Clay Center, Nebraska monitored health events and growth performance in a population of range beef calves in order to identify associations of production factors with baby calf passive immune status.

Blood samples were collected at 24 hours after calving from 263 crossbred calves to determine the amount of passive maternal immunity that had been obtained from colostrum. Colostrum is the first milk produced by a cow upon giving birth. The baby calves were classified with “Inadequate” or “Adequate” Passive Immune status based on that blood sample at 24 hours of age. Growth performance and health events in the study population were monitored from birth to weaning, and after weaning throughout the feedlot phase.

At the end of the day, if you're able to say that you lived well, loved much and laughed often then you, my friend, are the wealthiest person on Earth.

The lowest levels of passive immunity were observed among calves that were sick or died prior to weaning. Calves with “inadequate” passive immunity had a 5.4 times greater risk of death prior to weaning, 6.4 times greater risk of being sick during the first 28 days of life, and 3.2 times greater risk of being sick any time prior to weaning when compared to calves with “adequate” passive transfer. Based on 24 hour proteins (most of which are antibodies or immunoglobulins) in the blood, the risk of being sick in the feedlot was also three times greater for “Inadequate” compared to “Adequate” calves. Passive immune status was also indirectly associated with growth rates through its effects on calf health. Sickness during the first 28 days of life was associated with a 35 pound lower expected weaning weight. Respiratory disease in the feedlot resulted in a .09 lb lower expected average daily gain.

Thus, passive immunity obtained from colostrum was an important factor determining the health of calves both pre- and post-weaning, and indirectly influenced calf growth rate during the same periods. Therefore, the cow calf producers can help themselves and the future owners of their calves, by properly growing replacement heifers, providing a good health program for cows and heifers, and providing natural or commercial colostrum replacers to calves that do not receive it in adequate quantities on their own. Remember that most of the transfer of antibodies from colostrum to the calf happens in the first 6 hours. The first day sets the stage for the rest of his life. (Source: Wittum and Perino. 1995. Amer. Jour. Of Vet. Research. 56:1149.)

Feeding for cold weather

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Thus far, most of Oklahoma has experienced a relatively mild start to winter. Nonetheless, colder weather is likely to occur before spring time and green grass. The major effect of cold on nutrient requirement of cows is increased need for energy. To determine magnitude of cold, lower critical temperature for beef cows must first be estimated. For cows with a dry winter hair coat the lower critical temperature is considered to be 32 degrees F. In general, researchers have used the rule of thumb that cows' energy requirements increase 1% for each degree the wind chill is below the 32 degree lower critical temperature. In this example, the TV weatherman has predicted that wind chills will average about 4 degrees F. Therefore the calculation example for a cow with a winter dry hair coat would be:

Step 1: Cow's lower critical temperature is 32 degrees F.

Step 2: Expected wind-chill from weather reports (4 degrees wind chill in this example)

Step 3: Calculate the magnitude of the cold as the difference between the lower critical temperature and the wind chill: 32 degrees - 4 degrees = 28 degrees

Step 4: Energy adjustment is 1% for each degree magnitude of cold or 28%.

Step 5: Feed cows 128% of daily energy amount. (if cow was to receive 16 pounds of high quality grass/legume hay; then feed 20.5 pounds of hay during the cold weather event).

Research has indicated that energy requirement for maintenance of beef cows with a **wet** hair coat is much greater. Cows that are exposed to falling precipitation and have the wet hair coats are considered to have reached the lower critical temperature at 59 degrees F. In addition, the requirements change twice as much for each degree change in wind-chill factor. In other words, the energy requirement actually increases 2% for each degree below 59 degrees F. To calculate the magnitude of the cold when the cow is wet would be the difference between 59 degrees minus 4 degrees = 55 degrees. True energy requirements to maintain a wet cow in this weather would be 2% X 55 degrees or 110 % increase in energy (which would mean that over twice the normal energy intake is needed.)

This amount of energy change is virtually impossible to accomplish with feedstuffs available on ranches. In addition this amount of energy change in the diet of cows accustomed to a high roughage diet must be made very gradually to avoid severe digestive disorders. Therefore, the more common-sense approach is a smaller increase in energy requirements during wet cold weather and extending the increase into more pleasant weather to help regain energy lost during the storm.

Cows that were consuming 16 pounds of grass hay per day and 5 pounds of 20% range cubes could be increased to 20 pounds of grass hay offered per day plus 6 to 7 pounds of range cubes during the severe weather event. This is not a doubling of the energy intake but by extending this amount for a couple of days after the storm may help overcome some of the energy loss during the storm and done in a manner that does not cause digestive disorders.

The fact that it is not feasible to feed a wet, very cold cow enough to maintain her current body condition, underscores the need for cows to be in “good” body condition at the start of winter.

Dewormed calves get head start in the feedlot

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Cow-calf producers that are considering retained ownership of the calves through the feedlot may wish to consider deworming the calves before shipping. Research at Iowa State University (Source: Clark and co-workers. Professional Animal Scientist. 2015. Page 412.) indicates that internal parasite loads may affect calf performance and profitability in the feedlot. Calves were individually assessed for fecal egg counts upon arrival at the feedlot. They were divided into two groups that had “High” or “Low” initial fecal egg counts. All the calves were dewormed after the initial evaluation. The “High” group tended to have lower weight gain during the first 4 weeks, but no differences were found in overall rate of gain throughout the entire feeding period. More “High” calves were treated for illness and received more frequent re-treatment than the “Low” group. Therefore the treatment costs were 4 times higher for calves with “High” initial fecal egg counts than the “Low” calves.

Initial parasite loads did not impact final carcass weight or yield grade, but back fat and marbling scores were lower for “High” than “Low” calves. Increased marbling scores often translate to higher quality grades and higher carcass values when sold on a grid. This data suggests that cow-calf producers that retain ownership through the feedlot would benefit from deworming the calves before sending them to feedlot. Likewise, producers who routinely sell to repeat customers may find that the dewormed calves will be popular with the cattle feeder that sees lower treatment costs and higher grading carcasses when sold.

Taking advantage of good weather

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

These pleasant December days (after the rain and ice storms of the previous week) could be put to good use in preparation for the spring calving season. Now is a good time to check the pens, calving stalls and the equipment

that will be used in February and March. Do a “walk through” of pens, chutes, and calving stalls. Make sure that all are clean, dry, strong, safe and functioning correctly. Many producers use the calving shed or stalls for storage the “other” ten months of the year. Now is an excellent chance to clear out the items that are in the way and not needed for assisting the cow or heifer in labor. This is much easier to do on a sunny afternoon than on a cold dark night when you need them in a hurry.

Now is also a good time also to begin the practice of “nighttime feeding”. It is generally accepted that adequate supervision at calving has a significant impact on reducing calf mortality. On most ranching operations, supervision of the first calf heifers will be best accomplished in daylight hours and the poorest observation takes place in the middle of the night.

The easiest and most practical method of inhibiting nighttime calving at present is by feeding cows late in the day or at night. The physiological mechanism is unknown, but some hormonal effect may be involved. In the most convincing study to date, about half of 1331 cows on 15 farms in Iowa were fed once daily at dusk; 85% of their calves were born between 6:00 am and 6:00 pm. The other half of the cows were fed in the morning and approximately 50% calved in daylight and the others between 6:00 pm and 6:00 am. On many large ranches, it is physically impossible to feed all of the cows at or near dusk. In those instances, the ranch manager should plan to feed the mature cows earlier in the day, then feed the first calf heifers at dusk. The heifers, of course, are the group of females that are of greatest need of observation during the calving season. Many producers have big round bales of hay available 24/7. Delivering the supplement late in the day seems to have a similar impact. Oklahoma State University records have indicated that 70% of cows supplemented at 5:00 pm calved in daylight hours.

Various means have been employed to effectively reduce animal loss at calving time. Experienced personnel should be available to render obstetric assistance and neonatal care to maximize percentage calf crop weaned in the cattle operation. Currently, evening feeding of cattle seems to be the most effective method of influencing parturition timing so assistance can be available during daylight hours. Unfortunately a percentage of cows will still calve in the middle of the night. Therefore those 2 am heifer checks are still warranted.

**When you reach the
end of your rope, tie a
knot in it and hang on!**

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This Newsletter is one way of communicating cattle information to those interested.

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