

# Hay Quality Starts In The Field



DR. TERESA STECKLER

SIMPSON, ILL.

**H**ay is a part of cow-calf production systems in the Midwest. The weather this year has made harvesting hay quite challenging; in many areas rain has prohibited mowing or baling. Keep in mind that hay should be harvested after forages

have made sufficient growth to justify the expense and labor associated with harvesting.

Forages decline in quality as they become more mature. Although a greater quantity is harvested as the forage matures, it also has a much lower nutritive value. The optimum time for harvesting both grasses and legumes is, therefore, somewhere in the middle range of maturity – grasses at the boot to early-bloom stage versus legumes at the late bud to early bloom stage.

Hay should be harvested in such a way that the time between mowing and baling is minimized. Substantial dry matter losses occur every day the hay remains in the field. Hay crops should be handled carefully to maintain a high quantity of leaf content. Because the leaf is the most delicate part of the plant, it dries much faster than the stem. If hay is too dry when worked, such as with a tedder or rake, many of the leaves will fall off. Much more protein and energy are found in the leaf, so management to retain a high leaf content is important to the feeding value of the hay. This is much more of an issue with legumes than with grasses.

Moisture content (dry matter) of hay is critical to its quality. Forages, particularly legumes, should not be raked or tilled when they fall below 35-40 percent moisture. The final drying (from 35-40 percent moisture down to 18-20 percent) should occur in the windrow.

Moisture in the hay crop should be no higher than 18 to 20 percent when baled. Hay that is wetter than 18 to 20 percent will mold in the bale, thus reducing both nutrient content and palatability. However, if hay is baled at much less than 12 to 15 percent moisture, there is significant leaf loss due to the handling of this very brittle crop.

A considerable amount of hay this season was more mature than most would have liked. The large stems of this more mature hay are more difficult to dry and may have led to some hay being baled at a higher moisture content that producers realize. Producers need to pay special attention to those bales that were baled “wetter than normal” due to the risk of the hay heating in storage.

Nearly all hay and silage heats a little in storage. It is a natural process where respiration of

nearly dry plant cells and spoilage bacterial, yeast and fungi use plant sugars and oxygen and generate heat. The respiration and heating also require a high humidity. Hay baled at 18 percent to 30 percent or more moisture and silage stored at about 50 percent or less provide the right mixture of air, moisture and sugars for respiration and heating. However, if too much heating occurs there is the potential for nutritive loss in the hay and silage. If you suspect the hay or silage has heated, it is important to determine the nutritional content of the forages before feeding.

With the all the effort expended to produce high quality forages for our cattle, proper storage is critical from harvest to feeding. Outside storage of round bales is a common practice. But keep in mind that, depending on the size of the bale, anywhere from one-third to almost one-half of the hay is located in the outside 6 inches of the bale. The outside portion of the bale is most susceptible to weather damage. To protect the hay from substantial loss, water infiltration from the top, sides, and bottom must be prevented.

One key to reducing hay storage loss is to break bale contact with the ground. Using such methods as a gravel base or stacking bales on pallets, poles, or old tires effectively reduces the wicking of moisture into the bale from the ground. Plastic caps, or other means of protecting the top of round bales, reduce losses further.

An additional advantage to reducing losses from weather damage is the increased acceptability of the hay by cattle. Weather-damaged hay is not readily consumed by cattle, and excessive feeding losses can occur as a result of their refusal to eat the damaged hay.

Covered round bale hay is just as readily consumed by cattle as is hay stored inside. Hay digestibility and dry matter losses (combined storage and feeding) are very similar for inside and outside-covered storage techniques. The nutrient requirements of cattle are more likely to be met with quality hay that is well stored. Consequently, less, if any, purchased supplemental feed is required to properly nourish the cattle.

Hay is very expensive and labor-intensive forage to produce, harvest, store, and feed. In contrast, grazed forages are much lower in both cost and labor required. Grazed forages also generally contain higher levels of nutrition. Cattle producers should take full advantage of their grazing resources while minimizing hay feeding to reduce the cost of producing a pound of beef and to enhance their profitability.  $\Delta$

DR. TERESA L. STECKLER: *Extension Specialist, Commercial Agriculture, Dixon Springs Agricultural Center, University of Illinois*