

## **HAY QUALITY IS CONTROLLED BY MATURITY**

*Dr. Gary Bates, Director  
UT Beef and Forage Center*

Very soon millions of acres of grass will be harvested for hay. The majority of this will be stored as round bales to be fed during the winter. This hay will provide the diet for beef cows to come through the winter in good condition so they can be productive. These cattle are depending on hay having adequate protein and energy levels to meet their nutrient needs. It is important for producers to remember that all hay is not equal. Grass hays will vary in their nutrient content. One hay may meet cattle's needs, while another may require a protein or energy supplement to meet their needs.

There are several things that will influence the nutrient content of a hay crop. Most people consider fertilization, weed pressure and grass species to be important in hay quality. These factors can impact a hay's nutrient content. But the factor that has the greatest influence on nutrient content is the stage of maturity of the plant at harvest. If a grass is cut when it is young and leafy, a protein content of 13-15% could be expected. But once a seedhead appears, the plant begins to produce a stem with lots of fiber, helping to extend the seedhead. The plant has changed from vegetative growth (trying to produce leaves) to reproductive growth (trying to produce seed). After the seedhead first appears (late boot stage), the protein and energy level in the forage begins to slowly decrease, while the fiber level slowly increases.

The timing of hay cutting will influence the nutrient content. If it is cut at the late boot stage, a high quality hay can be produced. But the levels begin to drop, so that if the plant reaches the seed stage protein levels can be cut in half. This decrease does not occur rapidly, but happens gradually over time.

I would expect that everyone knows that early cut tall fescue hay is better than late cut tall fescue. But even though we know that, we often start blaming the lower quality on the fact that it is tall fescue instead of the over mature harvest. If you look at the various studies that have been conducted, there is virtually no difference in the protein and energy level between tall fescue, orchardgrass, and timothy, if they are all cut at the same stage of maturity. Differences occur if they are cut at different stages.

What are steps to produce high quality hay? First you need to focus on cutting at the late boot stage. When you just begin to see seedheads, it is time to cut. The weather forecast may not cooperate, but let that be your goal. Second, add legumes to grass hayfields. Legumes such as red and white clover or alfalfa have higher protein and energy levels, so seeding those into grass will raise the nutrient content a few percentage points.

If you are going to go to the expense and effort to make hay, you might as well produce good quality hay. Cutting early and planting legumes will improve your hay quality. After the hay is cut, but sure to submit a sample to the UT Soil, Plant and Pest Center to have it analyzed. Contact your local Extension office for more information.