



# CATTLEMAN'S CORNER



Division of Agriculture Sciences and Natural Resources \* Oklahoma State University

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## The beef industry miracle

Derrell S. Peel, Oklahoma State University Extension Livestock Marketing Specialist

As we wrap up 2018, it's worth a moment to pause and consider the amazing day to day performance and accomplishments of the U.S. cattle and beef industry. Beef production in 2018 is projected to total nearly 27 billion pounds of beef products resulting from the slaughter of 33 million head of cattle. The economic system that connects cattle production to beef consumption is remarkably complex and is a challenge for producers and consumers alike to understand and appreciate.

The marketing challenge for beef is no different than for any other product: providing the right product; in the right form; at the right time; in the right place; at a price that represents value to the consumer. Consumer demand for a given product, say a ribeye steak, is met by a marketing system that must simultaneously meet that demand and maximize the value of the large set of products resulting from fabricating the carcass in order to provide a ribeye steak. For consumers, beef demand for a given product on any given day occurs in diverse markets ranging from retail grocery; restaurants (HRI: hotel, restaurant and institutions); or in a variety of international export destinations and, of course, not all products are consumed in all markets. What we refer to simply as beef demand is really a vast array of demands for the multitude of products that result from the disassembly of beef carcasses. Moreover, beef products are perishable and mostly marketed fresh; which means that the ability to use product inventories to balance dynamic supply and demand flows is typically limited to a short period of a few days. It's easy to take for granted that fresh beef will be available in a wide range of domestic and international markets every day of the year but the process is truly remarkable.

In order to meet that fresh beef demand, a continuous flow of cattle ready for slaughter must be available throughout the year. The flow of fed cattle into the packing industry is the result of multiple production sectors and a lengthy production process. The majority of cattle slaughter is young cattle finished in feedlots in a five to six month feeding phase. Prior to finishing, many cattle grow in a stocker or backgrounding phase that typically lasts from four to six months. Stocker cattle are calves typically weaned at seven to nine months of age as the product of cow-calf production. This means cattle are slaughtered at roughly 18 months of age, with adjustments in any or all of these production phases resulting in a range of slaughter age from 15 to 22 months or more. Add to that nine months of gestation to produce a calf and the total time between fresh beef for consumers and a rancher's decision to turn out the bull is more than two years.

Additionally, there are numerous other dimensions of cattle production that add to the complexity of the industry. Cattle production occurs all over the country in a wide range of climate conditions ranging from semi-tropical to subarctic. Cattle are ruminants and able to use a wide range of feed resources which add flexibility to cattle production but also add to the challenge of adjusting cattle production in response to the dynamic market conditions described above.

Cow-calf and stocker producers, feedlots, packers, further processors and a host of other workers in transportation, stocking, cooking, serving and countless other industry participants work every day to make sure that restaurant diners and grocery shoppers don't have to think about where and how that beef product came to be available at that moment...or indeed that it would be there at all. It truly is a miracle.

## **Study your lesson before calving season begins**

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Several years ago, one popular industry publication listed an Oklahoma State University Extension Bulletin as one of 6 most important pieces of equipment needed for producers during the calving season. The bulletin mentioned was Oklahoma State University [Extension Circular E-1006, “Calving Time Management for Beef Cows and Heifers”](#). This circular is free to download and should be recommended reading and reviewing before each calving season. Every member of the family and hired staff that will be involved with watching cows and heifers during the calving season should read this bulletin.

“Calving Time Management for Beef Cows and Heifers” discusses the 3 stages of a normal calving and then the causes and impacts of a difficult birth (dystocia). A thorough discussion of the signs of impending calving is followed by a description of when and how to examine a cow to determine the need for intervention. Detailed diagrams of most of the potential abnormal presentations are included with descriptions of necessary manipulations that will be required before the calf can be delivered. Proper placement of the obstetrical chains and the advantages of rotating the calf to ease passage through the pelvic opening are important sections to read.

“Dos” and “Don’ts” of treating retained placentas and understanding prolapses are other important topics that beef producers will want to review. The last page of [“Calving Time Management for Beef Cows and Heifers”](#) is a gestation table that will list the estimated “due date” for each potential breeding date.

Before the first heifer of the 2019 calving season needs help, take time to read and study this free document. Some of this information may very well help you save one or more of those valuable calves at calving time. The link to this bulletin is: <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-9389/E-1006web2014.pdf>.

## **The accumulating impacts and costs of trade wars**

Derrell S. Peel, Oklahoma State University Extension Livestock Marketing Specialist

Evolving market dynamics make it easy to underestimate how the impacts and costs of trade issues will continue to grow in 2019. Many agricultural markets have been impacted thus far and the damage will grow and spread unless resolutions are forthcoming promptly. Trade issues will have accumulating impacts in a variety of ways as more time passes.

The most obvious impacts of trade wars are the direct impacts of tariffs and disruptions in trade flows in specific markets. This includes numerous agricultural markets; in particular soybeans and pork as a result of reciprocal tariffs with China; and pork and dairy markets as a result of the retaliatory tariffs from U.S. imposed tariffs on steel and aluminum. The new NAFTA (USMCA) agreement is not yet ratified and implemented but, in any event, much of the benefit is negated by these other tariffs. Economic impacts of tariffs may be initially limited mostly to changes in margins if the disruptions are perceived to be short-lived. Later the impacts will evolve from the initial market shock to larger and more permanent adjustments. With more time and on-going uncertainty about trade issues, more and more of the cost of tariffs are passed on to buyers; alternative products flows develop; and lost market shares become much more difficult to undo. The direct costs of tariffs are difficult to measure but certainly grow over time.

Even more difficult to measure are the lost opportunities associated with trade issues. It’s difficult to know how much you lost from something you never had. For example, the U.S. withdrew from the Trans-Pacific Partnership (TPP) two years ago. The remaining eleven countries continued and launched the revised TPP

(CPTPP) in January 2019. Not only does the U.S. not have the benefit of tariff adjustments and increased market access with TPP; going forward the U.S. will be increasingly less competitive and likely lose ground relative to TPP participants. The stated U.S. intention to negotiate bilateral trade deals with Japan and others has so far not resulted in new agreements or even serious discussions. Any agreements that may result are many months if not years away. In China, the U.S. beef industry had barely begun to build on the market access achieved in 2017 before tariffs hit in 2018. What was expected to be a lengthy process to grow market share for U.S. beef is now at a standstill. While the tariffs didn't result in significant direct impact since little U.S. beef was exported to China but it certainly is restricting any chance for U.S. beef to participate in the growing Chinese market for beef.

Finally, the uncertainty of global trade turmoil takes a significant but largely unmeasurable toll on the economy. It is nearly impossible to know how much trade and investment has been postponed or abandoned as a result of trade uncertainty the past two years. The combined direct impacts; lost trade opportunities; and on-going uncertainty are reducing growth potential for U.S. and global economies and those impacts are likely to grow in 2019 barring improvement in trade issues. The U.S. macroeconomy has been strong thus far but that doesn't mean that there were no trade impacts and, more importantly, it doesn't mean that the economy can continue to absorb trade related blows without more obvious damage.

The beef industry enjoyed strong demand and supportive trade in 2018 but who knows what it might have been without trade impacts. More importantly, growing trade impacts on domestic and international markets could mean that (obvious) negative impacts will be apparent in 2019 while lost opportunities that are less obvious will no doubt continue and grow.

## **The 3 stages of parturition**

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

As the spring calving season approaches, an increased understanding of the parturition process is helpful. The more we understand about the physiology of the process, the more likely we are to make sound decisions about providing assistance. Parturition or "calving" is generally considered to occur in three stages.

**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 2 to 24 hours before the completion of parturition (2 to 6 hours would be most common). 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 behavioral changes such as elevation of the tail, switching of the tail and increased mucous discharge. Also relaxation (softening) of the pelvic ligaments near the pinbones may become visually evident, giving a "sunken" appearance on each side of the tailhead. **Checking for complete cervical dilation is important before forced extraction ("pulling") of the calf is attempted.**

**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 we find all of the action. 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 state that stage 2 in cattle lasts from 2 to 5 hours. Data from Oklahoma State University and the USDA experiment station at Miles

City, Montana, would indicate that stage two is MUCH shorter. In these studies, assistance was given if stage two progressed more than two hours after the appearance of water bag at the vulva. The interesting thing about the data was that the heifers calving unassisted, did so in about one hour after the initiation of stage two, and mature cows calved within an average of 22 minutes of the initiation of stage two. Those that took longer needed assistance. These and other data would indicate that normal stage two of parturition would be redefined as approximately 60 minutes for heifers and 30 minutes for adult cows. In heifers, not only is the pelvic opening smaller, but also the soft tissue has never been expanded. Older cows have had deliveries before and birth should go quite rapidly unless there is some abnormality such as a very large calf, backwards calf, leg back or twins. If the cow or heifer is making good progress with each strain, allow her to continue on her own. Know your limitations. Seek professional veterinary help soon if you encounter a problem that cannot be solved easily in minutes.

**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 to 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. Research has shown that 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 to 7 days. **Contact your veterinarian for the proper management of retained placenta.**

An important ingredient for your calving season preparation is the [Oklahoma State University Extension Circular E-1006: Calving Time Management for Beef Cows and Heifers](#). Cow calf producers will want to download this free circular and read it before the first calf is born this spring.

## **Cull cow market struggles to find a bottom**

Derrell S. Peel, Oklahoma State University Extension Livestock Marketing Specialist

The cull cow market likely reached a seasonal low in November but it has been difficult to understand this market this year. Prices for Breaker cows in Oklahoma City averaged \$50.13/cwt. in November, nearly 11 percent lower year over year, while Boning cows averaged \$47.88/cwt., over 16 percent down from one year ago. Cull cow prices have been counter-seasonally lower year over year from May through October and have averaged 13-15 percent lower year over year for the last seven months.

Cull cow prices typically begin a slight recovery in December following the November seasonal low. Cull prices average a much stronger seasonal increase after January 1, increasing by 6.7 percent in January from the November low; with February up 16.2 percent; March up 18.75 percent; April up 19.6 percent and May up 21.1 percent all from the November low. From current levels, this would suggest breaking cow prices of \$53.47/cwt. in January; \$58.26/cwt in February; \$59.53/cwt. in March; \$59.94 by April and \$60.85/cwt. by May.

The question is whether the normal seasonal price increase can be expected given how weak the cull cow market has been since May of this year. One of the big factors contributing to weak cull cow prices has been weak cow boxed beef prices in the second half of 2018. In the last week of November, cow boxed beef prices were 7.8 percent lower than year earlier levels and have averaged 8.3 percent lower year over year since mid-year.

Increased supplies of cow beef is no doubt part of the cause for lower cow beef (and cull cow) prices. Total cow slaughter is projected to be up 7.2 percent in 2018 over last year, with a projected 9.6 percent year over year

increase in beef cow slaughter and 4.9 percent increase in dairy cow slaughter. This is higher than the 2017 year over year increase of 6.3 percent in total cow slaughter. Total cow slaughter in 2019 is forecast to be flat to slightly lower year over year and should reduce the supply pressure a bit following three years of increasing cow slaughter. Beef imports, the bulk of which are processing beef that compete with cow beef, have been flat in 2018 and are forecast to decrease 3-5 percent in 2019.

While overall beef demand has been strong in 2018, the demand for cow beef is more uncertain. The bulk of cow beef is used for ground beef. It is possible that ground beef demand is facing more pressure from large supplies of pork and poultry compared to beef middle meats. Cow beef (90 percent lean) is mostly used to mix with fed trimmings (50 percent lean) to make the appropriate ratio of lean to fat in ground beef. Fed trimmings prices have remained close to year ago levels in contrast to the weakness in cow beef prices. Increased fed slaughter in 2018 and forecast larger slaughter again in 2019 would seem to suggest ample fed trimmings supply to support cow beef prices. However, growing exports of some fed products, such as navels, that historically were part of fed trimmings may be the reason for stronger fed trimmings prices relative to cow beef prices.

With all that said, I expect that a relative tightening of cow beef supplies will help cull cow prices to follow close to a normal seasonal increase going into 2019. Like all beef markets it is dynamic and evolving and bears watching in the coming months.

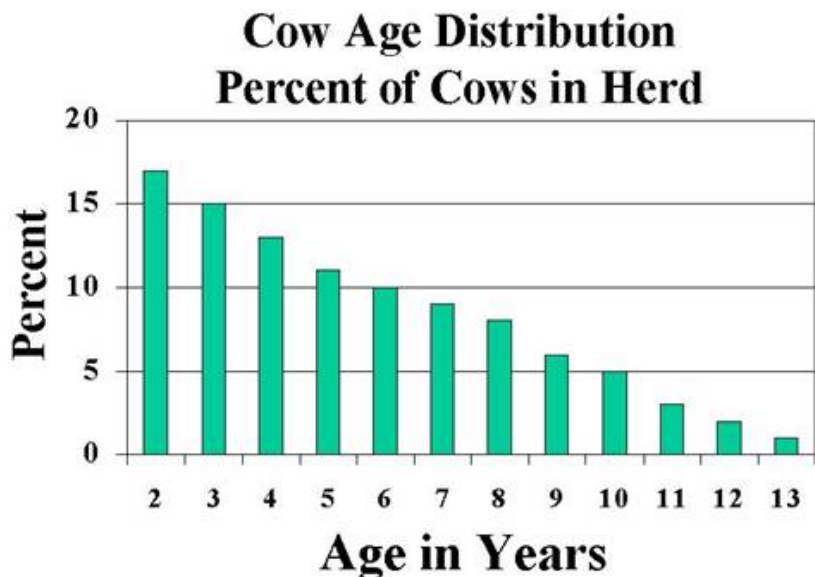
### How many heifers to keep??

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Each year commercial cow/calf operations must decide how many replacement heifers are grown out to be put in the breeding pasture. Individual ranches must make the decisions about heifer retention based upon factors that directly affect their bottom-line. Stocking rates may have changed over time due to increases in cow size. Droughts have caused herd sizes to fluctuate over time.

Matching the number of cattle to the grass and feed resources on the ranch is a constant challenge for any cow-calf producer. Also producers strive to maintain cow numbers to match their marketing plans for the long term changes in the cattle cycle. Therefore it is a constant struggle to evaluate the number of replacement heifers that must be developed or purchased to bring into the herd each year.

As a starting place in the effort to answer this question, it is important to look at the “average” cow herd to understand how many cows are in each age category. The Dickenson North Dakota Research and Extension Center reported on the average number of cows in their research herd by age group for a period of over 20 years. The following graph depicts the “average” percent of cows in this herd by age group.



The graph to the left indicates that the typical herd will, “on the average”, calve out 17% new first calf cows each year. Stated another way, if 100 cows are expected to produce a calf each year, 17 of them will be having their

first baby. Therefore this gives us a starting point in choosing how many heifers we need to save each year.

Next, we must predict the percentage of heifers that enter a breeding season that will become pregnant. The prediction is made primarily upon the nutritional growing program that the heifers receive between weaning and breeding. The rate at which heifers are grown between weaning and breeding will vary depending on the size of the operation, the land resources available, and the selection criteria desired by the cattle owner. The rate of growth between weaning and breeding will determine the percentage of heifers cycling at the start of the breeding season. Researchers many years ago, found that only half of heifers that reached 55% of their eventual mature weight were cycling by the time they entered their first breeding season. This data was reinforced with [data from Oklahoma State University](#) (Davis and Wettemann, 2009 OSU Animal Science Research Report).

Growing heifers at a slower rate between weaning and breeding would result in most of them weighing 55% of mature weight (or less) when the breeding season begins. If these heifers were exposed to a bull for a limited number of days (45-60), not all would have a chance to become pregnant during that breeding season. Therefore, it would be necessary to keep an additional 50% more heifers just to make certain that enough bred heifers were available to go into the herd. Although the cost per heifer may be lower, there will be increased total inputs because of the increase in number of animals. Remember the increased number of heifers will require additional pasture, increased health costs, and increased breeding costs. If natural breeding is used, extra bull power may be necessary. If artificial insemination is the method of choice, the larger number of heifers will require increased synchronization and AI costs. As soon as possible the heifers should be pregnancy checked and the open heifers marketed as stocker heifers. Hopefully most of the extra pasture, feed, and health inputs are recovered by the sale value of the open heifers.

However if the heifers were grown at a more rapid rate and weighed 65% of their eventual mature weight, then 90% of them would be cycling at the start of the breeding season and a much higher pregnancy rate would be the result. Therefore fewer heifers are needed. Even in the very best scenarios, a few heifers will be difficult or impossible to breed. Most experienced cow herd managers will always expose at least 10% more heifers than they need even when all heifers are grown rapidly and weigh at least 65% of the expected mature weight at bull turn-out or estrous synchronization.

The need to properly estimate the expected mature weight is important in understanding heifer growing programs. Cattle type and mature size has increased over the last half century. Rules of thumb that apply to 1000 pound mature cows very likely do not apply to your herd. Watch sale weights of culled mature cows from your herd to better estimate the needed size and weights for heifers in your program. Most commercial herds have cows that average about 1200 pounds or more. This requires that the heifers from these cows must weigh at least 780 pounds at the start of their first breeding season to expect a high percentage to be cycling when you turn in the bulls.

This discussion is meant to be a **STARTING PLACE** in the decision to determine the number of heifers needed for replacements. Ranchers must keep in mind the over-riding need to understand what forage base resources that they have available to them. If forage resources are already in consistently short supply, maintaining or increasing herd size may be counter-productive.

## **It is time to begin the early evening feeding of the spring-calving cows**

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Each year in December, it is time for a reminder to change the feeding schedule for part, if not all of the spring-calving cow herd.

It is generally accepted that adequate supervision at calving has a significant impact on reducing calf mortality. Adequate supervision has been of increasing importance with the higher price of live calves at sale time. 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 at night; the physiological mechanism is unknown, but some hormonal effect may be involved. Rumen motility studies indicate the frequency of rumen contractions falls a few hours before parturition. Intraruminal pressure begins to fall in the last 2 weeks of gestation, with a more rapid decline during calving. It has been suggested that night feeding causes intraruminal pressures to rise at night and decline in the daytime.

The concept is called the Konefal method. A Canadian rancher, Gus Konefal reported his observations in the 1970's. In a follow-up Canadian study of 104 Hereford cows, 38.4% of a group fed at 8:00 am and again at 3:00 pm delivered calves during the day, whereas 79.6% of a group fed at 11:00 am and 9:00 pm actually calved during daylight hours. In a more convincing study, 1331 cows on 15 farms in Iowa were fed once daily at dusk, 85% of the calves were born between 6:00 am and 6:00 pm.

Kansas State University scientists recorded data on 5 consecutive years in a herd of spring calving crossbred cows at the Kansas State University Agricultural Research Center at Hays, Kansas. They recorded the time of calving (to within the nearest one-half hour). Births that could not be estimated within an hour of occurrence were excluded. Cows were fed forage sorghum hay daily between 4:00 and 6:00 pm. For statistical purposes, the day was divided into four-hour periods.

Between 6:00 and 10:00 am, 34.23% of the calves were born;
Between 10:00 am and 2:00 pm, 21.23% of the calves were born;
Between 2:00 and 6:00 pm 29.83% of the calves were born;
Between 6:00 and 10:00 pm, 8.41% of the calves were born
Between 10:00 pm and 2:00 am, 4.4% of the calves were born
Between 2:00 am and 6 am, 1.91% of the calves were born

It is interesting to note that 85.28% of the calves were born between 6:00 am. and 6:00 pm. This is very similar to Iowa data when cows were fed at dusk. , **Feeding the forage in the early evening hours undoubtedly influenced the percentage of cows calving in daylight hours.** (Jaeger and co-workers. Abstracts 2002 Western Section of American Society of Animal Science.)

At Oklahoma State University, with cows that had round-the-clock access to big round bales, but the supplement was fed at dusk, 70% of the calves came in daylight hours. Some producers choose to put the big bales of hay inside a fenced pasture or lot. The gate to the hay area is opened in the evening to allow cows access to the hay bale(s), then the cows are herded out of haying area to another pasture the following morning to graze throughout the day.

Although, the Konefal method does not let us completely skip the middle of the night heifer checks, this strategy should help us save more calves that need help at delivery and shortly thereafter.

## **Beef Quality Assurance Certification for Oklahoma producers**

Bob LeValley, Oklahoma Beef Quality Assurance Coordinator

Several beef packers have announced recently that they will be requiring Beef Quality Assurance (BQA) certification from their suppliers of fed cattle. That was not news to most cattle feeders, as most commercial

feedlots are already BQA certified. The packers indicate the initiative is driven by retailers and consumers. The BQA program has been in place for many years, so it seems logical that the beef packers chose a certification program that was already established and is known across the cattle industry as the standard for producing cattle that will meet quality and safety expectations. Beef Quality Assurance is a nationally coordinated, state implemented program that provides information to U.S. beef producers and beef consumers of how common-sense production techniques can be coupled with accepted scientific knowledge to raise cattle under optimum management and environmental conditions.

While BQA certification is voluntary for cow/calf producers and stocker cattle operators, it is often just good business. Good management practices are the core of the Beef Quality Assurance program, and often add value to cattle as they progress through the marketing channels. The Oklahoma Quality Beef Network value added program has documented that calves following a vac-45 type of preconditioning program will generally sell at a premium to non-preconditioned calves. We would expect that cattle handled and transported in a low stress manner will shrink less. The potential for bruising and injuries will also be reduced.

Cattle producers and industry personnel can become BQA certified in Oklahoma by in-person training, or on-line at [BQA.org](http://www.beef.okstate.edu/). Some producers use BQA as a training program for new employees. It is a method to introduce new hires to industry accepted best management practices as well as expectations for cattle management and handling principles. Additional information regarding BQA certification can be found at <http://www.beef.okstate.edu/> or the Oklahoma Beef Council website <https://www.bqa.org/>. For in-person training opportunities, contact your local OSU Extension Office.

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

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