

# CORNHUSKER ECONOMICS

## Grain Storage Costs and Rental Rates

| Market Report                                                                                 | Yr<br>Ago | 4 Wks<br>Ago | 3/27/09 |
|-----------------------------------------------------------------------------------------------|-----------|--------------|---------|
| <b><u>Livestock and Products,</u></b>                                                         |           |              |         |
| <b><u>Weekly Average</u></b>                                                                  |           |              |         |
| Nebraska Slaughter Steers,<br>35-65% Choice, Live Weight.....                                 | \$87.93   | \$81.15      | \$83.49 |
| Nebraska Feeder Steers,<br>Med. & Large Frame, 550-600 lb. ....                               | 121.20    | 113.09       | 111.58  |
| Nebraska Feeder Steers,<br>Med. & Large Frame 750-800 lb. ....                                | 99.75     | 89.90        | 93.24   |
| Choice Boxed Beef,<br>600-750 lb. Carcass. ....                                               | 139.99    | 133.30       | 134.73  |
| Western Corn Belt Base Hog Price<br>Carcass, Negotiated. ....                                 | 54.03     | 54.87        | 57.22   |
| Feeder Pigs, National Direct<br>50 lbs, FOB.....                                              | 46.31     | 53.00        | *       |
| Pork Carcass Cutout, 185 lb. Carcass,<br>51-52% Lean.....                                     | 56.50     | 56.31        | 58.63   |
| Slaughter Lambs, Ch. & Pr., Heavy,<br>Wooled, South Dakota, Direct.....                       | 92.95     | 96.63        | 89.75   |
| National Carcass Lamb Cutout,<br>FOB. ....                                                    | 257.11    | 247.42       | 248.76  |
| <b><u>Crops,</u></b>                                                                          |           |              |         |
| <b><u>Daily Spot Prices</u></b>                                                               |           |              |         |
| Wheat, No. 1, H.W.<br>Imperial, bu. ....                                                      | 9.52      | 4.83         | 4.73    |
| Corn, No. 2, Yellow<br>Omaha, bu. ....                                                        | 5.27      | 3.44         | 3.74    |
| Soybeans, No. 1, Yellow<br>Omaha, bu. ....                                                    | 11.82     | 8.61         | 8.94    |
| Grain Sorghum, No. 2, Yellow<br>Dorchester, cwt. ....                                         | 9.04      | 5.09         | 5.70    |
| Oats, No. 2, Heavy<br>Minneapolis, MN, bu. ....                                               | 3.54      | 1.89         | 2.00    |
| <b><u>Feed</u></b>                                                                            |           |              |         |
| Alfalfa, Large Square Bales,<br>Good to Premium, RFV 160-185<br>Northeast Nebraska, ton. .... | 135.00    | 190.00       | 190.00  |
| Alfalfa, Large Rounds, Good<br>Platte Valley, ton. ....                                       | 85.00     | 77.50        | 77.50   |
| Grass Hay, Large Rounds, Premium<br>Nebraska, ton. ....                                       | *         | 85.00        | 85.00   |
| Dried Distillers Grains, 10% Moisture,<br>Nebraska Average. ....                              | 168.50    | 130.00       | 128.00  |
| Wet Distillers Grains, 65-70% Moisture,<br>Nebraska Average. ....                             | 59.62     | 45.13        | 49.25   |
| <b>*No Market</b>                                                                             |           |              |         |

**Trends in Grain Storage** - Commercial grain storage eliminates the need to monitor grain conditions and, hence, offers the peace of mind that unsold grain will remain in condition. There may be a cost trade-off between this reduced storage risk and the cost of on-farm storage.

Many factors, including the increased demand for corn due to the expansion of the ethanol industry and the increase in farm size, have many producers handling more grain and requiring more grain storage. With the higher value of commodities it has become increasingly important to maximize grain quality and minimize waste. Where possible, the higher value of grain has dictated that less be piled on the ground and more be stored in bins.

Also, in recent years it has been profitable to store soybeans past harvest to take advantage of better prices later in the year. By having on-farm storage, especially in times of volatile pricing, producers are able to gain pricing leverage by having the grain stored on-farm. Constructing new grain storage facilities can answer a producer's grain storage needs.

Trends with on-farm storage and construction of new grain bins have been to build bigger structures. In Nebraska, the average size grain bin constructed for non-commercial, on-farm storage is around 50,000-60,000 bushels. More and more producers are looking at larger bins, upwards of 100,000 bushels. Construction costs for these moderate size bins will average around \$2.15 per bushel, but may fluctuate depending on bushel capacity, drying equipment and several other factors.

**Renting Grain Storage** - If you have existing grain bins that can be used to generate additional income, the following can be used to calculate the economic costs.

The factors that influence the determination of a rental rate include:

- Location of the bin
- Size of the bin
- Condition of the bin

- Age of the bin
- Fill and unload accommodations
- Aeration equipment
- Who pays utilities
- Who pays repairs
- Supply and demand

Estimating rental value for farm grain storage can be based on local supply and demand for bins, comparative commercial rates and ownership costs.

**Local Supply and Demand** - An indication of what others are charging can be found at the following web sites: [www.extension.iastate.edu/agdm/crops/html/a3-10.html](http://www.extension.iastate.edu/agdm/crops/html/a3-10.html) and at <http://www.extension.iastate.edu/Publications/FM1838.pdf>. Current comparable data for Nebraska is not available. (A 1991 survey indicated an average rental rate for round bins to be 11 cents/bu/year, with a range of 6 to 21 cents. The rate for bins with equipment averaged 13 cents/bu/year, ranging from 8 to 24 cents).

**Commercial Rates** - Grain storage may be available from a commercial source, such as an elevator. In order to calculate on-farm rental rates based on commercial rates, take the commercial rate minus an appropriate discount. The discount accounts for the fact that the owner does not provide labor, manage the grain or assume the risk of spoilage and shrinkage.

A suggested rental charge for on-farm storage is about two-thirds to three-fourths of the local rate for commercial storage.<sup>1</sup> For example, to compute a farm storage rate for corn for six months, first identify the commercial rate. A typical rate is an initial charge of 8-10 cents per bushel for the first three months of storage, and an additional charge of from 1.5-2 cents per bushel for each additional month. This amounts to a six-month commercial rate of 12.5 cents ( $8 + (1.5 \times 3) = 12.5$ ) to 16 cents ( $10 + (2 \times 3) = 16$ ). The comparable farm storage rate for six months is estimated to range from about 8.4 cents ( $12.5 \times 2/3 = 8.4$ ) to 12 cents ( $16 \times 3/4 = 12$ ).

More commonly, on-farm rates are based on the bin capacity, not on actual bushels, regardless of how long the grain is stored there. The owner only has one chance per year to rent it, and is prohibited from co-mingling from multiple owners without a warehousing license.

**Ownership Costs** - There are five components used to determine rental rates through ownership costs. Known as the "DIRTI 5", they include the following:

- Depreciation
- Insurance
- Repairs
- Taxes
- Interest

Table 1 (on next page) shows the expected useful life of grain storage and drying equipment.

**Depreciation** - Depreciation is the portion of the original cost that is counted as an expense every year. The cost of the bin is spread out over the useful life. A depreciation factor of five percent would be used on a grain bin with an expected useful life of 20 years. (100 percent divided by 20 years equals five percent per year.)

**Insurance** - Insurance costs can be obtained from the insurance policy, or use one-half percent of the original purchase price.

**Repairs** - As the bin ages, repairs are needed to keep the bin in useable condition. Annual repair costs can be estimated by using a rate of one to two percent of the original purchase price of the bin. For drying and handling equipment use a higher rate of three to five percent of the original price.

**Taxes** - Taxes can be calculated by figuring the local property tax rate by the assessed value. As an alternative, use one percent of the original purchase price.

**Interest** - Interest cost is calculated by multiplying the annual interest rate by the average value of the grain bin over the expected useful lifetime, or one-half the original value.

For example, interest (return on investment) is \$600 on a \$20,000 grain bin. This is figured by multiplying one-half of the original investment (\$10,000) by an interest rate of six percent.

The interest on the investment can be the rate at which money is borrowed, the rate at which money can be invested, or at some other rate between.

An example of estimating the annual ownership costs of a grain bin is illustrated in Table 2 (on next page). The full cost of owning and maintaining the bin is \$.20 per bushel, per year.

The supply and demand situation in the area of the bin to be rented will play a large part in determining the rental rate received. In areas with many potential buildings that could be rented but few renters, an oversupply in bins would give the renter an advantage in determining the rental rate. The opposite can happen when there is an undersupply of bins and many people wanting to rent them, which would give the landlord an advantage in the rental process. Situations like this could cause the rates to be significantly different from the rates produced in the guide.

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**Table 1. Guidelines for Estimating Ownership Costs**

|                            | <b>Grain Bin</b> | <b>Drying Equipment</b> |
|----------------------------|------------------|-------------------------|
| <b>Useful Life</b>         | 15-25 yrs        | 10-12 yrs               |
| <b>Depreciation</b>        | 4-7%             | 8-10%                   |
| <b>Interest</b>            | 4-7%             | 4-7%                    |
| <b>Repairs</b>             | 1-2%             | 3-5%                    |
| <b>Taxes and Insurance</b> | 1-1.5%           | 0.5%                    |
| <b>Total</b>               | <b>10-17.5%</b>  | <b>15.5-22.5%</b>       |

**Table 2. Estimated Annual Grain Storage Costs - (20,000 bu. Drying and Storage - Initial Cost \$35,000)**

|                             | <b>Percent</b> | <b>Cost</b>    |
|-----------------------------|----------------|----------------|
| <b>Depreciation:</b>        |                |                |
| <b>Bin (\$25,000)</b>       | 5.0            | \$1,250        |
| <b>Equipment (\$10,000)</b> | 8.0            | 800            |
| <b>Insurance</b>            | 0.5            | 175            |
| <b>Repairs:</b>             |                |                |
| <b>Bin</b>                  | 1.0            | 250            |
| <b>Equipment</b>            | 3.0            | 300            |
| <b>Taxes (bin only)</b>     | 1.0            | 250            |
| <b>Interest (\$17,500)</b>  | 6.0            | 1050           |
| <b>Total Cost</b>           |                | <b>\$4,075</b> |
| <b>Cost per Bushel</b>      |                | <b>\$0.20</b>  |