



Ag Decision Maker



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Harvest fuel costs

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Harvest fuel costs are a significant portion of the harvest cost and represent a measurable portion of the overall costs of production. The Iowa State University Extension Estimated Costs of Crop Production estimated that combine variable costs (fuel, lubrication and repairs) represented between 4 and 5 percent of the variable costs of corn production and approximately 6 percent of the variable costs of soybean production.

This year the cost of fuel will be an even larger part of the variable costs of production for both corn and soybeans. Diesel fuel prices are the highest they have been in the past decade. Figure 1 shows the average monthly retail diesel fuel prices in the Midwest for April and September. Notice that September prices rose by 30 percent from

2003 to 2004 and that they rose another 50 percent from 2004 to 2005. Although the increase was less dramatic for April prices, they still increased by almost 35 percent from April 2004 to April 2005.

The magnitude of these impacts for an individual farmer will depend upon several factors.

The ISUE Estimated Costs of Crop Production uses an average of a small, medium, large and very large combine to estimate the average costs for combining. The horse power and head width are matched so that maximum efficiency for each unit can be achieved.

The estimated impact of higher fuel prices on the costs of production was determined by re-estimating the costs with higher diesel prices. For every \$.50

increase in the cost of a gallon of diesel fuel the variable cost for corn combining increased by \$1.13 per acre. For every \$.50 increase in diesel fuel the variable cost for soybean combining was estimated to increase \$.85 per acre. If diesel fuel is \$1.50 per gallon the estimated variable combining costs are \$10.42 and \$6.65 per acre for corn and soybeans, respectively. When diesel prices are increased to \$2.50 per

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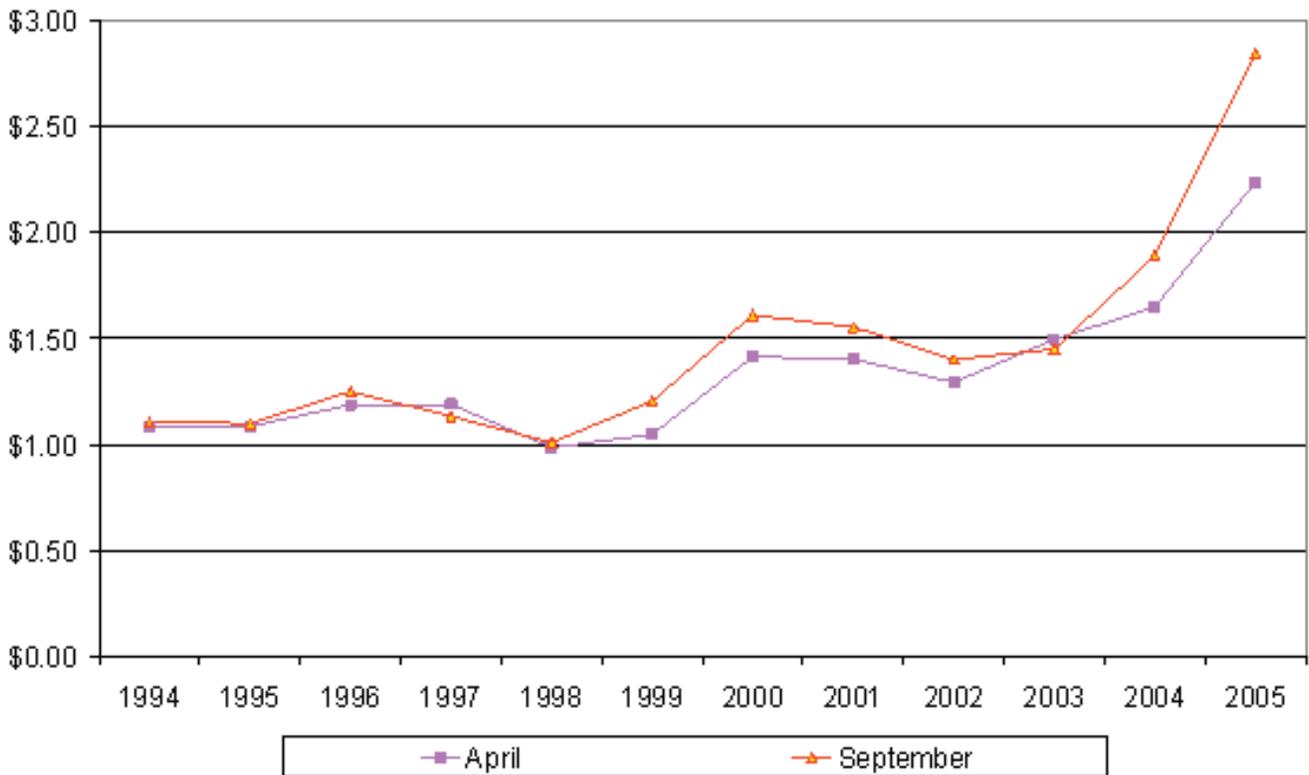
gallon the variable combining costs increase to \$12.68 and \$8.35 per acre, for corn and soybeans, respectively.

The average retail price of diesel in the Des Moines area on September 22, 2005 was \$2.639 per gallon. One year ago, on the same date, it was \$1.893 per gallon.

At this time farmer's options are limited with respect to dealing with the higher fuel costs. On the average, it appears that the increased fuel costs will

add approximately \$2.00 per acre to the costs of combining. In and of itself such an increase does not seem too great. However, this increase is on top of previous increases and, more importantly, the higher costs will be reflected in higher fertilizer and pesticide costs next year. Farmers need to begin to seriously consider the alternatives they have available with respect to saving energy costs. There are several possibilities including forward pricing fuel, carefully evaluating the trips across the field, maintaining power units and having proper air pressure in the tires.

Figure 1: Average Retail Diesel Prices in April and September in Midwest





What to do with all that corn?

*By Roger Ginder, Iowa State University Extension Economist,
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As they enter what's expected to be a record soybean harvest and near-record corn harvest, Iowa farmers have several options.

Storage could be a problem, even though Iowa has a lot of elevator storage available, large corn and soybean yields in some parts of the state are likely to create very tight storage conditions.

There are three standard options for farmers to handle the large expected harvest. Farm program-related options also may be worth consideration.

The first option is to store grain temporarily on the farm. The biggest concern is whether you have the ability to maintain quality in temporary storage on the farm. There are numerous ways to handle emergency storage on the farm but if the grain begins to spoil, the loss may cost you as much as it would cost for short-term storage elsewhere.

Farmers also could sell grain under a credit sale contract. Also known as price-later contracts or no-price-established contracts, credit sale contracts allow the price to be set at a later date. Credit sale contracts are not new and often are used to move grain when storage problems exist, however, I advise farmers to be cautious.

Under a credit sale contract, you turn the title to the grain over to the elevator. You must have confidence in who you're dealing with, especially if the elevator experiences financial difficulties later on. Credit sales contracts are not guaranteed by the Iowa Indemnity Fund.

Farmers should expect some service charges by the elevator issuing the contract to cover costs. If there is no service charge, or a very low service charge

at this point in the crop year, the elevator may be assuming additional risk.

Finally, a producer could store grain in an elevator under a warehouse receipt. Fees are generally higher than credit sale contracts, but payments are guaranteed under the Iowa Indemnity Fund. Farmers with warehouse receipts receive 90 percent protection up to \$150,000.

Normally, warehouse receipted grain cannot be stored outside, but a few times in the past elevators have received emergency approval from the Iowa Department of Agriculture and Land Stewardship (IDALS) to store grain under warehouse receipt outdoors.

This emergency measure was taken during the 1994 and 1998 harvests. However to use this provision elevators must post a large per bushel surety for every bushel of warehouse receipt grain stored outside. At current corn prices, the per bushel bond required would be much higher than the value of the bushel. And the grain must be off the ground by the end of January. These two factors make it unlikely that a lot of warehouse receipts will be issued on grain stored in outside piles even if the emergency measure is approved by IDALS.



Renting on-farm grain storage

by William Edwards, Iowa State University Extension Economist,
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With an abundant harvest under way and low grain prices making immediate sales unattractive, storage space for corn and soybeans will be in high demand this fall.

The USDA Census of Agriculture from 2002 estimates that there is storage capacity for 1.5 billion bushels of grain on Iowa farms, and over 1.0 million bushels of commercial storage available in the state. By comparison, the latest USDA crop report projected 2.6 billion bushels of corn and soybeans would be harvested this fall in Iowa. Add in carryover bushels from the past and a few acres of other grain crops, and we are looking at a very tight situation.

When grain storage is scarce, older bins and other structures that are not usually in use may be pressed into service. Often this extra space is available on a rental basis. Several questions arise about fair rates and terms.

Rental rates

Commercial storage rates often run from 2 to 3 cents per bushel per month, with a 60-day or 90-day minimum. Those rates may be higher this year. However, elevator storage also includes handling and managing the grain, and bearing the risk of storage losses. When storage is rented on the farm, those services are usually not provided. Thus, farm storage rental will generally be below commercial rates.

The 2005 Iowa Farm Custom Rate Survey conducted by Iowa State University Extension showed an average rental rate of 2.7 cents per bushel per month for on-farm grain storage, and about 13 cents per bushel for the whole year. The range of rates reported for annual storage was 7 to 25 cents per year. Owners of farm storage usually prefer to rent by the year, since they will seldom have a chance to rent a bin more than once during a crop year.

The wide range in rates reflects a variety of conditions and features. The size of the bins and convenience for unloading and loading are obvious factors. Likewise, the type of aeration available and the availability of supplemental heat can add or subtract several cents per bushel.

Other structures

Other types of storage structures will generally rent for less than conventional grain bins. Flat storage, such as a machine shed, was not included in the survey. However, based on rental rates for machine storage, a charge of 5 to 7 cents per bushel is probably adequate. Of course, the owner of the grain would have to provide aeration and any other modifications needed to make the building suitable for storing grain, and assume responsibility for storage losses. Corn cribs would probably be worth a similar amount.

Another option is to store corn as high moisture corn in an air-tight silo. A survey taken a few years ago showed an average rental charge of \$2.50 per ton of silage for such structures. Assuming that 30 bushels of corn takes the same space as a ton of silage, an equivalent rate for corn would be about 8 cents per bushel.

Other considerations

The actual rental rate is not the only consideration when negotiating a rental agreement for grain storage. For example, who is responsible for checking the condition of the grain and deciding when to aerate it? Generally, the renter would want to do this, but in some cases the owner of the storage might perform this function. Access to the bins is important, also. Who will be responsible for clearing snow, or moving machinery?

The cost of electricity used for aeration is usually paid by the renter. If there is a separate electric meter for the bins, the cost can be observed directly. If not, the kilowatt-hours of electrical use

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can be estimated by multiplying 80 percent of the horsepower rating of the motor by the hours of use. The cost per kilowatt-hour can be found on the farm utility bill.

The date and manner of payment for the rent should be specified in advance. Some agreement about the date by which grain must be removed

is also important. Usually, enough time should be allowed to clean the bin before the next harvest. Finally, any storage structure should be carefully inspected before it is filled, and the responsibility for making any needed repairs or modifications established.

Custom harvesting rates affected by higher fuel prices

*by William Edwards, Iowa State University Extension Economist,
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Nearly everyone has been impacted by higher fuel prices this year. Custom corn and soybean harvesters are no exception. Their increased costs will likely be factored into custom harvesting rates this fall.

Estimates of diesel fuel consumption for combining corn range from 1.5 to 2.0 gallons per acre. Soybean harvesting takes only about 1.0 to 1.5 gallons per acre. Larger, newer combines will typically use less fuel per acre. The most recent survey of farm custom rates in Iowa was completed by Iowa State University Extension specialists last February, when the price of diesel fuel delivered to the farm was about \$1.60 per gallon. Since then prices have surged to as much as a dollar per gallon above that level. Fortunately, some operators have been able to purchase or contract fuel at prices lower than those seen in the most recent increases.

If an average price increase of \$.80 per gallon is assumed, and average fuel consumption is assumed to be 1.25 gallons per acre for soybeans and 1.75 gallons per acre for corn, the increased costs per acre for combining would be \$1.00 and \$1.40, respectively. If 15 percent is added to these increases to account for the cost of lubricants, the total increase in costs would be approximately \$1.15 per acre of soybeans and \$1.60 per acre for corn.

Custom operators should record their actual fuel consumption and purchase prices, so they can calculate a fair charge to their customers. Some operators may quote a base rate plus actual fuel costs to be calculated after crops have been harvested. In other cases, persons hiring the work done may provide fuel from their own supplies.

Costs for hauling grain to storage or market have also increased. Distances and fuel consumption rates vary widely, but haulers can estimate their own costs by recording fuel purchases and distances driven.

Grain storage challenges in Iowa for the 2005 crop

By Charles R. Hurburgh, Jr., Professor-in-Charge, Iowa Grain Quality Initiative, Professor, Agricultural and Biosystems Engineering, tatry@iastate.edu

The 2005 corn and soybean crops, west of about Interstate 35 and north of Interstate 80 (the Northwest, North Central, Central, and West Central crop reporting districts), will likely yield higher than last year. These four districts contribute approximately 60 percent of the total Iowa corn and soybean production.

Entering the 2004 harvest, most commercial and on-farm storages were empty. Still, the crop overwhelmed the available storage capacity and large amounts of crops were placed in outdoor piles. Trade estimates place the amount of piled corn in Iowa at around 250 million bushels (out of a 1.4 billion bushel production) in 2004. There was a large premium for storage in the market, so the inevitable risks of outdoor storage seemed worth taking. Several complicating factors arose:

- Higher moisture (19 to 20 percent or greater in corn)
- Poor harvest weather (several rain and snow events through the fall and early winter)
- Strong desire by producers to get grain out of the field quickly.
- Ethanol plants became hesitant to accept corn with storage damage, because process yields decline sharply.

Significant amounts of 2004 corn, much of it with some amount of mold damage, are now in commercial storage, awaiting marketing opportunities from the 2005 crop.

The 2005 situation

The grain in elevators is not “mobile” grain because it has to be blended out slowly, not emptied all at once. Carryover 2004 corn is not suited for going back outside to a temporary pile.

- With the corn in storage, it is very likely that more corn will be piled outside this year than last.

• The hurricane has slowed barge shipments and increased railcar turnaround times. The large difference between the Chicago Board of Trade price and local price (wide basis) in the affected crop districts demonstrates the expectation of large storage problems. Some firms are considering transferring grain to other areas of the country with more storage, but that will add to the marketing cost.

• Increasing local ethanol demand is requiring corn to be retained locally. The ethanol industry has been very clear about not wanting damaged corn, but few plants have extensive on-site storage.

• Recent weather has accelerated maturation which will likely mean dry corn at harvest, and thus, faster dry-down. The rapid maturity may have cost 1 to 2 pounds per bushel of test weight. This is being confirmed by early harvest reports.

• Drier corn means a very rapid harvest pace.

• More corn will be stored outside this year than last. A balance sheet estimate of production and current carryover would suggest 500 million bushels or more will have to be stored in temporary situations.

• Increased soybean yields will also compete for covered storage. Soybeans are rarely piled outside. Soybean yields in Iowa are above expectations, according to early reports.

• There is very little ability for the grain market to absorb out-of-condition corn.

Temporary grain storage

1. Make the grain pile on a solid surface or on packed ground in a high location with a slight slope for drainage. Recognize that gravel is hard to sort out of grain when it is picked up. Plastic under the grain helps,

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- but may complicate grain handling.
- 2. Pile dry (less than 15 percent), clean, cold corn with test weight 55 pounds per bushel and higher. Lower test weight corn spoils more rapidly.
- 3. Do not mix crop years in any storage situation. The old crop likely has molded, and the new crop is not stable in moisture content. With grain piles, you have fewer moisture control options.
- 4. Consider pre-cleaning with a gravity or rotary cleaner.
- 5. Build the grain pile quickly, to avoid incorporating weather conditions and wet layers (from rain or snow) into the pile. Avoid piling slowly at harvest pace unless harvest pace will build the pile in two to three days without precipitation. Try to make the pile at the end of harvest season, when outdoor temperatures are lower.
- 6. Make the grain pile surface smooth, and of reasonably uniform depth. This reduces capture of snow, and promotes better air-flow distribution.
- 7. Always pile over a fan and duct system. Updraft if the pile is not covered; down-draft if it is. Estimate 1 hp per 10,000 bushels (approximately 0.1 cubic foot per minute per bushel). However, if you cannot get this much airflow, any airflow will be helpful. The objective is to maintain equilibrium between grain and air temperatures.
- 8. Cool the grain pile as quickly as possible. It is often warm in early harvest, but warm grain will create air currents and spoil regardless of moisture. We have had very warm early fall temperatures this year.
- 9. Expect approximately a 0.5 percentage point increase in broken corn and foreign matter and a 3 to 5 percentage point increase in damage in uncovered grain piles, even under the best of conditions.
- 10. Covered grain piles are always preferred. Rain and melted snow do not run off; free water progressively wets corn to

about 30% moisture as it moves down, so an uncovered grain pile will always have a layer of moldy corn on top (unless you are lucky enough not to have rain at all). An inch of rain will change about 6-8 inches of grain from 15 to 30 percent moisture.

A pile inside a building (machine shed, hoop building) is essentially the same as an outdoor pile except that it is covered, and therefore can be kept longer (up to 6-9 months if aerated). An outdoor pile, even with aeration, should not be kept longer than 3-4 months (February if the pile was made in November.)

Storage management

Aeration is the most critical need for any type of storage. Aeration is a progressive process for controlling the temperature of grain. Aeration needs to be done in phases.

Phase 1: Fall Cool Down

- Lower grain temperatures stepwise
 - October 40-45 degrees F
 - November 35-40 degrees F
 - December 28-35 degrees F

Phase 2: Winter Maintenance

- Maintain temperatures with intermittent aeration
 - January, February 28-35 degrees F

Phase 3: Spring Holding

- Keep cold grain cold
 - Seal fans
 - Ventilate headspace intermittently
 - Check frequently
 - Warm when problems are seen or when grain is taken out.
 - Once you start to warm grain, warm the entire bin.

Source: Purdue University

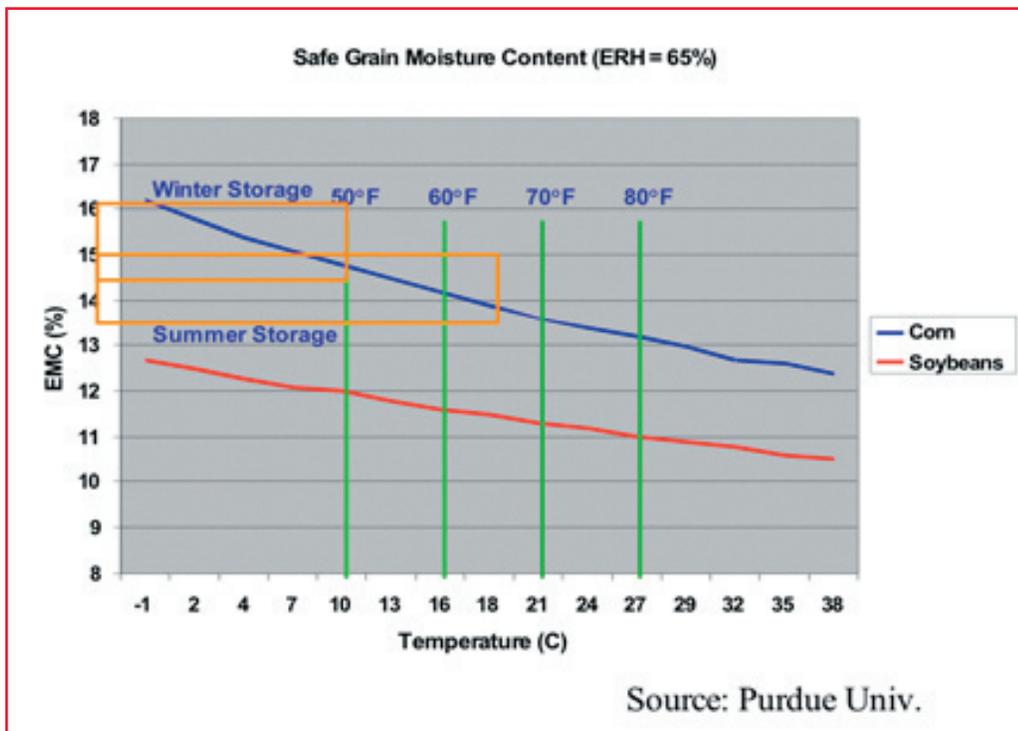
The chart on the following page shows the grain temperatures that correspond to safe storage for corn and soybeans. As temperatures rise in the spring, moisture content for safe storage is lower.

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It is essential to physically inspect grain in storage at least every two weeks; every week in spring after March 1. A portable thermometer on a long rod can be used if the bin is not equipped with electronic temperature monitoring. Increases in temperature from one inspection to the next with no fan operation during the period is a warning sign of possible spoilage. Once a grain storage has experienced condition problems, further problems are very likely. This should be the first grain moved to market.

The market is offering substantial premiums for storage this year. Well managed storage, even temporary storage should enable producers and elevators to capture these premiums.

For more information on grain storage and grain storage management, please visit: www.iowagrains.org



More information on Ag Energy-Risk Management, Energy, and Grain Issues is available at: <http://www.extension.iastate.edu/agenergy/>.

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