



Bale Storage



Understand different bale storage systems that can be utilized in feed centers and how the set up can impact quality of forage and efficiency within the feed center.

Storage Facilities

Indoor: Storage structures can range from refurbishing an existing barn or shed, to erecting a pole barn with a roof and no sides, to constructing a completely enclosed new building. Fully enclosed structures are open at one end for the ease of filling and to allow for adequate natural ventilation. With all sides enclosed, exposure to outside elements is reduced to a minimum. A roof-only hay shed allows for access from all sides for stacking and removing bales from the structure. While this design exposes the outside layers to the elements, the additional airflow dries out these layers rapidly and quickly wicks away any moisture.



Example of a Quonset building for bale storage



Example of a fully enclosed hay storage shed



Example of a roof-only hay storage structure

Outdoor: Storing bales on bare ground with no covering can result in significant losses upward of 30-40% DM after just six months. When storing bales outside, they should be placed on a slope that is well drained. A low-cost option is to spread a layer of crushed rock or gravel on the surface which will reduce the amount of moisture that seeps into the bales over time.

Coverings: Bales can be protected by covering them with a plastic tarp. A low-cost plastic tarp requires minimal investment but may not be reusable whereas thick plastic or canvas tarps can be used for multiple years. When bales are stacked several layers high, properly positioning and fastening a large tarp may require additional personnel to secure.

Proximity to feed center: A hay storage facility should be close to the feeding center with plenty of space to maneuver equipment. Structures should be at least 75 feet (23 m) from other structures in case of fire. Water should be able to move away from the storage area, so placing the facility on higher ground with plenty of slope is key.

Storage Recommendations

When storing hay, ensuring the bales can ‘breathe’ is key to preventing issues at feed out. Proper airflow through a structure and around bales continues to dry the bales as well as wick away moisture. It’s important to remember not to stack bales against sidewalls. Allow some gaps in the stack for ventilation, including at least two feet (60 cm) between the bales and the rafters.

If storing round bales outside, run rows north-south on a sloped site keeping bales at least three feet (90 cm) apart, and place the bales end-to-end. Stacking round bales can be done in either a pyramid or on end. Stacking bales in a pyramid allows for airflow between the bales and for rain or snow to slide off the side of the stack easily. Stacking round bales on end can allow for more bales in the same size area.

Ideal bale moisture is critical when storing bales of hay. If bale moisture is more than 16%, monitoring the temperature of these bales is a necessary precaution to prevent heating and potential combustion.

Grinding

There are multiple options available for hay and straw grinding such as truck mount, PTO driven, stationary/electric models, and TMR mixer wagons. Using the TMR for grinding allows for less shrink, but the consistency is variable. In contrast, a tub grinder allows for a more consistent product, but more shrink. Typically, a tub grinder can process six to eight quality hay bales or three to four lower quality hay bales per hour. Variable screen sizes are available depending on the desired length of cut or time desired for grinding.



Two examples of different PTO driven tub grinders

<https://www.haybuster.com/products/tub-grinders/h-1030-tub-grinder/>

Safety

Safety must be a top priority for bale storage and processing. Making sure that facilities are designed to reduce the risk of fire damage, falling bales, and injury are crucial. Tub grinding hay has a lot of moving parts that can spark, causing fires as well as objects to be thrown. In addition, dust and noise are of concern, so proper hearing and eye protection should be worn.