

# Beef Cattle Performance Record Keeping

► Application of a specialized record-keeping system enables producers to generate and analyze data needed to efficiently evaluate a cow herd's performance.

The value of beef cattle record keeping is not truly realized until it is fully applied. Recording information alone does not provide an advantage. The data must be analyzed and implemented in genetic and management decision-making to optimize production. Data collection across an annual production cycle supplies a complete analysis that can be used to evaluate a cow herd's performance.

The most effective practice is an individual animal approach to record keeping. This involves recording specific data such as an animal's identification number, birth date, calf sex, sire, dam, breed composition, weights, and more. Applying a specialized record-keeping system is the most efficient method to generate and analyze this data.

## Breeding Season

An annual production cycle begins with the breeding season. Record the date of when herd sires enter the cow herd to begin breeding. Record herd sire or sires used for each breeding herd. If an artificial insemination (AI) program is utilized, record the date or dates and AI sire of each breeding. (Refer to Extension publication ANR-1027, "Estrus Synchronization and Artificial Insemination Programs for Beef Cattle.")

Evaluate and record body condition scores at breeding. Body condition scores reflect relative body fat thickness and are scored from 1 to 9, with 1 being extremely thin and 9 being obese.

As the breeding season ends, record the date when herd sires are removed from the cow herd. After the breeding season, pregnancy diagnosis can be performed. (Refer to Extension publication ANR-1417, "Beef Cow Pregnancy Examination.") Record the number of bred and open (or nonpregnant) cows and heifers. An estimated calving date for each pregnant cow or heifer can then be determined.



A pregnancy percentage can be assessed to evaluate the success of the breeding season. (Refer to Extension publication ANR-2488, "Beef Cattle Record Keeping Basics.") Pregnancy percentage gives the first indication of a cow herd's reproductive performance. It is best to remove or cull the open (or nonpregnant) cows and heifers to better concentrate resources to the bred cows and heifers.

Review the range in estimated calving dates to evaluate the efficiency of the breeding season. A greater percentage of estimated calving dates in the first half of the calving season illustrates a more effective breeding season, as calves will be older and heavier at weaning. Cows and heifers indicated as breeding late or outside of the breeding season need to be noted.

## Calving Season

The next phase in an annual production cycle is the calving season. Record the birth date of each calf born. Assign an identification number to the calf and record the calf sex. Birth weights can be collected if desired. Note cows and heifers calving late or outside of the calving season as they will have difficulty rebreeding. Body condition scores recorded at calving are essential; they will strongly affect rebreeding success.

**Table 1. Age of Dam Adjustment Factors for 205-Day Adjusted Weaning Weights**

Age of Dam at Birth of Calf	Bull or Steer	Heifer
2	+60	+54
3	+40	+36
4	+20	+18
5–10	0	0
11 and older	+20	+18

Adapted from *Guidelines for Uniform Beef Improvement Programs*, 9th edition. Beef Improvement Federation. Revised March 2018. [www.beefimprovement.org](http://www.beefimprovement.org).

Breeding and calving records can be used to assess an individual cow's or heifer's reproductive proficiency by tracking when in the designated breeding and calving season a calf was produced. As records are maintained, cow performance over time can be evaluated by reviewing the average calving interval, or the average number of days from one calving date to the next. An average calving interval of 370 days or less is ideal. The value of the average calving interval will increase if the cow has missed or lost a calf. Cows with high average calving intervals are inefficient and should be culled or removed from the herd.

## Weaning and Yearling

Following the calving season, weaning weights are measured for each calf at an age range of 160 to 250 days. Calves do not have to be removed from their dams at this time. Adjusted weaning weights, accounting for effects of calf age, age of the dam, and calf sex, are calculated for a standard of 205 days of age. The birth date or birth year for dams needs to be known or estimated (table 1).

Use the following calculation (adapted from *Guidelines for Uniform Beef Improvement Programs*) to determine the 205-day adjusted weaning weight:

$$\frac{\text{Actual Weaning Wt} - \text{Birth Wt}}{\text{Weaning Age in Days}} \times 205 + \text{Birth Wt} + \text{Age of Dam Adjustment}$$

Body weights collected from calves less than 160 days of age will overestimate adjusted weights. Weights of calves over 250 days of age will underestimate adjusted weights.

Ratios based on this adjusted weight are calculated within a contemporary group, defined by a 90-day range in calf age, calf sex, actual weights being collected within one week's time, and similar management practices. Ratios illustrate how a particular calf compares to the group average and to other cattle in the same contemporary group.

Cow weights may also be collected at the time calf weaning weights are measured. Comparing cow weight to the weaning weight of her calf shows the percentage of pounds of calf a cow is producing. Cows producing a high percentage of their

body weight in calf weight are generally more productive. For example, a cow weaning a calf that is 50 percent of her body weight at weaning would be more desirable than a cow with 35 percent. Evaluating and recording a body condition score of cows at this time is also valuable.

The next phase of an annual production cycle is collection of yearling measurements. Yearling weights should be measured between 320 to 410 days of age and adjusted for a standard of 365 days and growth from weaning to yearling.

Use the following calculation (adapted from *Guidelines for Uniform Beef Improvement Programs*) to determine the 365-day adjusted weaning weight:

$$\frac{\text{Final Wt} - \text{Actual Weaning Wt}}{\text{Number of Days Between Wt}} \times 160 + 205\text{-Day Adjusted Weaning Wt}$$

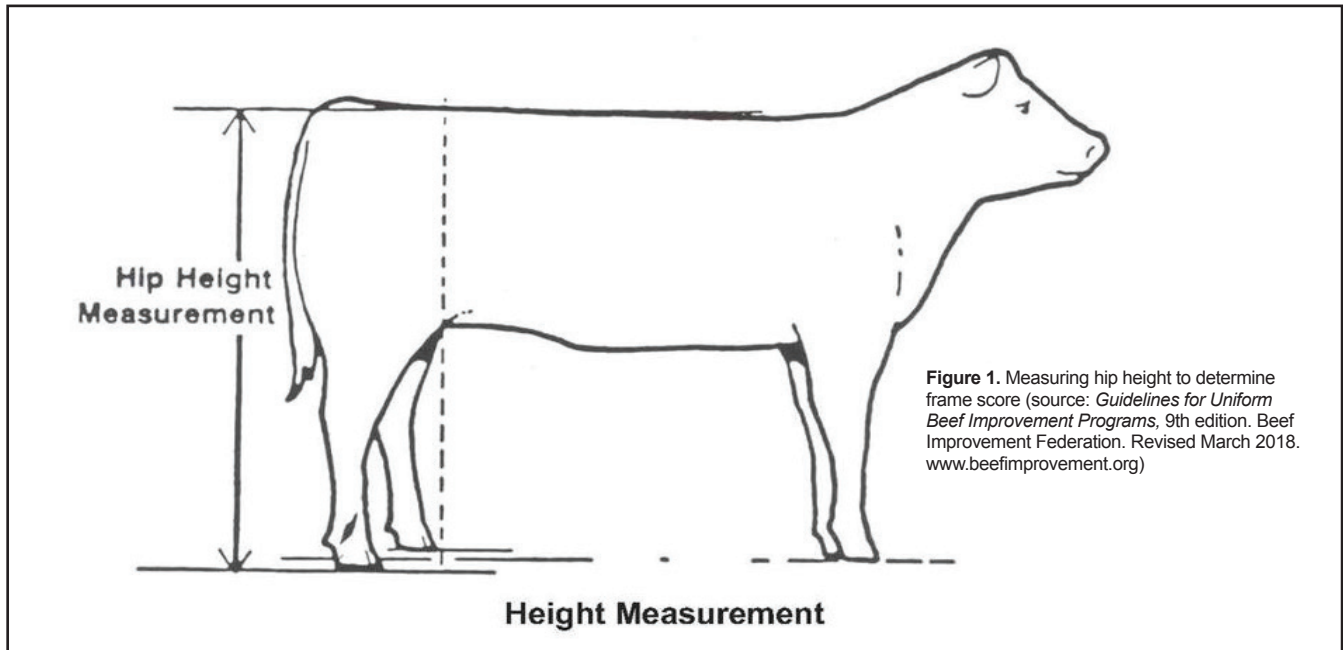
As in weaning adjustments, ratios based on this adjusted 365-day body weight are calculated within a contemporary group, defined by a 90-day range in calf age, calf sex, actual weights being collected within one week's time, and similar management practices. Ratios illustrate how a particular calf compares to the group average and to other cattle in the same contemporary group.

Individual yearling weights for replacement heifers provide a measurement to ensure replacement heifers are on schedule to reach the targeted breeding weight of 65 percent of mature body weight. Body condition scores should also be evaluated and analyzed along with yearling weights to assess development for a successful first breeding.

## Other Measurements of Cow Herd Performance

Other measurements of cow herd performance for individual cows include Most Probable Producing Ability (MPPA), frame scores and body condition scores. MPPA is a ratio to rank cows for productivity based on calf-adjusted 205-day weight ratios. This allows for an impartial comparison to evaluate the performance of cows of different ages and numbers of calves. Calculations for MPPA include the average 205-day adjusted weight ratio for all calves a cow has produced, the number of calves included in the cow's average, and the repeatability for the weaning weight ratio.

Frame scores are a measurement to evaluate skeletal size. They can be used to monitor growth and maintain body size, to predict mature weight, and to estimate the finish weight in the feed yard. Hip heights are typically measured in inches at weaning and yearling. The measured hip height is then adjusted for age and sex of the animal to a numerical frame score of 1 to 9, with 1 being a small-framed animal and 9 being a large-framed animal (figure 1).



**Figure 1.** Measuring hip height to determine frame score (source: *Guidelines for Uniform Beef Improvement Programs*, 9th edition. Beef Improvement Federation. Revised March 2018. [www.beefimprovement.org](http://www.beefimprovement.org))

Body condition scores (BCS) reflect the relative body fat and energy stores of a beef animal. A score from 1 to 9 is assigned to an animal, with 1 representing emaciated (extremely thin) and 9 representing obese. (Refer to Extension publication ANR-1323, "Alabama Beef Handbook," table 11 under Nutrition Management).

Animals are visually appraised for BCS. To increase one BCS equals a body weight gain of 80 to 100 pounds. For mature cows, a target BCS of 5 to 6 is recommended at the time of calving. For heifers, a target BCS of 6 is best at calving, as heifers are still growing and have higher nutritional requirements.

## Summary

Fully applying record keeping is the most complete way to optimize production. Recording information without examination and application does not provide benefit.

The Alabama Beef Cattle Improvement Association (BCIA) provides the Alabama BCIA Commercial Record Keeping Program, which utilizes an internet-based, specialized record-keeping system. For more information, please contact the Alabama BCIA at [www.albcia.com](http://www.albcia.com) or your regional Extension agent.



**Michelle F. Elmore**, *Extension Specialist*, Animal Scientist/Beef Cattle Improvement, Auburn University

**For more information**, contact your county Extension office. Visit [www.aces.edu/directory](http://www.aces.edu/directory).

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