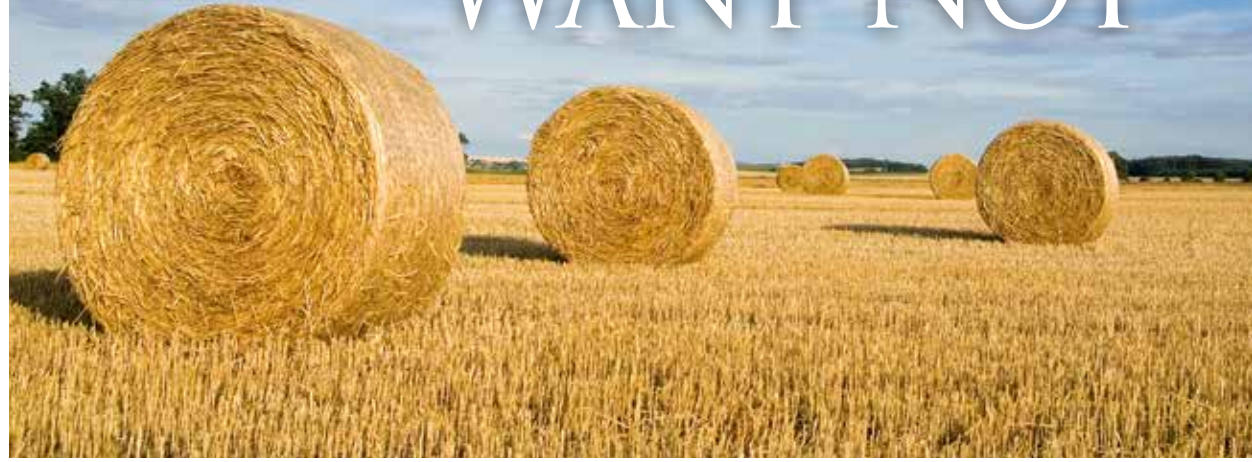


WASTE NOT, WANT NOT



Proper hay storage reduces waste, increases profit.

by Linda Geist, University of Missouri Extension

There are two ways to more hay: Grow more or store it better. Many factors influence how bales make the trip from the field to the cow, says Jim Humphrey, a University of Missouri (MU) agronomist and member of the Natural Resource Conservation Service (NRCS) + MU Grasslands Project.

Environmental factors such as sunlight, precipitation, evaporation and ground conditions can affect quality.

The size of the bale itself affects how much hay is wasted, says Humphrey. Larger-diameter bales have less loss. Smaller bales have about twice as much exposed surface for the same amount of hay.

In a 5-foot (ft.) bale, more than 30% of the bale is in the outer 6 inches (in.), the part most apt to be wasted. More than 26% is in the next 6 in. Just more than 20% is in the well-protected 12-in. center core.

In a 66-in. bale weighing 1,400 pounds (lb.), 17.7% of the bale — 248 lb. — is in the outer 3 in. The next 3 in. make up 27.2%, or 381 lb., of the bale. In other words, Humphrey says, 44.9% of the total

bale is in the outer 9 in., the part most vulnerable to weathering.

Ideally, hay bales should be stored in a covered, protected area. Most are not. Producers can still reduce waste by changing a few things when storing bales outside:

Stack bales end-to-end. Open-faced bales receive damage from sunlight and precipitation on the two exposed ends. The outer 6 in. on each side makes up 280 lb., or 20%, of a 5x5.5-ft. round bale weighing 1,400 lb.

This is a significant amount of resources and cash in a beef operation, Humphrey says. For example, producers can reduce the number of 5x5.5-ft. bales fed from 303 to 242 for 100 cows from Dec. 1 to April 15. “Assuming hay sells for \$55 per bale, that is an additional \$3,355,” he says.

Do not overestimate bale

density. It is easy to misjudge dry matter in bales, Humphrey says. He uses figures from Jason Banta’s work at Texas A&M AgriLife Extension Service as a guide, but recommends that producers assume the bale weighs 10% less than the naked eye might guess.

Tighter, denser bales repel water better and pick up less moisture from the ground.

Store bales properly. Put hay under a roof if you can. As spoilage occurs, bales flatten and squat closer to the ground. This increases the amount of surface exposed to moisture.

Bales stored on damp soil flatten more easily and spoil quicker than properly stored bales, says Charles Ellis, MU Extension agricultural engineering specialist.

Store bales away from trees. Choose a sunny location with a breeze.

Store bales end-to-end on elevated ground that drains well. The round sides of the bale should not touch each other. Leave about 3 ft. between rows of bales. This makes them easier to access with tractors, and also makes it easier

to do forage tests, a good practice.

Different feeding methods reduce waste. Studies from the MU Forage Systems Research Center show that feeding rings reduce waste.

However, not all rings are created equal. Studies show that open rings have 20% waste, compared to 5% for cone rings. To calculate hay ring waste, Ellis recommends the Noble Research Institute’s website. Search for “hay ring waste” at www.noble.org.

Large, round bales unrolled for feeding have about 43% waste. The advantage of unrolling bales is that aggressive cows can be spaced away from more timid ones, which results in less hoof damage from cows competing for space at the ring.

Feed hay in well-drained areas. Feed on dry, elevated surfaces or a pad to reduce waste.

Feed in small amounts. Limit access to bales. While more convenient, feeding less often adds to waste. Limiting access gives cows less opportunity to trample or soil hay. Do not overfeed, though, Ellis says. Make animals clean up the majority of hay before adding new bales.

Consider herd dynamics. Cull aggressive animals that take feed away from ones that are more timid. Have enough feeding rings to avoid crowding.

Feed hay stored outside before hay stored inside. Hay stored outside usually has more spoilage and lower palatability than hay stored inside. Cattle will waste a greater percentage of poor-quality hay than of good-quality hay.

For more about reducing hay losses, see the MU Extension publication *Reducing Losses When Feeding Hay to Beef Cattle* at <https://extension.missouri.edu/g4570>.

See also: *Bale Weight: How Important Is It?* at <https://agrifilextension.tamu.edu/library/ranching/bale-weight-how-important-is-it>. ■

Editor’s note: Linda Geist is a strategic communication associate for the University of Missouri Extension.