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# Hay Loss From Storing Round Bales Outside



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Cow Calf Education

Most ranchers depend on hay to keep their cattle going through the winter. Depending on the method used to store large round bales outside, the hay loss could reach up to 20% needlessly increasing their feeding cost. Storing hay up to 9 months outside on the ground will result in losses that range from 5-20%. Elevating the bales by using either gravel or pallets will reduce this loss to 3-15%. If the bales are covered on the ground the loss is 5-10%. If they are covered and elevated the loss goes down to 2-4%. In an enclosed barn, the loss is less than 2%.

If a price of \$50 per ton is assumed for the hay, a 20% loss is \$10 per ton. Round bales can weight anywhere from 600 pounds (lbs) up to 1800 lbs. If we assume 1000 lbs per bale, that means that bales stored on the ground will lose up to 200 lbs in 9 months. If that same 1000 lbs bale was placed on gravel or on pallets and covered the loss could be as low as 24 lbs.

A small herd of 25 cows and one bull will require no more than 50 large round bales (25 tons) for the year. These losses translate into as high as 10 bales (5 tons) lost if stored uncovered on the ground, to as little as 2 bales (1 ton) lost if elevated and covered. The economics of getting the bales off the ground and covering them, needs to be examined.

One important key to reducing weathering is the tightness of the outer layer of the bale. Moisture will penetrate a loosely packed bale, causing greater loss of hay. An easy method to check

this on newly formed bales is to press on the outer layer with the palm of the hand. If it goes in more than about ½ inch, then significant storage losses should be expected.

The storage site is another important consideration in reducing losses. Select a site that is not shaded and is open to breezes to enhance drying conditions. The site should be well drained to prevent moisture absorbing into the bottom of the bale. As much as 12 inches of the bottom of a bale can be lost due to moisture “wicking” into the bale. This is the main reason for elevating the bales on pallets, old tires or 6 inches of crushed rock. If possible, get the bales off the ground without spending much, if any, money.

Bales should be stored in rows, butted end-to-end, and running in a north-south direction. There should be at least 3 feet between the rows. This will provide good sunlight and airflow, which will allow the bales to dry faster. Vegetation between the rows should be mowed. Bales should not be stacked on top of each other unless they are going to be covered.

Covering bales with 6-mil black polyethylene or plastic is the cheapest way to cover. The cost of covering comes to around \$3.50 per ton per year. This cost only includes the cover and does not include ropes, stakes and labor. Covering hay bales in Oklahoma is not an easy task to accomplish. Wind is a problem in Northeastern Oklahoma and most producers do not use these

types of covers. The high maintenance costs prohibit coverings for most producers.

The best way to store hay is inside an enclosed barn. Putting up a new barn will cost from \$1.50 per square foot for a roof only structure, to \$6.00 per square foot for an enclosed building. These costs are most likely prohibitive, but if an existing barn is on the property, consider taking advantage of it.

The table examines the cost of storing 50 large round bales and compares it to the dollar value of the hay lost. The net savings over storing on the ground uncovered is then calculated. The result is that it is economical to store elevated but uncovered. The cost of the plastic covering is too great to make covering economically viable.

**Table 1: Economic Summary of Different Methods of Storing 50 Large Round Bales**

Method of Storing	Dollar Loss / Bale	Total Dollar Loss	Annual Cost of Storage	Net Savings Over Storing on the Ground Uncovered
<b>On the Ground</b>	\$2.50	\$125.00	\$ 0.00	\$ 0.00
<b>Elevated / Uncovered</b>	\$1.88	\$ 93.75	\$ 30.00*	\$ 1.25
<b>On Ground / Covered</b>	\$1.25	\$ 62.50	\$ 87.50	<b>-\$25.00</b>
<b>Elevated / Covered</b>	\$0.50	\$ 25.00	\$117.50**	<b>-\$17.50</b>

\* Assumes pallets costing \$150 and lasting 5 years

\*\* Assumes same pallet costs plus \$3.50 per ton per year for covers.

**Related OSU Publications:**

*F-1716 Round Bale Hay Storage*