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AGRONOMY & BEEF BULLETIN

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CONSIDER OPTIONS FOR PREGNANCY DIAGNOSIS IN BEEF CATTLE

Factors include cost, timing, training required and completeness of the information gained.

The profitability of any business is crucial, and livestock production is no different. With most revenue originating from the sale of calves produced, retaining non-pregnant cows in a cow-calf operation is hard to justify. Therefore, this time of year is traditionally pregnancy detection season.

“Cattle producers have or soon will be removing bulls from their spring-calving cow herds, bookending another breeding season, and will need to identify which cows will calve next year before winter feed resources are allocated,” says Lacey Quail, North Dakota State University Extension livestock management specialist.

Quail recommends ranchers compare several pregnancy detection options to determine the best fit for their herd management program, as each option has unique benefits and disadvantages. Factors include cost, timing, training required and completeness of the information gained.

Expense

Cost is the first consideration for many producers when deciding the best way to diagnose pregnancy in their herds. Quail recommends producers assess cost along wit h accuracy, result timeline, and completeness of the method used. For example, monitoring estrus behavior in the herd after breeding is very affordable; however, this method carries considerable opportunity cost.

Observing cattle for estrus behavior is time-consuming and potentially inaccurate due to the individuality of estrous cycles and the impacts of nutrition, lactation and environment on cyclicity in cattle. Additionally, with estrus detection, the result is simple: pregnant or open. This method provides no other valuable information regarding fetal age or sex. On the other hand, techniques such as transrectal palpation or ultrasound are more comprehensive, but more expensive.

Timing
Pregnancy detection requires logistical planning as cows may be on summer pasture without handling facilities, or the area veterinarian may have limited availability, among other considerations. Specific methods may align better with the production timeline. For instance, transrectal ultrasound and blood antigen tests can diagnose pregnancy as soon as 28 days after the last possible breeding date, whereas diagnosing pregnancy by transrectal palpation requires a little more time (typically around 40 or more days after breeding). While blood antigen tests are accurate early in gestation, they do not give an immediate result, as it takes time to run the samples. Thus, cattle must be resorted after performing the test, which can be a deterrent due to labor demands.

"If feed resources or cattle handling facilities are limiting factors, it is important to know when each pregnancy detection method can be performed," Quail says. "Retaining and feeding cows is costly, and opting for earlier detection is often beneficial so that open cows can be marketed earlier."

Training
Each pregnancy detection method requires varying levels of training or expertise. Quail acknowledges the importance of this factor, as trained professionals are often few and far between in many remote areas devoted to cattle production. The detection of estrus and blood antigen tests both require very minimal, if any, training. They are accomplished by visual observation or simply drawing a blood sample. Both methods can be very convenient options for operations that may not have access to trained professionals. As a trade-off, these methods are not as comprehensive as those requiring more extensive training. Ranchers should consider how the timeline and expense of these methods may fit into their management plan.

Completeness
Observing for estrus behavior and testing for pregnancy-specific factors with a blood antigen test are the least comprehensive methods of pregnancy detection. There is little reliable information for producers to gain aside from whether a female is pregnant or open. In some operations, that may be all that is necessary; however, in others, it is essential to know if cattle are carrying a calf sired by artificial insemination or natural service, the predicted calving date, or whether to expect a bull or heifer calf at calving. Rectal palpation or ultrasound are the most comprehensive options for answering these questions.

Fetal age is valuable information, Quail says. In operations utilizing synchronization and fixed-time artificial insemination, it is common for natural service sires to be introduced to the cow herd around 10 days after artificial insemination. In this case, distinguishing pregnancies by artificial insemination from natural service is a breeze with palpation or ultrasound. Determining an accurate fetal age can also be helpful for producers to concentrate labor during their calving season and identify females that conceived late in the breeding season as potential cull animals. In these situations, a more accurate fetal age determined by palpation or ultrasound is necessary. Pieces of the puzzle that can only be determined by ultrasound are fetal heartbeat and fetal sex. If early embryonic loss (no detection of fetal heartbeat) is in question, or females need to be sorted by those carrying bull or heifer calves, ultrasound is the only option.

"Every operation that raises beef cattle can benefit from pregnancy diagnosis; however, the method used can vary from herd to herd," Quail says. "To find the most cost-effective method for your operation, consider how soon after breeding you need to detect pregnancy, the labor required, the availability of trained professionals, and the information you need to gain for your management system."

For more information, including a table comparing each option for pregnancy diagnosis in cattle, visit ndsu.ag/preg-check.

Beef Magazine

CHALLENGES OF THE BEEF CALF BORN IN JULY, AUGUST, AND SEPTEMBER

Heat and the Baby Calf
While summer/fall calving can be less labor intensive than winter/spring calving at times, calving out cows in the heat can be just as challenging as calving in a snowstorm. The body weight of a baby calf is about 75% water, similar to a human baby. Therefore, dehydration is a serious concern. A two-day old baby calf enduring the second day of 100-degree ambient temperature is likely experiencing some dehydration. These calves often cannot reach the water tank and may need to be administered electrolytes. A stressed calf can quickly become an ill calf who then experiences an elevated body temperature from a fever in addition to stressful ambient temperatures. An 85-degree day with 30 percent relative humidity may seem nice to humans, but it starts to cause heat stress in cattle.

A shady area with some air flow specifically for the calves can reduce heat stress potential in a young calf. A very young calf struggling with the heat may need to be manually moved to a cooler area. Just as a calf born in the cold may have to be moved to a house or barn to recover from the cold, a calf suffering heat stress will also benefit from a few hours in a cooler environment and fluids.

Cattle Work vs. Farm Work

Just like spring born calves, summer/fall born calves also need to be on a proper vaccination schedule. This typically happens at 2 months of age and at 5 or 6 months of age. If the operation is an integrated operation with crops and livestock, or both a spring and fall born herd, this can also be a very busy time for other farming and ranching operations. Planning out a schedule and prioritizing calfhood vaccinations can alleviate a lot of issues later in the calf's life and increase the market value of the calves when sold.

Nutrition Quality and the Growing Calf

There are many reasons producers decide to have a summer/fall calving herd and many positive outcomes to those decisions. However, depending on the region of the country the cowherd resides in, fall and winter feed resources may be very low in quality. The young nursing calf will generally eat approximately 1.5% BW on a dry matter basis of feed in addition to milk consumption. When forage quality is low, passage rate is slow, and intake is reduced. This reduces the nutrients available to the calf and can result in lower average daily gain than would be expected in a spring born herd grazing summer grass. Additionally, the poorer quality forage can impact milk production in the cow, also reducing the nutrients available to the calf. A supplementation program for the cows can help meet their nutrient needs. Accounting for the intake of the calf and providing that with the dam's feed or providing a creep area for calves to access feed independently of the cow can improve the nutrient intake of the calf.

From Summer's Heat to Winter's Arctic Blast

The fall born calf may only be three months old when the snow starts to fly, and the wind chills hit subzero temperatures. Windbreaks and bedding for the pairs can keep the calves from being extremely stressed during these winter events. Increasing the feed provided during cold snaps can increase the heat of fermentation in the rumen, and an increase in energy density in the diet can help combat the colder temperatures.

Summer/fall calving herds can be advantageous for producers with the right resources and marketing strategies. However, as with all agricultural endeavors, there are pros and cons. Evaluating what issues might arise and developing risk mitigation strategies ahead of time can head off many problems before they arise.

Beef Magazine

SEVERAL FACTORS ARE DRIVING STRONG CULL COW MARKETS

Cattle markets have been impressive across the board in 2025, and cull cow markets have been no exception. The monthly average price for 80-85% average dress boning cows in Kentucky set a record in June and may set a new record in July. June 2025 prices were 16% higher than June of 2024 and 62% higher than June of 2023. This is a trend across all regions of the US as demand remains strong and cull cow supplies remain tight. I want to briefly discuss some specific factors behind these price levels.

The most obvious reason for the extremely high cull cow prices has been sharp reductions in slaughter levels. As I write this in late July, beef cow slaughter is down 17% year-to-date from 2024. If this trend continued through the end of 2025, it would represent a reduction in beef cow slaughter of more than 450,000 cows. The beef cow herd was culled hard from 2021 to 2023, so it is likely that a lot of poor performers had already exited the herd. And of course, the current calf market is encouraging producers to hold on to cows a bit longer than usual. It is also worth pointing out that dairy cow slaughter is down 7% for the year, which is also contributing to the tight supplies.

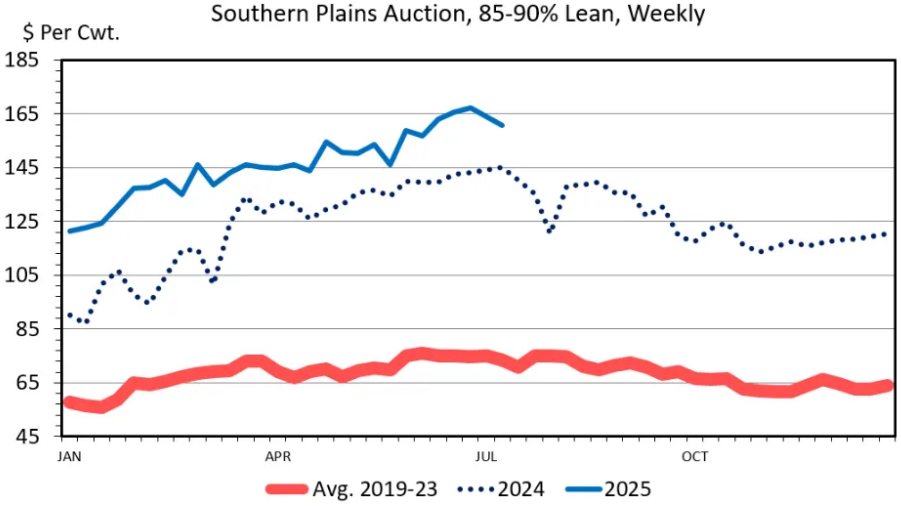
Consumer demand has been strong and has probably been overshadowed a bit by discussion of tight supplies. Ground beef represents a significant share of beef consumption, and a large portion of cull cow slaughter is targeted for the ground beef market. It is also likely that high retail prices are pushing some consumers towards lower priced ground beef, as opposed to higher priced cuts. While supply is absolutely a major factor, strong demand has added fuel to the fire.

Finally, there is another element that has not gotten as much attention, but that I consider to be significant. Multiple dynamics have pushed cattle to higher slaughter weights over the last few years, and that has led to a substantial increase in quality grades. For some perspective, 10.6% of cattle graded Prime in 2024 and that percentage is running at about 11.8% thus far in 2025. This increase in marbling also means there is an increase in the amount of fat in the trim, which creates additional demand for lean trim to be used for blending. Since cull cows are a source of lean trim, this has also contributed to strong cull cow markets.

Beef Magazine

SLAUGHTER COW PRICES

Southern Plains Auction, 85-90% Lean, Weekly



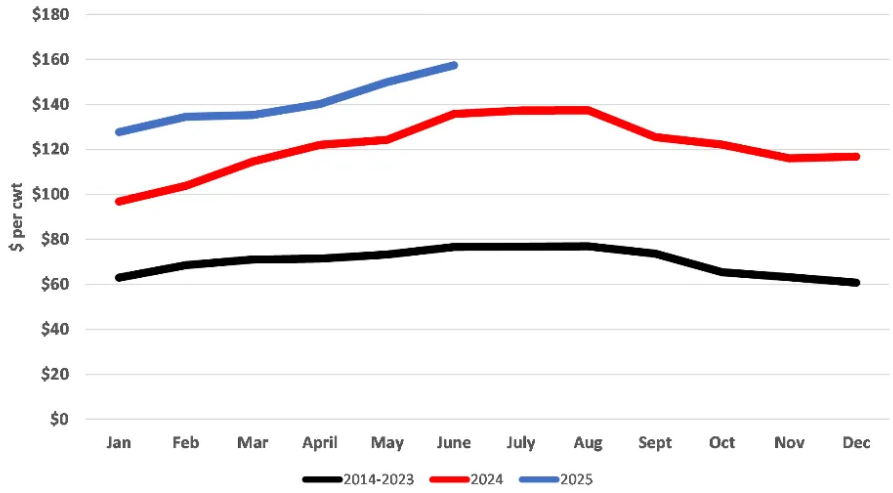
Data Source: USDA-AMS

Livestock Marketing Information Center

C-P-35
07/14/25

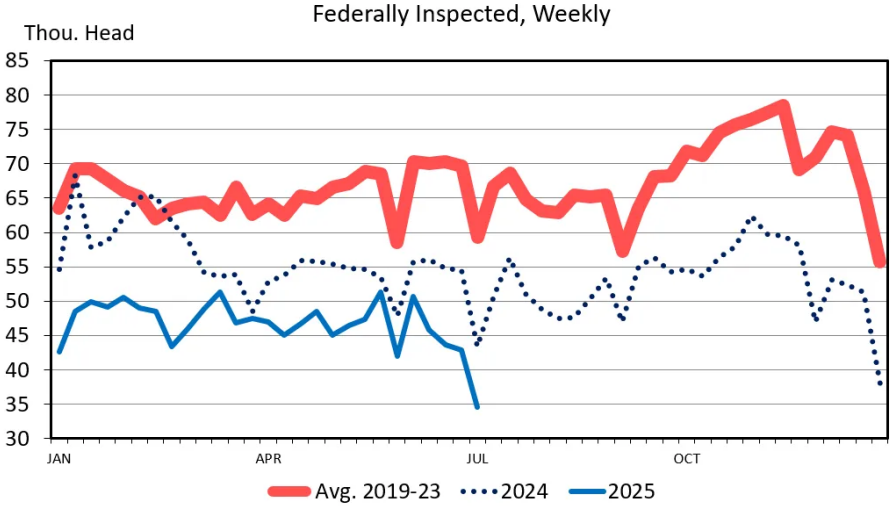
Kentucky Auction Prices: 80-85% Boning Cows

USDA-NASS, author calculations



BEEF COW SLAUGHTER

Federally Inspected, Weekly



HOW TO CALCULATE A FERTILIZER RATIO

Sometimes a fertilizer ratio is specified on soil test reports or in fertilizer recommendation sheets. The fertilizer ratio indicates the proportion of nitrogen, phosphate, and potash in the fertilizer product, and is determined by dividing each of the three numbers in the fertilizer grade (listed on the container) by the lowest number in the grade. For example, when each number in a fertilizer grade of 18-6-6 is divided by 6 (the lowest number in the grade), the proportion is determined as: three parts nitrogen to one part phosphate, to one part potash. Thus, the fertilizer has a 3-1-1 ratio.

If your soil test report recommends applying 1.5 lb of nitrogen, 0.5 lb of phosphate, and 0.5 lb of potash per 1000 sq ft, you should apply a fertilizer with a ratio of 3-1-1 since you need three times as much nitrogen as phosphate and three times as much nitrogen as potash. The simplest method of determining a ratio is to divide the weights of nitrogen, phosphate, and potash listed on the soil test report by the lowest weight of the three.

Example

To determine a fertilizer ratio for a soil test recommendation of 1.5 lb of nitrogen, 0.5 lb of phosphate, and 0.5 lb of potash, divide the weight of each of the three nutrients (1.5 lb, 0.5 lb, 0.5 lb) listed on the report by the lowest nutrient weight (0.5 lb in this case).

1.5 / 0.5 = 3

0.5 / 0.5 = 1

0.5 / 0.5 = 1

Thus, the fertilizer ratio that best fits this recommendation is 3-1-1. As demonstrated in the first paragraph, you can match the fertilizer ratio for this recommendation with a fertilizer grade by dividing each number in the fertilizer grade by the lowest number in the grade.

Example

Determine ratios for the following fertilizer grades: 21-7-7, 22-6-8, and 18-5-9.

Grade = 21-7-7	Grade = 22-6-8	Grade = 18-5-9
21 ÷ 7 = 3	22 ÷ 6 = 3.7	18 ÷ 5 = 3.6
7 ÷ 7 = 1	6 ÷ 6 = 1.0	5 ÷ 5 = 1.0
7 ÷ 7 = 1	8 ÷ 6 = 1.3	9 ÷ 5 = 1.8
Ratio = 3-1-1	Ratio = 3.7-1-1.3	Ratio = 3.6-1-1.8

As you can see from these three examples, fertilizer grades for certain products do not always match the exact fertilizer ratio you are searching for. Thus, the goal is to find a product with a grade that is as close as possible to the specified ratio.

Penn State Extension

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EVENTS / CALENDAR

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