



Texas Agricultural Extension Service

The Texas A&M University System

How to Evaluate Stocking Rates

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How do you determine your stocking rate? Is it a matter of putting 40 head in the pasture and hope for the best?

Forage production should be the basis for any stocking rate decision. Pasture is the most economical way to maintain beef cattle and forage production is the basis for pasture. Only by estimating forage production can a realistic stocking rate be determined.

One way to predict stocking is to determine how much potential forage production is likely and stock at a rate to utilize that production. This involves several steps:

- ✓ determine daily animal requirements
- ✓ determine potential production
- ✓ compare production and requirement to determine stocking rate
- ✓ check pasture periodically for any needed correction.

One big factor in this determination is that these calculations are only estimates and need periodic corrections due to weather and forage production variations.

If forage is not limited, cattle will consume 3% of their body weight in dry matter daily. For a 1,000 lb. cow, this is 30 lbs. of dry matter per day. For calculation and estimating purposes, this figure will be the daily animal requirement. For 30 days, the requirement is 900 lbs of dry matter and for 365 days the requirement is almost 11,000 lbs. Of dry matter. **THAT IS A LOT OF FORAGE.**

Once the daily, weekly, or monthly livestock requirement is known, we need to predict the forage available from the pasture. Several methods may be used for this purpose depending on how accurate an individual wants to be.

A very general way to estimate forage production is to use past documented records of production (research reports or demonstration records). Generally, nature provides (in this area) 2 tons of forage production per acre on any good, thick pasture. With improved pasture (Coastal bermuda), an application of fertilizer provides an additional 1 ton of forage per 50 lbs. of actual nitrogen (150 lbs. of 33% N.) With one application of fertilizer, one should get 6,000 lbs. of dry matter per acre per growing season (7 months). That can be grazed and/or hayed.

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Another general way to predict present production is to measure the height of the grass. Experience and research has shown that a thick bermudagrass stand has around 250 lbs. of dry matter per inch of height. If the Coastal is 12 inches tall, subtract 2 inches for stubble and the resulting 10 inches should provide 2,500 lbs of dry matter per acre for grazing. This method does not take into consideration future growth. It only considers forage available at present.

Another way to estimate forage available is to clip a known area, weigh production and determine dry matter. Clip a 3.1 ft. square or a 21 inch radius circle. Weigh the clipped forage in ounces or grams. For conversion to an area basis, multiply by a conversion factor.

Ounces — oz. x 283 = lbs/acre of green forage
Grams — gm. x 10 = lbs/acre of green forage

The clipped samples must then be dried to determine dry material and discount moisture. Lush bermudagrass may be 85 to 90% water and must be converted to dry matter to correspond with the animal requirement for dry matter. If drying cannot be forced by using a drying oven or microwave, forage can be allowed to air dry for several days but will still have 10 to 12% moisture when thoroughly air dry. Reduce weight by another 10%. Example: a clipped plot (21 inch radius circle) provided 1,666.7 gms. of green forage.

$$1,666.7 \times 10 = 16,667 \text{ lbs/ac green forage}$$

The green forage is 85 % moisture -15% dry matter.

$$16,667 \times .15 = 2,500 \text{ lbs/ac dry material}$$

After determining the forage available and knowing the animal requirement, calculation of stocking rate can be accomplished. In the case of Coastal bermudagrass research and demonstration data providing 6,000 lbs of dry matter forage for the growing season and a cow requiring 11,000 lbs dry matter per year, a combination of hay and grazing would allow 1 cow per 2 acres ($11,000 / 6,000 = 1.83$). When harvest efficiency is considered (50% for grazing), this figure becomes 1 animal per 3 acres. This is a calculated yearlong stocking rate with winter haying. In the case of height measurement or clipping data (reflecting forage available), the stocking rate is a prediction of about 30 days stocking. In that instance, 1 cow requires 900 lbs. Dry matter per 30 days so the 2,500 lbs dry matter available should provide forage for 2.8 cows for 1 month ($2,500 / 900 = 2.777$) if grazing were 100% efficient in harvesting. Since it is not and usually is only around 50%, the 2.8 cows would be reduced to 1.4 cows for 30 days. Rotational grazing can increase the harvest efficiency by approximately 20%.