

MINIMIZE HAY LOSSES



Storage tips to minimize moisture and spoilage losses in round bales.

by Heather Smith Thomas

Many cattle producers put up hay in big round bales, but finding the best way to store them for winter feeding is often challenging. The ideal hay storage is under cover in a shed, says Warren Rusche, South Dakota State University Extension beef feedlot management associate. However, this works best for square bales and is impractical for most cattle producers, especially for round bales that take up more space.

Inflated hay prices this year due to the drought may make a hay shed for even low-quality hay more appealing. In a more typical year, a shed may not pencil out.

Last spring in South Dakota, for instance, beef cow hay was \$60-\$100 per ton. It was cheap because the state was a long way from where people were buying hay.

When hay is cheap, he says, “it’s

hard to justify a lot of expense for a hay shed to protect low-value hay.” Storing outdoors may be a more economical alternative, especially if efforts are made to reduce waste.

Selecting the location

“If we’re not going to put hay under roof, we need a well-drained site to reduce spoilage on the

bottom of the bales,” Rusche says. “Gravel or some kind of base that will drain can keep bales from soaking up water.”

In snow country, situate hay storage areas away from low spots that will be wet with snow melt. Keep them away from trees to allow more air movement to keep things dry, and maybe avoid catching more snow.

“If it catches very much snow, not only do we have to dig the hay out to feed it, but when the snow

melts, it puts all that moisture right next to our hay pile or rows,” Rusche says.

If hay is close to a stream and a lot of trees, there’s more humidity than out in an open area. The ground there might also be a little more saturated. If trees are tall, they create shade part of the day, and the snow doesn’t melt off as quickly in the spring.

“My preference, if I have room, is to store round bales in long, single-bale rows, with flat ends touching each other and round side up — running the rows north to south so the hay gets sun exposure on both sides,” he says.

“It’s good to have wide gaps between the rows, if you have several rows, for more air movement,” Rusche advises.

If you have a major snowstorm and a lot of snow, it can slide off the bales between the rows with enough room that it won’t pile up so deeply between them and stay



South Dakota State University's Warren Rusche says he prefers to store round bales in long single-bale rows with flat ends touching each other and round side up. Positioning the row to run north to south provides sun exposure to both sides.

PHOTO BY WARREN RUSCHE

stacks. Sometimes limited space for our hay yard doesn't allow us to do that, however, and we have to stack them," says Rusche.

"In that situation we might figure out how long we have to store that hay, and which hay will be used first. If we put up hay in mid- to late summer but will start feeding some to weaned calves in the fall — fed up by the first of the year — maybe we can cut corners on storage. The shrink on hay stored only a few months will be modest," he says.

Prioritize a storage plan.

"The longer we need to keep hay, the more protected it should be, so it won't weather so much. If you have limited covered storage, put the high-quality feed under roof. If it's high-value alfalfa that will be fed for calving and needs to hold quality until spring, it should be the hay that goes under a roof," he explains.

The rained-on grass hay can be stored outside.

In an arid climate, spoilage risk is lower.

"This may be something to consider when figuring whether a hay shed pencils out. It will be far different in Missouri or Tennessee than it is in the Dakotas," says Rusche.

Even in an arid climate, sometimes there are heavy rain events that soak deeply into the bales, or unusual years when there

against the sides of the bales so long.

"When there's a lot of snow, and bales are in a single row, we can pull the bales off that row and only have to open up a small area — as opposed to trying to get at bale



Above: Pyramid stacks are useful if space is limited.

Right: There are more places in pyramid stacks for water and snow to collect and sink in. Use bales from that stacking system first to avoid loss.



Tarpping hay is easier when stored in long, single rows — or even rows of single bales on top of single bales — compared to tarping a pyramid stack.



Hay can be tarped at any location, and it may be easier to invest in a few tarps or rolls of black plastic that can be reused for several years.

is a lot more snow than normal.

Some people tarp hay rather than invest in a shed. Hay can be tarped at any location, and it may be easier to invest in a few tarps or rolls of black plastic that can be reused for several years. Black plastic lasts longer than most tarps and is cheaper, too. It can be cut to fit the stacks you want to cover,

and it has an advantage of being slicker — and warmer from absorbing sunshine. Snow sheds off it better in winter.

When tarping hay, it's easy with long single rows, or even rows of single bales on top of single bales, compared to tarping a pyramid stack. When taking tarps or black plastic off in winter for feeding,

the covering comes off single rows easily, whereas a pyramid stack or any rows placed tightly together will have dips and valleys where water or snow melt collects and creates heavy chunks of ice. These make it difficult to take the tarp off in the winter.

"The piles and

Continued on page 140



PHOTOS BY EMILY MECCAGE

PHOTOS BY HEATHER SMITH THOMAS

pyramid stacks have more problems in general, just because there are more places for water to collect and sink into the hay. If we place bales flat side to flat side in long rows of single bales, we have the advantage of letting the water shed off,” says Rusche.

When space is limited, people usually stack bales in rows with a sideways bale on top of each upright bale.

Researchers at Kansas State University looked at putting a bale on end and another bale on top. The shrink loss was similar to what they saw in single rows, Rusche reports.

A study in South Dakota evaluated storage losses of bales in pyramid stacks (base of three, with a layer of two on those and a third bale on top) and found 10% loss in one year, he adds. A single bale with air around it had storage loss of 4%. When placed end to end in long rows the loss was less than 1%.

“That study didn’t give details, so we don’t know how wet a year it was, but there are more places in pyramid stacks for water and snow to collect and sink in. If

a person makes that kind of stack, you’d want to use those bales up first,” he says.

The publication also noted that you can get by with a smaller tarp if you tarp the pyramid stack. However, it’s hard to tarp over a pyramid stack without sags in it where water collects. The most problem-free way to store round bales is in one long single row.

“That’s the way I store my hay,” Rusche says.

Finding a good buy on hay a few years ago, he bought a truckload, then changed his program to graze more and use less hay.

“When I got down to the last two bales of 3-year-old hay, they’d kept pretty well,” he notes. There

“If we place bales flat side to flat side in long rows of single bales, we have the advantage of letting the water shed off.” — Warren Rusche

were some issues with the net-wrap when stored that long, but the hay was still good.

The key to storing big round bales is to recognize that moisture is the enemy.

“We want to maximize air movement and minimize the amount of time water or snow can sit on a bale,” Rusche says.

Going under cover

“If feasible, overhead protection (hay shed or tarping) for the higher-value, higher-quality hay makes sense,” he says. “Some people use relatively inexpensive hoop barns for ground hay to protect it from moisture and wind loss, and in some situations those

might work for storing bales. The curved hoop gives up a little storage capacity compared to a square shed, but is cheaper to install and keeps moisture off.”

In a hoop barn, hay can be stacked fairly high.

By investing in crushed rock or concrete for a good base, hay won’t draw moisture from the ground.

Rusche says cattlemen in regions of the country that have been relying on inexpensive distillers’ grain may now have to look at feeding other protein sources, such as alfalfa, especially for cow diets.

“We may need to start using higher-value hay,” he says. “In that situation, some kind of overhead protection makes sense.” ■

Editor’s note: Heather Smith Thomas is a freelance writer and cattlegirl from Salmon, Idaho.