Ag Decision Maker

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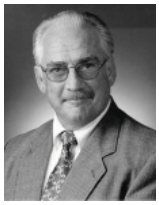

Estimating costs of crop production for 2009

By Mike Duffy, extension economist, 515-294-6160, mduffy@iastate.edu

Estimating costs of crop production for 2009 will be extremely difficult. Some farmers have received forwarding pricing, some set a quantity only and still others will use the spot market. The price consequences of these decisions are substantial.

Foreign competition for material, the current U.S. financial crises, the energy price situation and a host of other factors compound estimation problems for Iowa farmers. In these times it is easy to simply say it can't be done with any accuracy so why bother trying it.

Such thoughts are understandable but it is precisely times of uncertainty when estimating the costs of production is the most crucial. Farmers need an estimate of costs for cash flow planning purposes. Credit markets have tightened considerably and working with a lender having a clear understanding of credit needs will aid in securing credit for 2009.

Farmers need to know their costs of production when they establish their marketing plan. Based on USDA monthly price reports for Iowa, corn prices have dropped 22 percent from July through mid October and soybean prices have dropped 27 percent over the same time period. Farmers need to know their costs of production in such volatile times if they are going to be able to follow a sound marketing plan. The old saying is you won't go broke locking in a profit but you do locking in a loss. Without knowing costs of production the farmer can't tell.

Markets for just about all inputs have soared as commodity prices increased. Farmers need to know their costs of production so they can tell where to concentrate for trimming expenses. Too often in such times the strategy is simply cutting back but this can do more harm than good if cuts are made in the wrong area. Time should be spent concentrating on where costs are out of line rather than areas where costs are more reasonable with respect to averages.

Fuel

Diesel fuel costs show considerable volatility. Current reported fuel prices are down 25 percent from just a month ago and down 28 per-

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Handbook updates

For those of you subscribing to the handbook, the following updates are included.

Estimated Costs of Crop Production for 2009 – A1-20 (12 pages)

Suggested Closing Inventory Prices for 2008 – C1-40 (2 pages)

2008 Land Values Survey – C2-70 (5 pages)

Please add these files to your handbook and remove the out-of-date material.

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Inside . . .

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cent from the highest reported prices. Yet, they are only down one percent from a year ago.

Where the prices will go over the next several months is subject to debate. What isn't debated too widely is that they will continue to trend upward. Farmers are well advised to continue to find ways to cut machinery costs. Evaluating trips, keeping power units tuned, and properly inflating tires are just some of the ways to reduce diesel use. Of course, when replacing machinery energy efficiency needs to be a consideration.

Seed

Reported seed costs showed considerable variation this year. The biggest difference was the traits contained in the seed but even when comparing similar traits, reported seed prices varied widely depending upon the source. Differences of up to 30 percent were not uncommon.

The seed industry continues to change. Concentration in the industry will reduce competition which will increase prices. But, the traits and combination of traits being offered seem to continue to increase almost exponentially.

Farmers need to carefully evaluate seed selection and planting rates. The standard evaluations for yield, standability, moisture at harvest and so forth are all still important. But, with the new traits and multiple stacks farmers need to carefully consider if the trait being offered is one they need or will benefit from.

Seeding rates are also important. Research reported in the Iowa State University ICM newsletter suggests that higher seeding rates are advantageous in some cases. The maximum profit rule of using an input to the point of marginal cost equal to marginal return is very important to remember. Expected output prices and seed costs will determine the optimum seeding rates.

Fertilizer and Pesticides

Costs for fertilizers have soared in the past few years. Based on data from the Iowa Farm Business Association, fertilizer and lime costs per acre for corn have increased by 64 percent in just the past 5 years. Costs for 2008 and estimated costs for 2009 will be even higher. Estimating fertilizer costs has become increasingly difficult as prices change within the season and different payment regimes are initiated.

World competition for plant nutrients has led to the increase in prices. So, too, has the increased concentration in the industry. With fewer manufacturers, prices are more closely tied to output prices. In addition, costs for storage can be pushed further down to the final user, increasing costs and changing terms of sale for farmers.

Current prices are projected to remain steady for N and P but uncertain for K. There should be some reduction in prices as the lower priced material works its way into the world market and the higher priced material is sold.

Farmers need to follow sound agronomic practices as they assess their situation in the new environment. Proper soil tests are more important than ever. New tools are developed to help determine proper application rates with different input and output price combinations. Staying up-to-date with the latest agronomic recommendations is essential.

Pest management is another area where costs have increased considerably. Projections for 2009 for at least one of the more popular herbicides are for almost a doubling in price. Data from the Iowa Farm Business Association shows that herbicide costs per acre for soybeans and corn have been flat to drifting downward. This appears to be over starting in 2009.

Land

Cash rent for 2009 is projected to be up but the amount of increase will vary considerably based on conditions and the quality of the land. Average rents are projected to increase by eight percent over 2008 levels.

Cash rents will follow land values. Land values, in turn, are dependant upon the income that can be earned. Decreased commodity prices and higher input costs will lower returns and should eventually lead to lower rents.

The average rent per acre has increased by almost 30 percent in the past 3 years. Farmers need to try and work with landlords to develop flexible leases. With rapidly rising and volatile costs and changing markets this is especially important. A landlord may want a fixed amount but be willing to share above a certain price. Flex features can be worked out between the tenant and landlord.

Costs for 2009

Taking all these uncertainties into account, the prelimi-

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nary estimated costs of production for continuous corn are $5.40, $5.10, and $4.88 per bushel. For expected yields of 125, 145, and 165 bushels per acre, respectively. For the medium yield, the 2009 estimated costs are 22 percent higher than last year for continuous corn. They are 67 percent higher than 5 years ago.

The estimated costs of production per bushel for corn following soybeans are $4.48, $4.32 and $4.21 assuming 140, 160, and 180 bushels per acre, respectively. These cost estimates are, for the medium yield, 24 percent higher than last year's estimate and 68 percent higher than the 2004 estimated costs.

Cost of production estimates, per bushel, for soybeans are $10.04, $9.81 and $9.64 assuming 45, 50 and 55 bushels per acre, respectively. The estimate for the medium yield is 25 percent higher than a year ago and 49 percent higher than the estimated costs 5 years ago.

For corn, land represents approximately 30 percent of the total costs of production. Values of $178, $205, and $232 per acre rent charges for the low, medium and high quality land were assumed. The variable costs represent almost 60 percent of the costs of production. Of the variable costs, nitrogen and seed costs are almost half the costs for either continuous or rotated corn. Nitrogen was charged at $.68 per pound and seed was assumed to cost $250 per bag.

Land represents just over 41 percent of the costs of production for soybeans, while the variable costs represent 46 percent. Seed and potassium are almost half of the variable costs. Phosphorus was charged at $.90 per pound and potassium at $.72 per pound.

Changing seed prices by 20 percent causes approximately a 3 percent change in the cost per bushel for corn. A 13 percent change in the price per pound of nitrogen causes a 2.5 percent and 2 percent change in the costs of production per bushel for continuous corn and rotated corn, respectively.

If we assume that the cash rent charge did not change from last year, and a 5 percent decrease in the average yield, then the costs of production per bushel would decrease by 1.9 percent, 2 percent and 3 percent for continuous corn, rotated corn, and soybeans, respectively. However, if we assume that rents increase by 21 percent from 2008, then costs per bushel would increase 5 percent, 6 percent, and 8 percent for continuous corn, rotated corn, and soybeans, respectively.

Conclusions

Costs of production will be up considerably for Iowa farmers. How much will depend on individual circumstances and the validity of the assumptions that need to be made. The average costs, per bushel, are estimated to be approximately 30 percent higher than last year. And, over 70 percent higher for corn and over 50 percent higher for soybeans, than the estimated costs just 5 years ago.

Farmers need to be prepared for volatility in input prices and commodity prices. Risk management is going to take on a new meaning and urgency in the years ahead. In some cases the wild gyrations of the past few years will settle out but for the most part this will be at a higher level. For most of our inputs, however, fluctuations caused by increased world competition, increasing industry concentration, fluctuating energy costs and other factors will continue.

The recent energy related boom for agriculture has faded. When and if it will return are being debated. But, one thing is clear, Iowa farmers have to start preparing for rapid fluctuations in input and output prices.

Currently, the outlook for 2009 isn't especially bright. Commodity prices are down almost a fourth from recent highs and input costs are estimated to be almost the same percentage higher in 2009. It is easy to get discouraged and neglect sound business practices in such times. But, now is the time when we need to know our costs. Average estimates and estimates from other farms can be good guidelines but nothing substitutes from knowing our own costs of production. Remember that over the past 40 years there has only been one year when the top third farms in the Iowa Farm Business Association didn't make money. Somebody is always making money in Iowa agriculture.

Brazil's ethanol industry *

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(first in a series)

The energy crisis of the 1970s brought about high gas prices and limited supplies that generated an intense interest in renewable fuels and weaning ourselves from foreign sources of oil. However, when gas prices plummeted in the 1980s, renewable fuels and energy independence were quickly forgotten.

The story evolved differently in Brazil. After investing heavily in renewable fuels in the 1970s, Brazil kept the program alive during the 1980s. This has given Brazil a head start in the current situation. With its robust ethanol program, Brazil has developed an extensive ethanol industry. In this article we will discuss the structure and growth potential of Brazil's ethanol industry. In future articles we will discuss Brazil's domestic usage and exports.

Brazilian Ethanol Production

Brazil is the world's number two ethanol producer and the leading ethanol exporter, using sugarcane as its feedstock. Ethanol production has expanded in recent years as shown in Table 1.

Table 1. Brazilian Ethanol Production

Year *	Million Gallons
2003/04	3,910
2004/05	4,068
2005/06	4,174
2006/07	4,719
2007/08	5,916
2008/09**	7,054

* marketing year = May – April
** forecast

Source: GAIN report BR8013, USDA Foreign Agricultural Service, 2008.

Three types of production facilities exist in Brazil:

- Sugar mills (producing only sugar) – The sugarcane is washed, chopped, shredded and crushed between rollers. The juice (grapa) contains 10 – 15% sucrose. The remaining material (by-product) is called bagasse.
- Mills with distillery plants (sugar and ethanol production), and
- Independent distilleries (only ethanol production).

U.S. and Brazilian Ethanol Comparison

The United States and Brazil are the two largest ethanol producers in the world as shown in Table 2. Together they account for almost 90 percent of world production.

Table 2. World Fuel Ethanol Production (2007)

Country	Million Gallons
USA	6,499
Brazil	5,019
European Union	570
China	486
Canada	211
Other	316
Total	13,102

Source: Renewable Fuels Association.

The feedstock for Brazilian ethanol is sugarcane. In the U.S. the feedstock is corn. Below is a comparison of Brazil's sugarcane-ethanol industry and the U.S. corn-ethanol industry.

Labor and Environmental Impact

Traditionally, sugarcane fields have been burned just before harvest to remove leaves and fertilize the fields with ash. The smoke, which is blown into nearby towns, turns the sky gray and makes the air hazardous. However, a recent law bans the burning of sugarcane fields.

Sugarcane production requires hand labor at harvest. This creates a large group of migrant workers who can only find work a couple of months a year during sugarcane harvest. A skilled harvester can cut 1,000 pounds of sugarcane in an hour. Machines are replacing human labor for harvesting cane.

Energy Balance

The energy content of sugarcane is divided into three equal parts. One-third of the energy is in the sucrose and is converted to ethanol. One-third of the energy is in the sugarcane tops and leaves which are left in the field. The remaining third is bagasse which is fibrous material that is left over after pressing the sugarcane.

Bagasse is burned to provide an energy source for the

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ethanol facility. Bagasse burning co-generates electricity which is used in the plant and also sold to the energy grid. However, only 12 percent of sugar-ethanol mills currently sell electricity to the grid. The cost to connect to the grid is very expensive. In addition, many mills are not located close to the grid.

Since sugarcane is replanted only once every six years and harvested with hand labor, it requires less energy for production than corn.

Future Expansion

Brazil has a natural advantage in ethanol production. It has a vast unused or little-used land area that can be converted to agricultural production. In addition, its tropical climate is well suited for sugarcane production.

The Sugarcane Technological Center (CTC) is the leading research center for sugarcane and ethanol in Brazil. It is responsible for over 80 percent of the research and development activities in this area. Brazil has made substantial investments in research to improve sugar

Table 3. Comparison of Brazil and the U. S. Ethanol Industries

Brazil - Sugarcane	United States - Corn
The sugar (sucrose) in sugarcane can be converted directly into ethanol.	The starch in corn is first converted into sugar. Then the sugar is converted into ethanol.
Sugarcane is planted every six years using cuttings.	Corn is planted every year using seeds.
Sugarcane provides five cuttings over six years and then is replanted.	Corn is harvested once each year.
Sugarcane yields about 35 tons per acre (entire plant) per harvested acre.	Corn yields about 8.4 tons per acre (entire plant) per harvested acre.
Sugarcane yields about 4.2 tons of sucrose per acre (10 to 15 percent of sugarcane yield).	Corn yields 4.2 tons of corn grain per acre (150 bushels) or 2.4 tons of starch.
An acre of sugarcane produces about 560 gallons of ethanol (35 ton yield).	An acre of corn produces about 420 gallons of ethanol (150 bushel yield).
Sugarcane feedstock is cheaper to grower than corn per gallon of ethanol.	Corn feedstock is more expensive to grow than sugarcane per gallon of ethanol.
Sugarcane-ethanol can be produced cheaper than corn-ethanol.	Corn-ethanol is more expensive to produce than sugarcane-ethanol.
The by-product of ethanol production is bagasse.	The by-product of ethanol production is distillers grains with soluble that is used as livestock feed.
The energy source for ethanol production is bagasse.	The energy source for ethanol production is natural gas, coal and diesel.
Currently about 9 million acres are used for ethanol production.	Currently about 28 million acres are used for ethanol production.
Brazil has great potential for expanding sugarcane acreage without limiting the acreage of other crops.	U.S. expansion of corn acreage will come at the expense of reduced soybean and other crop acres.
No subsidies for ethanol	Subsidy reduced from $.51 per gallon to $.45.
No import tariffs on ethanol	A $.54 per gallon import tariff.

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cane varieties in recent decades. The research has produced varieties more resistant to drought and pests, along with higher yields and higher sugar content. During the last 30 years, sugarcane yields have increased three-fold.

Table 4. Agricultural Land in Brazil (2007) *

	Million Acres	Percent of Total Ag. Land
Cultivated Land (all crops)	190	21.6%
Soybeans	51	5.8%
Corn	35	3.9%
Sugarcane (all uses)	19	2.2%
Sugarcane for ethanol	8.4	1.0%
Pastures	426	48.6%
Available Land	261	29.8%
Total & Potential Agricultural Land	877	100%
Total All Land	2,103	

* Total arable land excludes the Amazon Forest, the wetlands of the Pantanal, and other preservation areas, in addition to areas not traditionally suitable for agriculture due to topography, soil restrictions, etc.

Source: GAIN report BR8013, USDA Foreign Agricultural Service, 2008

Dedini Corporation is Brazil's largest builder of ethanol plants. They are developing a process that can convert the cellulose from bagasse, tops and leaves into sucrose for ethanol production. This technology has the potential to almost double the ethanol production from an acre of sugarcane.

According to Brazilian sources, sugarcane planted acreage (all uses) is expected to increase to over 25 million acres by 2012/13. The number of sugar ethanol plants are expected to increase from 325 (2006/07) to 410 (2012/13). Ethanol production is expected to reach ten billion gallons. This compares to the current production of 7 billion gallons (Table 1).

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Updates, continued from page 1

Current Profitability

The following profitability tools have been updated on www.extension.iastate.edu/agdm to reflect current price data.

Corn Profitability – A1-85

Soybean Profitability – A1-86

Ethanol Profitability – D1-10