extension
ALABAMA A&M & AUBURN UNIVERSITIES

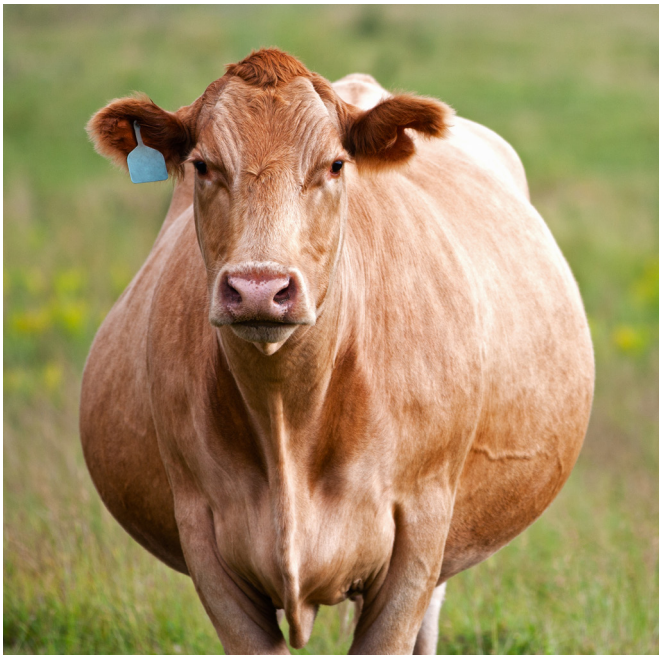
Beef Cow Pregnancy Examination

► A beef cow needs to produce a calf every year to be an economically viable member of the herd. An important management tool that will improve the reproductive efficiency of a beef herd is an annual pregnancy examination for every cow.

By determining the pregnancy status of beef cows, producers can remove the reproductively inefficient cows from the herd, which results in a combination of increased pounds of calf production per cow and lower costs per pound of calves produced. In a herd with a defined breeding season, identifying and removing open (nonpregnant) cows and replacement heifers allows more prudent utilization of valuable feed and pasture resources for productive animals.

In addition, the culling of open, subfertile cows and replacement heifers improves overall herd fertility in subsequent years (table 1) and improves pounds weaned per exposed cow and, thus, income per cow. Identifying open cows early provides more time to investigate and eliminate fertility problems associated with infectious disease, inadequate nutrition, poor bull fertility, and many other problems before the next breeding season. Pregnancy diagnosis and fetal aging also allow you to group cows according to estimated calving dates to effectively meet the management and nutritional demands of gestation, calving, lactation, and rebreeding.

Table 1 shows how overall herd fertility is improved by performing annual pregnancy examinations and culling open, subfertile cows.



Increasing the percentage of pregnant cows results in more calves weaned, which directly influences cattle herd performance and profits. Table 2 illustrates how improved weaning percentages contribute to increased pounds of calves weaned per cow and increased profit per cow. For this table, it was assumed that average calf weaning weight was 500 pounds, annual cow costs were

Table 1. Pregnancy Percentage by Year

Herd	Year 1	Year 2	Year 3	Year 4	Year 5
1	75	97	96	93	98
2	64	56	84	89	–
3	59	66	79	92	85
4	85	90	94	–	–
5	82	94	93	93	–
6	74	76	86	94	98
7	49	89	92	89	89

Source: Texas A&M AgriLife Extension Publication B-1077

Table 2. Feeder Calf Break-Even Price Per Pound and Profit Per Brood Cow for Various Weaning Percentages

Weaning Weight	Weaning Percentage	Pounds Weaned per Exposed Cow	Feeder Calf Break-Even Price		Profit per Brood Cow	
(lb./calf)		(lb./cow)	($/lb.)	($/lb.)	($/head)	($/head)
500	95%	475	$1.32	Base	$63.75	Base
500	90%	450	$1.39	-$0.07	$27.50	-$36.25
500	85%	425	$1.47	-$0.15	-$8.75	-$72.50
500	80%	400	$1.56	-$0.25	-$45.00	-$108.75
500	75%	375	$1.67	-$0.35	-$81.25	-$145.00

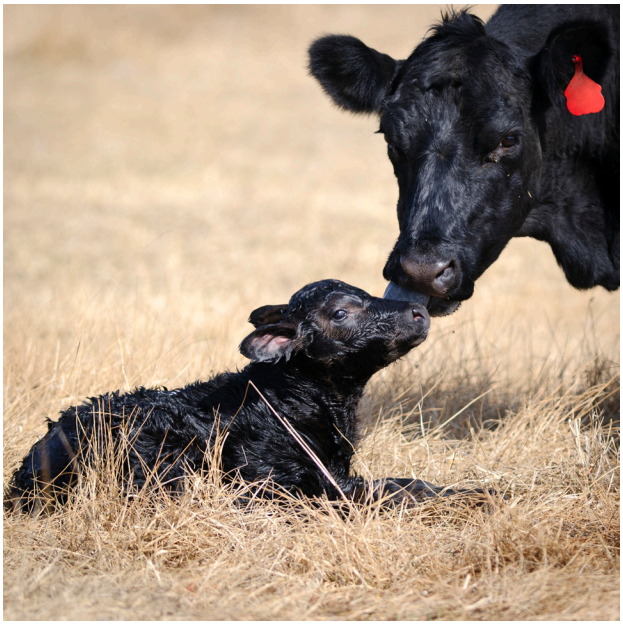
Note: Assumes an annual calf production cost of $625 per brood cow and an average calf market price of $1.45 per pound.

$625 per cow, and the weaned calves sold for $1.45 per pound. The results demonstrate that the higher the average pounds of calf production per brood cow, the lower the feeder calf break-even price ($625/375 lb = $1.67/lb versus $625/400 lb = $1.32/lb, etc.). Note that the feeder calf break-even price is $1.67 per pound with a weaning percentage of 75, but the break-even price decreases to $1.32 per pound if the weaning percentage increases to 95. This represents a decrease in break-even price of $0.35 per pound from the base ($1.32 per pound minus $1.67 per pound).

Correspondingly, the profit per brood cow was $63.75 and -$81.25, respectively. This represents an improvement in profit of $145 per brood cow ($63.75 minus -$81.25) when the weaning percentage increases from 75 to 95 percent. This means moving from not covering all costs of production to making a profit. For a one-bull unit of beef cows (approximately 30 head), that equals $4,350 of additional income, which is the amount that the cattle farmer in this example could afford to spend to improve his weaning percentage from 75 to 95. Deducting the costs associated with increasing the cowherd's weaning percentage from 75 to 95 from $4,350 will result in the total profit from improving reproductive performance. In short, an annual pregnancy examination is almost always an excellent dollar return.

Despite all the benefits associated with beef cow annual pregnancy examinations, according to the February 2009 USDA National Animal Health Monitoring System (NAHMS) Beef Report, only 10 percent of cow-calf farms in the southeastern United States perform pregnancy examinations. Considering the cost of not identifying pregnant versus open cows, this presents a tremendous opportunity to improve the production efficiency and economic viability of our cow-calf herds, especially when also considering the currently high input costs and high cull cow prices.

According to the USDA NAHMS Report, the majority of respondents who did not perform regular pregnancy examinations cited time, cost, and lack of facilities as reasons for not annually checking the pregnancy status of beef herds. However, pregnancy diagnosis is a procedure that generally pays for itself by facilitating the identification and removal of open cows and replacement heifers allowing for more prudent utilization of valuable feed and pasture resources for productive animals. In addition, the removal of open, subfertile cows and replacement heifers improves overall herd fertility in subsequent years, and over time the extra money saved and/or made could help pay for working facilities.



Methods for Pregnancy Examinations

The three most common methods for pregnancy examinations are transrectal palpation, transrectal ultrasonography, and blood pregnancy tests (table 3). When performed properly, all three methods are safe for the cow and the fetus. However, regardless of the method used to detect pregnancy status, a small proportion (approximately 5 percent) of cows diagnosed pregnant prior to 60 days of gestation will experience early fetal death, so keep that in mind when determining the best time to conduct pregnancy examinations. These early fetal losses are not a result of the pregnancy examination itself but are miscarriages that occur naturally.

Transrectal Palpation

Transrectal palpation is by far the most common method of pregnancy diagnosis in beef cattle and is a safe and accurate option for an annual beef cow pregnancy examination. Trained veterinarians can consistently and safely detect pregnancy as early as 45 days of gestation and sometimes even sooner. Pregnancy diagnosis via palpation provides more accurate information regarding fetal age if performed during the first 90 to 120 days of gestation. Given the accuracy, safety, speed, and cost of palpation, this is an excellent option for beef cattle pregnancy diagnosis.

Transrectal Ultrasonography

Transrectal ultrasonography allows for pregnancy diagnosis as early as 25 to 28 days after breeding. Early pregnancy diagnosis is certainly advantageous for a dairy cow and in some cases for a beef heifer, but it is usually not as critical for a beef cow. Ultrasonography provides the best evaluation of fetal viability (the fetal heart begins to beat approximately 21 days after conception) and the most accurate assessment of twin pregnancies. In addition, trained veterinarians can determine fetal age most accurately via transrectal ultrasonography between 25 and 90 days of gestation and can determine the sex of the fetus with greater than 90 percent accuracy if the fetus is between 55 and 80 days of gestation. Determining the sex of a fetus may facilitate value-added marketing opportunities. Ultrasonography is the most costly method of pregnancy diagnosis.

Blood Testing

Most blood tests for pregnancy detection in beef cattle involve detection of pregnancy-associated proteins in the bloodstream of a pregnant cow or heifer. The placenta of the growing fetus produces certain proteins, which can be detected in cow and heifer blood samples as early as 28 days after breeding. However, cows must be 90 days post-calving to ensure accurate results; otherwise, an open cow will likely be diagnosed as pregnant due to residual pregnancy-associated proteins that have not cleared out of the maternal bloodstream from the previous pregnancy.

The most commonly reported advantage of blood pregnancy tests is that they can be performed early in gestation (approximately 28 days post-breeding as long as the cow is at least 90 days post-calving) without a veterinarian. In areas with limited access to veterinary services, pregnancy diagnosis via blood testing may be the most convenient option; however, there are some disadvantages associated with blood pregnancy tests.

- There is a slight delay in receiving test results. Blood samples have to be collected, mailed to the laboratory, processed, and then results returned to the owner. This will require working cattle a second time to separate the open and pregnant cows. Transrectal palpation and ultrasonography provide immediate results. However, blood pregnancy test results are usually available by the next business day.
- Blood tests do not provide any information about fetal viability, twins, or clues as to why an animal is not pregnant. On the other hand, transrectal palpation and ultrasonography provide an assessment of fetal viability and twin pregnancies as well as additional information in cases of poor fertility.
- Blood pregnancy tests are sometimes advertised as being cheaper than transrectal palpation, and in some cases the laboratory component of the blood test may cost a little less than transrectal palpation. However, considering the other costs associated with blood pregnancy tests, including blood tubes, needles, syringes, postage, and additional labor to work the herd twice to separate the open and pregnant cows, there is usually no substantial price difference between blood tests and transrectal palpation.

While there are certainly good reasons to use the blood tests for pregnancy diagnosis in some herds (especially if veterinary services are not readily available), most cow-calf farms will be better served with a veterinarian performing transrectal palpation or ultrasonography. Having a veterinarian on the farm also provides the opportunity to discuss other herd-health–related issues and maintains a veterinarian-client relationship so that you have an established relationship with a veterinarian when cattle emergencies or illnesses arise.

Table 3. Comparison of Transrectal Palpation, Transrectal Ultrasonography, and Blood Tests for Beef Cattle Pregnancy Diagnosis

	Transrectal Palpation	Transrectal Ultrasonography	Blood Tests
Accuracy of open diagnosis	++	++	++
Accuracy of pregnant diagnosis	++	++	++
Assessment of fetal viability	+	++	•
Detection of twins	+	++	•
Determination of fetal age	++	++	•
Determination of fetal sex	•	++	•
Results available immediately	++	++	•
Provides the opportunity to discuss with your veterinarian other animal health issues on your farm	++	++	•
Fosters veterinarian-client relationship	++	++	•

+ = good
++ = better
• = test cannot perform this function

When Is the Best Time to Perform Pregnancy Examinations?

The most common time for pregnancy examinations in the majority of cow-calf herds is at or around calf weaning time when most cows are somewhere in the second trimester of pregnancy. Waiting at least 45 to 60 days after the breeding season to conduct pregnancy examinations is recommended, but there are times when earlier pregnancy diagnosis is beneficial in heifers. The most practical time to conduct pregnancy examinations will vary from herd to herd, but keep in mind that other routine procedures such as vaccinations and deworming can also be performed at the same time. In addition, performing pregnancy examinations provides a great opportunity to evaluate other culling criteria such as feet and legs, eyes, age, health, disposition, udder, teeth, and mouth.

Conclusion

Reproductive efficiency is one of the most important factors that will contribute additional profitability to your cow-calf farm and is even more critical when input costs are high. Take advantage of a defined breeding season followed by an annual beef cow pregnancy exam to improve the reproductive efficiency of your cows. Find the open cows in your herd, and prepare to sell them when their body condition and market prices are optimal. Contact Dr. Soren Rodning (334-844-7502), your veterinarian, the Alabama Beef Cattle Improvement Association, or your regional Animal Science and Forages Extension agent to discuss the best time and method for annual pregnancy diagnosis in your herd.

Taylor Gwynn, Graduate Assistant, Animal Sciences, Auburn University; **Soren Rodning**, *Extension Specialist*, Associate Professor, Animal Science and Forages, Animal Sciences, Auburn University; **Brittney Goodrich**, *Extension Specialist*, Assistant Professor, Agricultural Economics and Rural Sociology, Auburn University; **Paul Dyce**, Assistant Professor, Animal Sciences, Reproductive Developmental Biology, Auburn University; **Michelle Elmore**, *Extension Specialist*, Animal Science and Forages, Animal Sciences, Auburn University; **Joshua B. Elmore**, PAS, Advisor III, Natural Resource Programs, Animal Science and Forages, Auburn University; **Misty Edmondson**, Professor, Food Animal Medicine and Surgery, Clinical Sciences, Auburn University; **B. J. Newcomer**, Assistant Professor, Food Animal Medicine and Surgery, Clinical Sciences, Auburn University; **Kim Mullenix**, *Extension Specialist*, Assistant Professor, Animal Science and Forages, Animal Sciences, Auburn University; **Robert L. Carson**, Professor Emeritus, Food Animal Medicine and Surgery, Clinical Sciences, Auburn University

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