

Youth Forum

Stockpiled Forage vs Hay as Winter Supplement

By Mallory Williams

Editor's Note: This paper is the 4th Place winner of the High School Youth Forum contest at the Society for Range Management Annual Meeting, February 2005, Fort Worth, Texas.

If at all possible, wouldn't any rancher like to drastically reduce hay supplement needs by managing their forage in such a way to meet most, if not all, of their livestock needs during the winter months? In the summer of 2004, I was interviewing for the FFA State Star Chapter Farmer award and the question most often asked was, "Why don't you show any costs for hay in your records?" I explained that if you properly manage and maintain your rangeland, hay is often not needed.

How do we manage a resource if we don't measure or quantify it? Each of us has a distinctively different ability or inability to accomplish the ultimate goal of no or very little hay supplementation. Some factors involved in that determination would be climate, terrain, soil type, stocking rate, type of livestock, and individual skill to manage the grass resources.

You might begin by asking yourself some basic questions.

- What forage do I have?
- What am I going to do with it?
- How do I get maximum utilization from my forage?

Some of you may have the experience and skill to make a visual assessment of forage quality and quantity. Some of you may need to learn what grasses are important to the health of your range and the nutrition of your livestock. Only when you know what you have, can you evaluate your forage.

The establishment of forage surveys will aid you in making proper assessments. In Texas we would normally do these in June, November, and March.

The following steps will aid you in setting up your survey:

1. Calculate your grazeable acres per range site and pasture.
2. Select representative areas.
3. Use a plot frame.
4. Use a representative photo guide.
5. Collect samples from each representative area.
6. Calculate the forage supply.
7. Calculate how many animal unit days of grazing you have.

Photo points are an excellent tool for monitoring the range. Construct a 3 × 3-foot frame from PVC pipe to place on representative areas of your ranchland. Vertical and landscape photos are necessary for good results. Vertical photos will show the amount of plant coverage, any bare ground, and litter within the frame. Landscape pictures will show terrain, brush, and grasses in the area near the frame.

Monitoring with step transects will give you a percentage of grasses found on an established line across portions of your ranch. Technical assistance may be necessary to identify all



the plants plotted on the line transect. A good transect will need a minimum of 100 plants plotted on the line. The percentage can be calculated like this: If you record 10 sideoats grama plants per 100 plants recorded, then sideoats would be 10% of the grasses observed.

An ungrazed plant will have an extensive root system and large quantity of leaves. A moderately grazed plant will have approximately 50% of its leaf growth removed. An overgrazed plant is stressed by its reduced leaf and root system. This plant will be slower to recover. We should bear in mind that improvement of range condition is related to amount of periodic rest from grazing that grass species get. It is possible to have all 3 of these plant conditions in the same pasture and even in the same observation point.

The area of Texas where my family's ranch is located is known as the Cross Timbers and Prairies region. Some grasses of this area include big bluestem, little bluestem, Indiangrass, switchgrass, sideoats grama, buffalograss, hairy tridens, Texas grama, and threeawns. This area is approximately 75% range and pasture land.

Each of us uses a system of some sort in planning our livestock's use of available forages. You may not be using the right one to best suit your situation. We can overwhelm even the best system and it will not be able to compensate for overstocking.

Some common grazing systems used in this area of Texas include **continuous**, **Merrill deferred rotation**, and **short-duration** grazing.

Management commitment, financial resources, terrain, and type of livestock are just a few of the things to consider when selecting a grazing system. Correct stocking rate is a key point in the success or failure of any grazing plan or system.

A **continuous** grazing method has little or no flexibility and will require destocking as the only way to reduce demand on the forage. You are simply at the mercy of annual precipitation and herd nutritional demands.

The **Merrill deferred rotation** system requires 4 grazing areas and 3 herds. Three pastures are grazed, while a 4th is

rested. By rotating herds every 4 months a new pasture is rested. This system employs light to moderate grazing pressure and little movement of livestock.

Short-duration grazing systems utilize numerous pastures or paddocks and a single herd. Grazing occurs for short periods based on the number of paddocks, rest period desired, time of year, and stocking rate of pastures. Care needs to be taken to insure monitoring of the paddocks, which will determine when the herd should move. This method, properly done, will improve quality of your forage, perhaps increase stocking rates, and allow the herd to be more efficient in harvesting the forage available.

We must plan or manage in such a way as to have adequate leaf growth in the fall. This will be very beneficial to insulating the soil during winter months and getting grass growth off to a good start in the spring. This remaining forage is our stockpile for winter.

How do you evaluate the forage you have managed so hard to stockpile? **Forage quantity** and **forage quality** are key factors in our evaluation.

Forage quantity will determine how many grazing days you have with the current stocking rate.

Forage quality will determine animal performance on the available forage (Table 1).

Table 1. Nutritional values of various qualities of forage.*

Forage quality	Crude protein	Total digestible nutrients
Low	6%–7%	< 50%
Medium	7%–11%	50%–57%
High	12%–14%	57%

* Based on data from L-5354 Factors and Feeds for Supplementing Beef Cows, Stephen P. Hammock and Ronald J. Gill, Extension Beef Cattle Specialist and Extension Livestock Specialist, The Texas A&M University System.

Low quality forage limits how much forage my cows can eat. **Medium quality** forage requires little or no supplementation. **High quality** forage is consumable in large amounts and likely to not require any supplementation.

On my family's ranch we are assessing nutrient requirements using a monitoring program called Nutritional Balance Analyzer (NUTBAL). This program uses near-infrared reflectance spectroscopy (NIRS) to analyze livestock fecal samples. The analysis determines the protein and energy value for the actual forage consumed by the animal.

With the NUTBAL analysis of our livestock we know the following about our cattle and forage:

- Whether the nutrition plane is positive or negative.



Author collecting fecal sample for analysis.

- Whether livestock body condition is being maintained, increasing or declining.
- Whether nutrients (protein or energy) are limiting animal performance.
- What our most cost effective supplement would be.
- How much supplement should be fed.
- How much forage the animals are consuming.

We are able to make informed decisions about rotation of herds, what supplement is needed (such as protein or energy), when to begin supplementation, how much to feed, and what feed is the most cost effective.

The Richards Ranch is a 15,000 acre cattle operation neighboring my family's ranch. It is managed and operated by Mr. John Hackley and his son Brent. John and Brent represent the 5th and 6th generations of the Richards family to ranch this land. I sat down recently with John and discussed some key elements of their ranch management. They began using rotational grazing in 1980. Previously, the stocking rate had been 1 animal unit per 20 acres. Currently it is 1 animal unit per 10 acres. This change in stocking rate doubled the ranch gross income. The cattle receive a 32% liquid feed supplement, which has cut input costs. The NUTBAL evaluation has been used on the ranch and it confirmed that the supplement amounts were correct.

Mr. Hackley estimated the savings from reduced hay supplementation to be approximately \$30,000, based on the fact that they previously fed 6,000 bales of New Mexico alfalfa per year.

The ranch also has modified its cow production cycle. Cows are bred for 60 days, from September 15 to November 15, and cows calve from June 25 to August 25. The ranch maintains a pregnancy rate of 90%–93%.

In order to reduce hay supplementation you must be able to evaluate your current forage, choose a grazing system that meets your operation's needs, and choose a method of forage evaluation.

And it wouldn't hurt to look over the fence, because you never know what you can learn from a neighbor. We sure did. ♦

References

1. RECTOR, B. Know Your Grasses. College Station, TX: Texas Cooperative Extension, B-182.
2. HAMMACK, S. P., and R. J. GILL. Factors and Feeds for Supplementing Beef Cows. College Station, TX: Texas Cooperative Extension, L-5354.
3. NUTBAL. Effective Monitoring Tool for the Beef Producer Grazingland Animal Nutrition Lab. College Station, TX: Texas A&M University.
4. HANSELKA, W. C., C. R. HART, and A. MCGINTY. Texas Rangeland Monitoring: Level Two. College Station, TX: Texas Cooperative Extension, L-5454.

Interviews

Hackley, John C. General Manager, Richards Ranch, Jacksboro, TX.
Williams, John R. Owner/Manager, Williams Ranch, Jacksboro, TX.