

Cattle Business in Mississippi – November/December 2006
“Stocker Cents” article

Efficient Hay Storage and Feeding

Jane Parish, MSU Extension Beef Specialist

Hay supplies are a precious commodity entering this winter-feeding period for both stocker operators and cow-calf producers. Inefficient hay storage and feeding will only compound problems with tight hay supplies this year. Many producers insist that large round bales can be stored outside without protection and suffer only minimal weathering losses. While this may be true in more arid areas of the United States, the warm and humid weather of the Southeast favors large and economically important hay storage losses. Consider the cost of hay whether purchased or produced, and then consider the cost of hay actually consumed by cattle after accounting for waste. A \$40 round roll can quickly become a \$57 round roll if 30% is wasted. It can be very cost-effective to invest in a few inputs and implement proven storage recommendations to reduce storage and feeding losses.

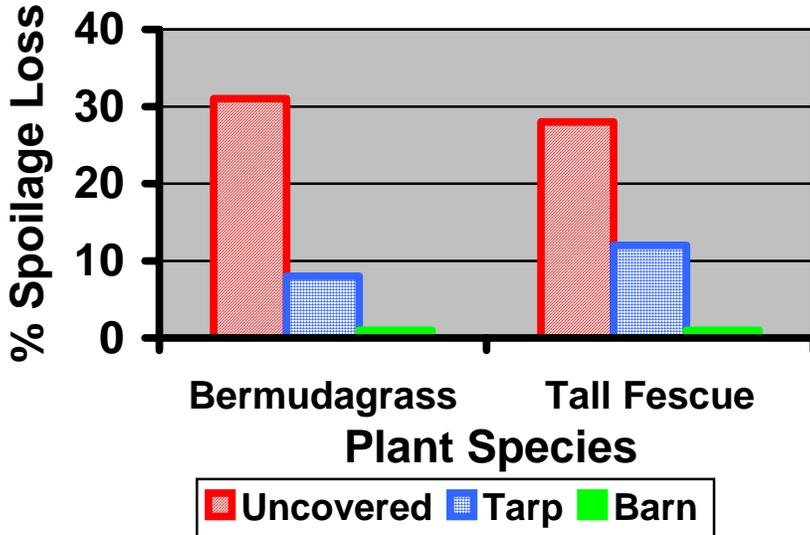
Minimizing Hay Storage Losses

It only takes a few inches of weathering to result in large hay losses. Only four inches of weathering on a 4' x 4' bale results in 31% bale spoilage. Five to six inches of spoilage is common in Mississippi after several months of unprotected storage. As bale diameter increases, the proportion of spoilage decreases. However, even 5' x 6' bales are significantly affected with only a few inches of weathering loss.

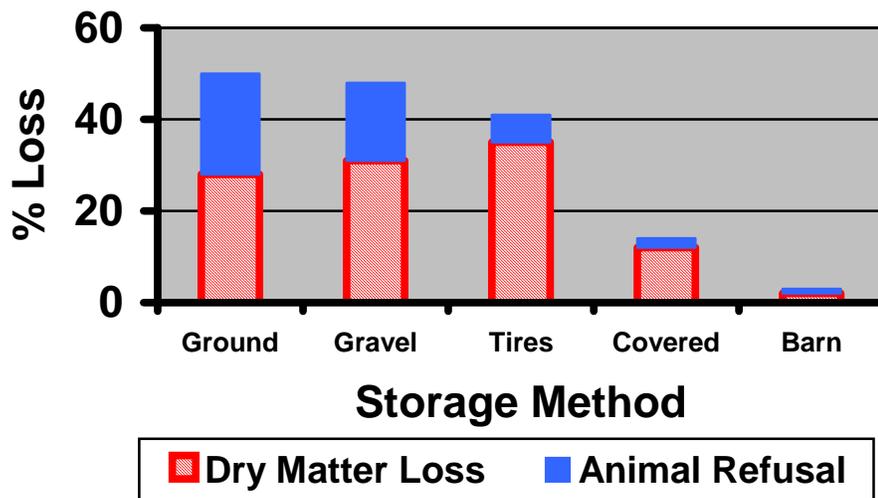


Tight bales resist weathering more than loose bales. Fine-stemmed forages such as bermudagrass and tall fescue that form tight, dense bales typically resist weathering more than coarse-stemmed forages like Johnsongrass. Therefore, it may be wise to feed coarse stemmed forage hay stored outside first to reduce overall hay losses. When bales are not very dense and squat, increased water penetration and hay loss can

occur. Even fine-stemmed hays will have large spoilage losses if stored uncovered in the weather as illustrated in the graph below of a Georgia trial.



Damaged hay decreases animal acceptance and performance. Both cattle and horses will refuse moldy, weather-damaged hay. The graph below outlines a Louisiana study where hay was stored using different methods and fed to beef cattle. Spoilage losses were large, but animal refusals inflated losses even more. Contact with soil increases hay losses. Storing hay directly on the ground provides an environment for hay contacting the soil to decay more rapidly. The Louisiana study showed that hay losses were 10% lower in round bales stored on pallets compared to bales contacting soil. Hay contact with the soil can be minimized using pallets or gravel.



Hay bales can be protected in several ways

- ✓ Store on a well-drained surface using gravel, tires, or pallets
- ✓ Cover bales with plastic sheets or tarps
- ✓ Use a plastic sleeve or bale wrapper
- ✓ Store in a barn or temporary structure

If covered storage is limited, put the highest quality hay under cover. For hay stored outside, follow these guidelines to minimize hay losses. Butt the flat end of round bales tightly together. Allow for three feet of space between bales rows. Bale rows should not touch as this can result in water pooling on hay. Run bale rows in a north/south direction to maximize sunlight exposure as the sun moves from east to west during the day. Place bales at the top of a slightly sloping area where water will drain away from bales. Make sure bale rows do not block water drainage. Bales should never sit in standing water. Store in a location where sunlight exposure is maximized (away from trees or other objects that may slow drying after a rain).

Place hay a safe distance away from objects that may attract lightening, and reduce fire risk by storing hay in multiple locations with an adequate buffer around hay with any vegetation controlled. Use caution when storing hay under cover. High moisture content (18% or higher for round bales or 20% or higher for square bales) can result in hay heating and fires.

Hay losses are often associated with hay harvest and storage. Yet hay feeding practices can also impact hay losses. A well-drained feeding site should be selected to minimize feeding losses. How much does a hay ring help? Excessive hay losses can result when hay is fed without the use of a hay rack or feeder. Up to 40% of hay offered to cattle can be wasted when fed in this manner. Feed hay stored outside before hay stored under cover to further reduce losses.

Should hay be fed unrolled? Advantages of unrolling hay include: 1) "Boss cows" and timid cattle can consume hay at the same time; 2) dispersing cattle over a larger feeding area reduces trampling damage to land in any one location; 3) unrolling allows more control over the amount of hay fed by feeding portions of individual bales; and 4) hay not consumed can serve as bedding for calves. Disadvantages of hay unrolling include the following: 1) Hay unrolling equipment can be expensive; 2) labor requirements can be higher since unrolling may need to be performed more frequently than traditional round bale feeding; 3) unrolling excessive amounts of hay can lead to feeding losses; and 4) once cattle are full, hay losses can result from activity around the bale including trampling, urination, defecation, and lying in the hay.



Forcing cattle to clean up hay before providing more hay can reduce waste. Be careful when rationing out hay supplies or limit feeding hay by allowing animals access for only a few hours per day to meet animal nutrient requirements. Always match animal nutrient needs with hay quality and supply, and provide an adequate source of roughage daily. Supplementation with other feeds may be necessary if high quality grazing is not available. Hay grinding is an alternative method of hay feeding that facilitates limit feeding and tends to lower hay feeding losses. Hay grinding and mixing allows more control over cattle diets and can be used to deliver both hay and feed supplements to cattle. Finally, remove net wrap and plastic hay twine prior to hay feeding. The digestive tract of a cow or calf is not designed to handle plastic.

The Mississippi Hay Directory is available online at msucares.com/livestock/beef/mshay.html and provides a place for Mississippi hay producers to place hay listings and for livestock producers to view these listings. Links to other hay directories, forage testing forms, and hay price information is also available on this website. For more information on stocker cattle production, contact your local Extension office.