

Round Bale Storage

This winter, while feeding your livestock, take a look at your bales and make an estimate as to how much loss you are getting in your bales due to improper storage. Large round bales typically have higher storage losses especially when stored outdoors. Placing round bales outside on the ground is the cheapest method of storage but can lead to the greatest potential for dry matter weathering. Most of these losses take place on the bottom of the bale where moisture levels remain the highest and air movement the lowest.

There are a number of techniques to help minimize outdoor storage losses.

Make a dense bale – High-density bales will tend to "sag" less, exposing less surface area to the ground and a dense surface helps shed rain and protect the inner part of the bale from weathering. Bale density is affected by the baling machine, the experience of the operator, and the hay type (fine stemmed hays form denser bales). The density of round bales should be a minimum of 10 lbs of hay per cubic ft. When considering density you need to consider bale size. Although larger bales have less surface/cu. ft, increasing the density requires attention to proper bale moisture to reduce the incidence of heating and quality deterioration. Ray Bittner, Livestock Specialist-MAFRD, notes that these well-formed, rock hard bales don't breathe. Because the bales can't exhaust much moisture or heat, moisture levels need to be lower. The balers crush the stems so aggressively that stem contents are exposed causing free water soluble carbohydrates exposure rather than protection from the stem.

Use plastic wrap, net wrap or plastic twine - Twine reduces bale sag, maintains bale shape, and provides a tight, smooth surface. Plastic twine will resist weathering, insects and rodents better than natural fiber twines. Twine should be wound tight and spaced 6 to 10 inches apart for best bale storage. Wrapping bales with plastic wrap can reduce DM loss but can restrict air movement.

Store bales on a well drained location - Bales soak up moisture if placed on a wet or poorly-drained site, causing a large layer of spoiled hay on the bottom of the bale. The storage site should drain away in all directions. A well drained, 4-6 in. coarse rock base will minimize bottom spoilage.

Store bales end-to-end – Large round bales without cover should be stored end-to-end in single rows in a north-south orientation with space between the bales to facilitate good air circulation and drying. If more than one line of bales is needed, space additional rows at least 3 feet apart. Uncovered pyramid stacks expose the lower levels to increased weathering as rain sheds off the top bales onto the lower bales. Two-bale

mushroom stacking minimizes ground contact but moisture shed off the top bale can increase spoilage to the lower bale.

As you are feeding your livestock, take a close look at how much spoilage there is. A 2" layer of weathered material on a 4 X 4 bale represents 16% of the bale volume while the same 2" layer on a 6 X 5 bale represents 11% of the volume. Remember these losses in quality and quantity result when forages are exposed to the weather. The amount of loss will vary depending on precipitation, storage site location and preparation, and the original condition of the bale. Losses are more significant in higher rainfall conditions than in drier environments. Anything that you can do to reduce these losses can and will improve the quality and quantity of your stored hay.

For more information on bales storage click on the sites below:

[7.3A Round Bale Hay Storage](#)

[Round Bale Storage Techniques](#)

[Hay Storage](#)

[Management Tips for Round Bale Hay Harvesting, Moving, and Storage](#)

Please remember that large round baling creates unique safety concerns for farmers and ranchers. When using round balers and front-end loader to move bales use extreme caution. Stay [SAFE](#).

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