



# Ag Decision Maker



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### Ethanol: Policies, production, and profitability

by Chad E. Hart, Economist, Center for Agriculture and Rural Development, chart@iastate.edu, 515-294-9911

The proposed federal energy bill, currently back in committee for further debate, has targeted a dramatic increase in the use of renewable fuel sources, and that has helped focus a vast amount of attention on ethanol over the past year. By 2012, five billion gallons of renewable fuels would make up part of the nation's fuel supply. That is nearly double the current amount of ethanol in use.

Congress is also considering a long-term transportation bill that includes an extension of the ethanol fuel tax break and a modification of the relationship between federal highway funds and fuel taxes. Currently, the federal government provides a 5.2 cents tax credit for 10 percent ethanol-blended gasoline. This credit is scheduled to fall to 5.1 cents in 2005 and expire at the end of 2006. The modification is called the Volumetric Ethanol Excise Tax Credit (VEETC). In short, the VEETC would change how the ethanol tax credit is used. Currently, the tax credit reduces payments to the Highway Trust Fund (HTF), which supports the interstate highway system. The VEETC would fund the credit through the federal government's general revenues, with the value of the credit being passed through to the HTF. An estimated \$2 billion would be added to the HTF with the

VEETC, while the impact to refiners and marketers would be minimal.

#### Ethanol production and the corn market

Ethanol production has increased tremendously over the last several years. As Figure 1 shows, ethanol production was under 500 million gallons in the early 1980s. There was fairly steady expansion through the 1980s and early 1990s. A corn price run-up in 1996 put the first dent in ethanol expansion, but that decline was reversed by the next year. Over the past three years, the industry has experienced record growth. As production has increased, ethanol's share of the domestic corn market also has grown.

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#### Handbook Updates

For those of you subscribing to the *Ag Decision Maker Handbook*, the following updates are included.

**2004 Iowa Pasture Cost Improvement Budgets** – File A1-15 (4 pages)

**Delayed and Prevented Planting Provisions** – File A1-57 (4 pages)

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

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The other line on Figure 1 shows the proportion of the U.S. corn crop used by the ethanol industry. The spikes in 1983, 1988, 1993, and 1995 reflect short corn crops in those years. In 2003, nearly 11 percent of the U.S. corn crop was converted into ethanol. In 2004, the industry is projected to produce 3.3 billion gallons of ethanol. Ethanol production is estimated to add between 20¢ and 40¢ per bushel to the corn price.

The ethanol industry is centered in the Corn Belt. Table 1 outlines current and planned ethanol production capacity in the United States. Illinois and Iowa have 45 percent of the nation's ethanol production capacity. When all of the new production capacity comes online, eight states will be able to produce at least 100 million gallons of ethanol per year. Minnesota currently has the largest number of ethanol plants, but Iowa is set to take the lead, with four new plants in the planning or construction stages. Combined, the United States has 75 ethanol plants, with another 12 plants underway. In addition to Iowa's four new plants, Illinois is adding two plants; Missouri, South Dakota, and Wisconsin are adding one plant each; and Nebraska has three new plants underway.

**A profitability index for ethanol**

Ethanol production has been refined over the years. The dry-mill production technique uses one bushel of corn and 165 thousand British thermal units of natural gas to produce 2.7 gallons of ethanol and 17 pounds of dried distillers grains and solubles (DDGS), a livestock feed. Based on this production technique and the prices for these commodities, we can construct a profitability index for ethanol. As ethanol and DDGS do not have futures markets, we have linked ethanol prices to unleaded gasoline prices and DDGS prices to corn prices in order to make projections. Figure 2 shows corn prices, unleaded gasoline prices, and a profitability index for ethanol. The profitability index com-

pares the receipts of ethanol and DDGS to the costs of corn and natural gas. The index does not imply that any ethanol plant will make a profit; it does indicate that the leverage from the output commodities exceed the costs of the input commodities. All of the series shown in Figure 2 have been normalized by their July 1990 values.

For corn, the July 1990 average price was \$2.83/ bushel. For unleaded gasoline, the July 1990 average price was \$0.60/gallon. This price is from the New York Mercantile Exchange unleaded gasoline futures market. The calculated gross margin for ethanol in July 1990 was

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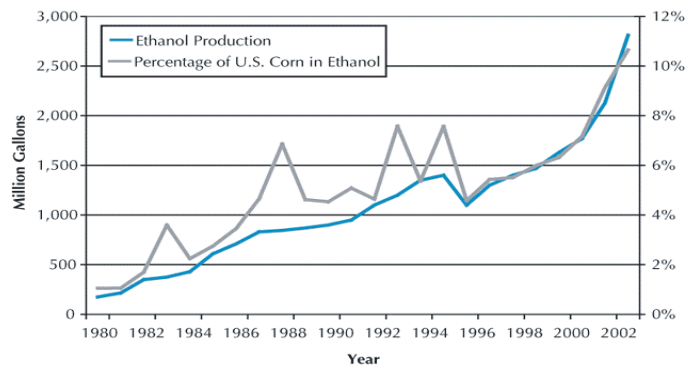


Figure 1. U.S. ethanol production and corn usage in ethanol

Table 1. Current and planned ethanol production capacity

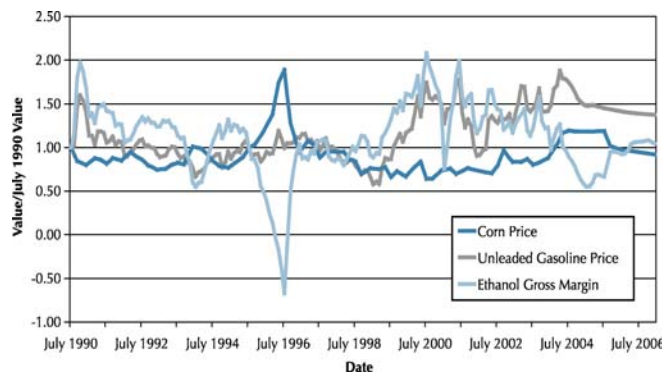
State	Current Capacity	Expansion and New Plant Capacity (million gallons per year)	Total
Iowa	714	140	854
Illinois	734	70	804
Nebraska	405	112	517
South Dakota	377	45	422
Minnesota	418	0	418
Wisconsin	91	40	131
Kansas	110	0	110
Missouri	60	40	100
Indiana	95	0	95
Tennessee	65	0	65
Michigan	45	0	45
North Dakota	39	0	39
Kentucky	24	0	24
New Mexico	15	0	15
California	9	0	9
Wyoming	5	0	5
Idaho	4	0	4
Colorado	2	0	2
Washington	1	0	1
Total	3,211	447	3,658

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\$1.17/bushel of corn. For the ethanol gross margin, positive values indicate that, for existing ethanol plants, ethanol adds value to corn. Since the profitability index does not include fixed costs, such as plant construction costs, a positive index value does not necessarily indicate that new ethanol plant construction will be profitable. The ethanol profitability index has been above one for most of the historical period. Relatively low unleaded gasoline prices held ethanol profitability down in early 1994. Relatively high corn prices restricted ethanol profitability in mid-1996. The natural gas price spike of late 2000 took a bite out of ethanol profitability. However, even during most of these episodes, ethanol remained profitable. Only during the summer of 1996 when corn prices exceeded \$4 per bushel did the ethanol gross margin fall below zero.

Based on futures prices, the relatively high corn prices we are seeing today would limit ethanol profitability over the next 18 months, even though unleaded gasoline futures are relatively

high as well. But the index is projected to remain positive over the foreseeable future. The revenue from ethanol sales from existing ethanol plants is projected to exceed the costs of the inputs, based on a dry-mill ethanol production technique. Whether the projected profitability margin would sustain new ethanol plant construction depends on the fixed costs of the new plants. But these results, in combination with the federal incentives for ethanol (in tax credits, loans, and rural development grants), are promoting the current expansion we are seeing in ethanol. If corn prices fall and/or unleaded gasoline prices rise, the ethanol profitability index will rise.



## What I've learned about value-added

by Melvin Brees, co-director, Missouri Value-Added Development Center

**A**s co-director of the Missouri Value-Added Development Center, I have decided to share some of the things I've learned about value-added agriculture. While the list could be much longer, here are ten things I've learned.

1. **Don't start with the product.** Everyone may love Mom's jelly, but that doesn't mean customers are willing to pay a premium to get it and it's nearly impossible to compete on price with Smucker's®. It doesn't matter how beneficial the product is if customers don't recognize the benefits or are not willing to pay for them, you probably won't be successful selling it. Value-added businesses tend to be more successful if you first identify the customers (or niche market) and find out what they desire. Then produce the products or quality characteristics they want and are willing to pay for.

2. **A "business goal" is better than a "noble mission."** While locally grown products or organic production may offer community benefits or contribute to a healthy environment, it doesn't necessarily supply the food needs desired by everyone. It is a much better approach to identify customers who seek organic or local products and then sell them what they desire at a premium price. I observed an example of this at a national value-added meeting. The featured speaker was the president of an organic milk company. However, instead of going over the many benefits and virtues of the product and how it contributed to health, society and the environment, he explained their business strategy. They recognized that only a small percentage of milk users had a preference or willingness to pay a premium for their

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What I've learned about value-added, continued from page 3

organic product. However, regionally or nationally, this small percentage represented a sizeable market and that was their target. They weren't out to "convert" people; their goal was to sell to the target market at a premium price. Their business was expanding rapidly.

3. **Don't forget that you are your own customer.** A common misconception when farmers look to value added enterprises is; how will it give me more for my farm production? The objective is not to get more for your corn (soybeans, cattle, etc.); it is to profit from processing it into something else. If your processing company pays you more for your farm products than its competition pays for the same product, your value-added business may not be competitive or profitable. The objective is to have a profitable enterprise that will add to family income, not get higher farm prices.

4. **Market feasibility studies and business plans are important.** Marketing processed products is entirely different than selling commodities in a transparent commodity market. A market must be identified and products targeted to the demands of the market—a market feasibility study is critical to accomplishing this. Business plans help identify management and financial needs of the business. Completing a business plan not only provides a "road map" for the business to succeed, but helps convince lenders to provide necessary financing.

5. **It takes time.**

- Time to raise money to finance the business
- Time to do market feasibility studies and business plans
- Time to construct facilities
- Time to start up operations and begin delivering products
- Time to correct mistakes
- Time to become established in the market

Some very successful value-added enterprises have taken 20 years or more to become

successful in developing their processing systems, marketing their products, developing a customer base and providing service to their customers.

6. **It takes money.** Raising equity is a major effort, especially for larger group projects with sizeable capital investment required. New enterprises need more than just equity capital; they also need adequate working capital or startup money. Working capital is usually critical to survive the start-up and initial production phases of the operation.

What about grants? It is important to understand that, while many promote them, grants don't usually provide "easy money." They are usually targeted for specific objectives and usually can't be used for construction or equipment. However, some may offer funds for business start-up activities or doing feasibility studies.

7. **It takes persistence.** Most projects suffer through several "set backs," disappointments and unexpected problems or unfamiliar barriers. Each project needs dedicated leaders or "champions" to stick with it through difficult times.

8. **Management is expensive, but don't be cheap!** Large projects nearly always require experienced management that demands significant compensation and they should be hired "early on" to insure construction and beginning operations are done correctly. Even smaller value-added enterprise may need management assistance. Management of a new business operation is demanding and time consuming. There have been examples of value-added enterprises that were originally successful, but the management demands become too great and took too much time away from the farming operation and family activities, so the value-added business was abandoned.

9. **Attorneys and consultants aren't all bad.** Legal, marketing and production expertise

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What I've learned about value added, continued from page 4

are essential to success. Business organization and startup requires complex arrangements and documents that only attorneys should prepare. Marketing and business consultants can help avoid many costly marketing, construction, management and production mistakes while improving the chances for new business success.

10. **Value-added investments don't make managing the farm easier or more profitable.** The value-added business should generate profits, but it is a separate activity from the farm production enterprises. Farm profits still depend upon good farm financial and production management. In addition, while the value-added business provides a market for the farm production, it is still up to the farm manager to manage commodity marketing and production risks.



## Disposition of installment obligations \*

by Neil E. Harl, Charles F. Curtiss Distinguished Professor in Agriculture and Professor of Economics, 515-294-6354, harl@iastate.edu

Other than for dispositions of installment obligations at death and certain tax-free exchanges, the privilege of income deferral by installment reporting is generally personal to the seller. Because of the potential for triggering income tax liability, all transactions involving installment obligations should be approached with care including transfers to revocable inter vivos trusts.

### General rule

As a general rule, the sale, gift or other disposition or satisfaction of an installment obligation results in recognized gain to the taxpayer. The amount of the gain or loss is the difference between the income tax basis of the installment obligation at the time of disposition and either the amount realized in a sale or the fair market value of the obligation at the time it is disposed of other than by sale. The rules for determining taxable gain on disposition of an installment obligation differ depending upon how the disposition occurs.

- If the installment obligation is satisfied at other than face value, or it is sold or exchanged, the amount to be included in income is the difference between the amount realized and the income tax basis of the obligation. With this type of disposition, consideration is received.
- If the disposition takes the form of a "distribution, transmission, or disposition other

than by sale or exchange," the amount included in income is the difference between the fair market value of the obligation and its income tax basis.

### Forgiving principal

A seller who agrees to a reduction in principal under an installment sale obligation, such as with a purchase price adjustment, faces potential income tax liability from cancellation of the obligation. Where the buyer and seller are not related, it may be possible to argue that the fair market value of the obligation declined with any fall in collateral value and so the amount of gain is reduced, also. However, where the seller and buyer are related, the value of the obligation must be taken at its face value.

In a 1987 private letter ruling, the Internal Revenue Service held that a seller forgiving principal to help a financially troubled buyer did not have income to report. That ruling did not acknowledge the 1980 enactment of the statute requiring recognition upon cancellation or forgiveness of an obligation.

### Pledging an installment obligation

For many years, pledging or assigning installment obligations as security for a loan, substan-

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tially equal to the amount of the obligation, constituted a taxable disposition, at least by the IRS view. But the result generally was otherwise if the interest rates and maturity dates differed and the taxpayer did not part with a substantial part of the ownership rights in the obligation.

However, for dispositions after December 17, 1987, in taxable years ending after that date, if any indebtedness is secured by an installment obligation involving property used in the taxpayer's trade or business or held for the production of rental income with a sales price exceeding \$150,000 (except for personal use property or farm property), the net proceeds of the secured indebtedness are treated as a payment received on the installment obligation.

The refinancing of indebtedness outstanding on December 18, 1987, secured by a non-dealer real property installment obligation, is treated as a continuation of the indebtedness and does not result in a deemed payment if:

- (1) the taxpayer is required by the creditor to refinance the loan and
- (2) the refinancing is provided by a person other than the creditor or a person related to the creditor.

Other types of transactions

Disposition of an installment obligating to children in exchange for private annuity payments constitutes a taxable disposition. However, a tax-free exchange of an installment obligation to a corporation or partnership does not trigger taxability of installment obligations transferred.

Transfers of installment obligations to a revocable inter vivos trust generally do not constitute taxable dispositions. However, a transfer of an installment obligation to a trust which is irrevocable and taxed as a separate entity or in which income is taxed to someone other than the trust settlor, results in a disposition.

Keep in mind, also, that if the obligor on the obligation becomes the owner or co-owner of the obligation, such as at death of the seller, the gain on the portion of the contract so acquired must be reported on the estate's first income tax return. Otherwise, the installment obligation at the death of the seller produces income in respect of decedent with the payments taxable as received after death.

... and justice for all

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