

## On-Farm Grain Storage Costs: Consider all the Factors

As you make decisions about how and when to market grain and whether to store it, make sure that you consider the full costs of storing grain. Here are the primary factors that make up the total cost of storing grain.

**Ownership costs for facilities and equipment.** If you are considering adding storage space, you need to include the cost of bins (or of remodeling other structures for grain storage), aeration equipment, grain handling equipment, grain temperature monitoring equipment, construction costs, and electrical wiring. When you estimate annual costs for equipment, consider that most bins will last at least 20 years and most fans and motors will last 5 to 10 years. Besides purchase costs, factor in interest on the money, property taxes, and insurance. If you already have storage space available, you will be paying these costs even if you decide not to store grain. Annual costs for owning storage space often amount to 15 to 20% of the initial cost to build storage.

**Opportunity cost for the value of grain.** Grain isn't worth as much as we'd like right now, but it's still worth something and you need to consider the interest on the value of the grain as a storage cost. An alternative to storing grain is to sell it and use the proceeds to pay off loans (save interest expense) or invest the proceeds and earn interest. Multiply the value of the grain by the interest rate saved or expected interest rate earned to get the opportunity cost.

**Extra shrink and drying costs for drying to lower than market moisture.** If crops are sold at harvest or soon after harvest, they can be delivered at market moisture (for example, 13% for soybeans and usually 15% for corn). But if crops are stored into warm weather, they should be stored at lower moisture contents to reduce risk of mold and insects. Selling grain at less than market moisture sometimes involves extra drying costs (\$0.01 to \$0.03 per bushel per percentage point) and always involves loss of water weight that could have been sold at the price of grain. (Water shrink, percent weight loss per percentage point of moisture loss, equals 100 divided by the quantity 100 minus the final moisture content.)

**Extra dry matter loss during handling and storage.** Even with careful storage management, you can expect to lose 1 to 2% of the grain's weight due to loss of dust and kernels during handling and due to consumption by mold and insects. If grain is not managed carefully and mold and/or insects become a significant problem, you can expect extra costs to solve the problem (moving, cleaning, redrying, or chemically treating the grain), extra dry matter losses, and possibly discounts to the price when grain is sold.

**Electricity costs for aerating and moving grain.** Electricity costs per bushel for aerating and moving grain are very low, but total electricity costs can add up. You can get a rough estimate of total electricity costs for each fan or grain conveyor by multiplying the horsepower of the motor times the expected number of hours of operation for that motor times the price of electricity in \$/kWh. Avoiding aeration to

save electricity costs is likely to result in mold and insect problems and is not a good way to save money.

**Labor for checking and handling grain.** Each bin of stored grain should be checked about once a month during winter and about every two weeks during warmer weather. Also, some extra labor is required to fill and empty bins (especially for flat storage or other structures remodeled for grain storage). Estimate the number of hours of labor required for checking and handling grain and multiply by the cost per hour for hired labor or the value of your own time to get total labor costs for storing grain.

Add all the above factors plus any factors that are unique to your farm to get total grain storage costs. Compare total costs for on-farm storage to off-farm storage charges to decide whether you should store grain on your own farm or hire someone else to do it. (Don't forget that the opportunity cost for the value of stored grain applies for both on-farm and off-farm storage.) Compare total storage costs to expected increase in crop value to decide whether storing the crop is likely to be profitable.