VAntAGe

Value Added News to Agricultural Entrepreneurs

Missouri Value Added Development Center
University of Missouri-Columbia

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Welcome Director's Corner

By Joe Parcell

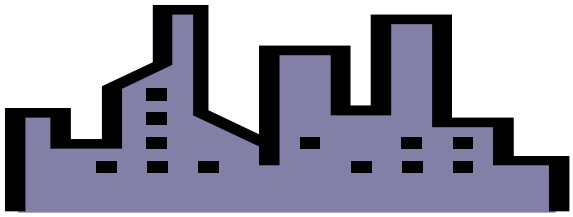
Welcome to the inaugural issue of *VAntAGe*, the source of value added business information for Missouri. *VAntAGe* is a product of the Missouri Value Added Development Center and University Outreach/Extension Agricultural Business Counselors. Both efforts are funded through Outreach Development and Mission Enhancement Funds through University of Missouri Outreach/Extension. The Missouri Value Added Development Center is in the Department of Agricultural Economics and College of Agriculture, Food, and Natural Resources at the University of Missouri – Columbia. We have a simple mission statement:

> "To enhance intellectual competencies and practical capabilities of value added agriculture so to increase economic viability of agricultural producers and of rural communities."

VAntAGe was developed to help us accomplish this mission. Specifically, this monthly newsletter will be used to disseminate relevant and timely information regarding issues related to value added agriculture, and will be used to link producer value added development activities within and outside of Missouri.

Linking producer (or producer group) ideas is important for four reasons. First, there is economic value to producers when working together instead of competing against each other to enter a new, or existing, market. Second, everyone hears the term "global markets," yet; many agricultural persons have difficulty conceptualizing what it will take to compete in a global food industry. As you may imagine, these specialized global markets have the potential to be large in scale. Few individual producers, or small groups, will have the productivity capabilities to supply large quantities of a consistent, high-quality, commodity or product. Involving a large number of producers in this effort can make tapping such markets more realistic and economically feasible. Third, diversifying ownership over geographic regions is important for reducing the risk of low production or poor quality incurred due to adverse weather patterns. Last, and most importantly, linking farm-business persons with similar goals and ideas for the future enhances the intellectual capacities and practical capabilities of all those involved.

We hope you enjoy reading *VAntAGe*, and that you will encourage others to read the newsletter. Only through a collective effort from producers, agricultural industry persons, opinion leaders, and rural communities can we establish a base for Missouri agriculture to become more competitive in a global food system and attain a rate of return that allows all of Missouri to prosper.



Pumping Ethanol From the Farm to the Vehicle: A Brief Look at the Industry

Over the past two years, ethanol production facilities have garnered investors a relatively high return on investment.

Currently, there are approximately 57 U.S. ethanol production facilities in operation. The smallest is a corn ethanol facility with a capacity of 5 million gallons annually. Archer Daniels Midland operates five plants with a combined capacity of 797 million gallons annually (Renewable Fuels Association).

Five facilities are currently under construction with a total expected capacity of 85 million gallons annually (Renewable Fuels Association). Twenty-two of these facilities are farmer-owned (Renewable Fuels Association). The USDA has allocated funding to 34 existing companies to expand ethanol production by 235 million gallons per year.

As with any competitive industry, when the rate-of-return from one industry outpaces the rate-of-return from other industries new competitors will enter the market. The ethanol industry is rapidly expanding.

Table 1 summarizes historical, current, and planned ethanol production in the U.S. So, what is the potential for existing and new producer-owned ethanol facilities? In a nutshell, four factors will determine the future. These factors are the supply-demand of biomass (i.e., the price of corn), the supply-demand for gasoline related products (ethanol and gasoline are substitutes), the level of state and federal allocation to ethanol production, and the government stance on the use of Methyl Tertiary-Butyl Ether (MTBE).

Here is a brief background and quick terminology to help the reader. Figure 1 provides an overview of the dry mill ethanol production process. Co-products (i.e., distillers dried grain) are also a source of revenue in the ethanol production process. For simplicity, the term “crush margin” is defined to be the economic margin between corn as an input and ethanol as an output. There exists some level of crush margin where the ethanol plant changes from operating at a loss to a profit, and the corn and ethanol price jointly determine the crush margin.

Note, it is feasible to lock in most of this crush margin using corn and gasoline futures markets. However, co-product price variability may not allow for locking in the entire margin.

Supply and demand for biomass (corn, sorghum, cheese wey, sugar beets) determines the commodity level price biomass as an input into the production of ethanol. This is the input side of the crush margin. Holding the ethanol price constant, a low biomass price increases the crush margin and enhances the profitability of ethanol production. However, as the biomass price increases, profits from ethanol production diminish.

Currently, FAPRI price projections indicate that the U.S. average corn price will remain under $2.30/bushel through 2005. From the input side, producer ownership of ethanol production appears to have the potential to add value to the corn or sorghum crop.

As gas prices approach all-time highs, the ethanol industry is reaping the benefits of high demand and tight supplies for gasoline. Figure 2 shows the weekly gasoline futures price (no taxes included) for the past seven years and the expected price, based on the gasoline futures, for the next eight months. Clearly, the short-term gasoline price projection is for prices to remain above the short-term historical price level. High fuel prices combined with low corn prices indicate continued profit opportunities in the ethanol industry.

The relatively high rate-of-return in the ethanol industry is fueled by the supplemental state and federal payments allocated on a per gallon basis for the production of ethanol. The federal per unit payment (around $0.54/gallon tax exemption) is helpful, and the Missouri pool of funds, for fiscal year 2002, will allocate around $0.14/gallon for the Macon and Craig ethanol plants. As the supply of ethanol increases, more monies will be required to help supplement the costs of ethanol production. The question is, how much supply will the federal and state government support? Note, similar support is provided to the fuel industry.

The ban of MTBE in California, and the consideration of an MTBE ban nationwide, provides for considerable optimism in the ethanol

industry. MTBE and ethanol are used as an oxidizer in gasoline production. Oxidizers are used to reduce emission, which is federally mandated.

This is an environmental issue. Research has shown MTBE can be harmful to humans. Standards have been put in place to reduce the use of MTBE additive, and in certain communities MTBE usage has been banned. However, MTBE is relatively cheaper than ethanol. And, in the presence of soaring gas prices some communities have backed off the MTBE reduction plan to help reduce gas prices.

The big question, what does this mean for the Missouri ethanol industry and agricultural producers? A comprehensive analysis of the Midwest ethanol industry by Gallagher, Otto, and Dikeman, at Iowa State University, found that given grain production, demand for co-products, and transportation factors, Iowa and Minnesota have the greatest potential for sustaining long-term ethanol production. The comparative advantage of the northern states is the price of corn as an input into ethanol production. Northern Iowa and southern Minnesota tend to have a cash corn price $0.15 to $0.30/bushel below most areas in Missouri.

In aggregate, this research may be correct; however, certain locations in Missouri offer the opportunity for economically competitive ethanol production. The factors that will contribute to the future of new, and existing, ethanol production facilities in Missouri are: 1) Significant economies of size (i.e., more cost efficient for large facilities) exist in the ethanol industry; 2) Locations with relatively large supply have the best opportunity to be profitable because of the relatively low biomass price; 3) The extent to which current grain demand factors are changing due to regionalization of animal production; and 4) The role of the state government in subsidizing and regulating this industry.

Table 2 summarizes the input requirements for ethanol production facilities of different size. For instance a 20 million gallon annual production ethanol facility would require slightly over 7 million bushels of corn. At 110/ bushels/acre nearly 65,000 acres of corn would be needed to supply the facility.

Distillers dried grain co-product production would be 247.5 thousand tons. This high protein feed is typically sold as a feedstuffs ingredient into animal feed. The last column indicates the equivalent number of market hogs produced relative to amount of ethanol produced. That is, for a 20 million gallon facility it would take the feed requirement of 702,000 market hogs to offset the 7 million bushel corn demand to operate the ethanol plant. Conversely, a local area could look to an ethanol plant to offset the loss of animals in the local area.

Missouri, produced just shy of 400 million bushels of corn in 2000. However, in 1999, corn production was at 247 million bushels.

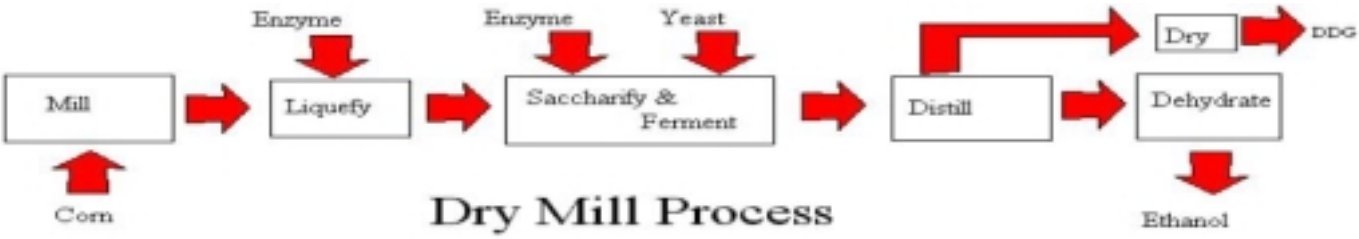
Million of bushels of production by region in Missouri for 2000 were: northeast – 72, north central – 43, northwest – 96, east central –34, central – 46, west central – 33, southeast – 64, south central – 2.3, southwest – 5.8. We have already seen ethanol production facilities begin in northeast and northwest. Facilities in southeast Missouri are near the initial construction stage, and there is discussion of a plant in central Missouri. Already, Missouri ethanol production is occurring in probable excess corn production areas.

In summary, Missouri producers should consider the following economic factors when assessing the feasibility of building an ethanol plant. To what extent will the state government provide supplemental payments for ethanol production? The facility should be located on rail facilities to reach high-use markets. Missouri's comparative advantage in transportation costs and proximity to agribusiness in Kansas City and St. Louis are disadvantages in the ethanol production because these factors bid up the price of biomass, i.e., corn.

A market for distiller's dried grain should be determined for the long-run feasibility of facilities. Consider that the investment in an ethanol facility is a long-term investment and investors need to look beyond the short-term – which appears optimistic – when assessing the potential return on investment. That is, there may come a time – such as 1996 – when money is lost in supplying corn to the ethanol plant because the corn is discounted to ensure an adequate crush margin for the ethanol plant.

Figure 3 graphically depicts the historical ratio of unleaded gas price (used as a proxy for the ethanol price because these are substitutes) to corn price from 1984 to date. The long-term average should about represent the breakeven ratio. Clearly, the industry is now well above this level. However, given the historical average there is ample reason to suspect that we will again return to or below the average.

Figure 1. The Dry Mill Ethanol Process



Source: Golden Triangle Energy, A Missouri Fuel Ethanol Cooperative, Internet download

Table 1. Historical Use of Corn in U.S. Ethanol Production and Projected Increase due to Projected Expansion in the Ethanol Industry

Year	Ethanol Production (Million gallons)	Corn Used in Ethanol Production (Million bushels) [1]
1992	1,100	393
1994	1,350	482
1996	1,100	393
1998	1,400	500
2000	1,630	582
Projected for 2003	2,024	723

1. Historical values are approximates based on National Corn Growers Reported Values

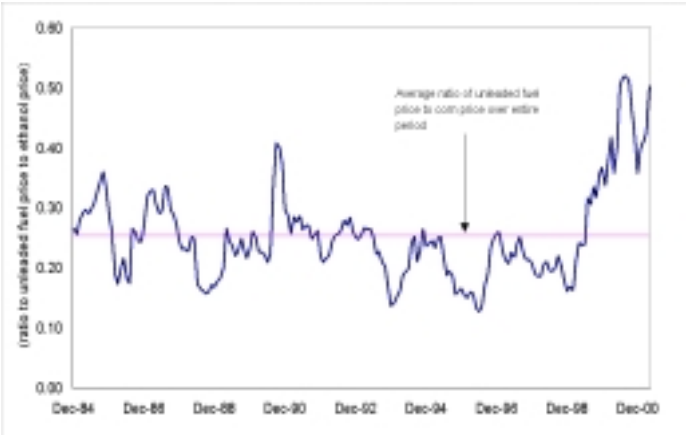
Table 2. Summary of corn input requirements for the production of ethanol, and the comparison between the numbers of livestock needed to equal the feedstuffs demand for the ethanol facility.

Ethanol Produced (gallons)	Bushels of corn (bushel)	Acres required (110 bushel/acre)	Distillers Dried Grain (tons)	No. of slaughter hogs produced to off-set ethanol production
5,000,000	1,785,714	16,234	61,875	175,439
10,000,000	3,571,429	32,468	123,750	350,877
15,000,000	5,357,143	48,701	185,625	526,316
20,000,000	**7,142,857**	**64,935**	**247,500**	**701,754**
25,000,000	8,928,571	81,169	309,375	877,193
30,000,000	10,714,286	97,403	371,250	1,052,632
35,000,000	12,500,000	113,636	433,125	1,228,070
40,000,000	14,285,714	129,870	495,000	1,403,509
45,000,000	16,071,429	146,104	556,875	1,578,947
50,000,000	17,857,143	162,338	618,750	1,754,386

Figure 2. Unleaded Gasoline Futures Price (taxes not included) from June 1994 to April 2001, and Unleaded Gasoline Forecast using Monthly Futures Price for May 2001 to January 2002.

source: Bridge

Figure 3. Historical Ratio of Unleaded Fuel Price to Corn Price



source: Bridge

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Renewable Fuels Association. "U.S. Fuel Ethanol Production Capacity." Obtained on Internet, March 30, 2001, from **www.ethanolrfa.org**.

Gallagher, P.W., D.M. Otto, and M. Dikeman. "Effects of an Oxygen Requirement for Fuel in Midwest Ethanol Markets and Local Economies." Review of Agricultural Economics 22(2000): 292-312.

New value-added agriculture businesses require one-on-one information, says MU Extension Dean

JEFFERSON CITY, Mo. – While this may be the era of mass communication, the new rules of agriculture point to producers needing one-on-one information to find value-added markets for greater profits.

That was the message John Gardner, associate dean of extension at the University of Missouri-Columbia, brought to 300 people at the AgriExpo 2001 Conference.

"When the new rules of agriculture are written, they will include relationships, product differentiation, quality and service," he said.

"It's going to be very hard to distribute the kind of information that will make everyone successful in the new agriculture in a mass meeting," Gardner said.

Instead, it's one-on-one. What is it about your farm's assets, or what is it that your farm and your neighbor's farm have in common? Gardner asked. "It's specific, it's not general. Value-added agriculture means working on individual ideas a day at a time."

The University of Missouri has organized a network of regional specialists, called agricultural business counselors, who have a particular expertise. They probably will not be as successful to mass audiences as they will be one-on-one, he said.

These county-based specialists are part of the newly formed Missouri Value-Added Development Center located on the MU campus in Columbia, Mo. The center is part of a coalition of government agencies called the Agricultural Innovation Network.

The center specializes in assisting producers increase profitably through value-added ventures such as new generation cooperatives.

"We don't have a roadmap," Gardner said. "This new value-added agriculture will take sheer ingenuity."

Missouri's diversity, which is perhaps a liability in commodity markets, is a key to success in building value-added agriculture markets, he said.

AgriExpo 2001 was sponsored by University Outreach and Extension, USDA Rural Development and the Missouri Department of Agriculture.

Value-added agricultural course gets its first graduating class

BOWLING GREEN, MO - The Missouri Value-Added Development Center has its first class to graduate from a course to help producers face the challenge of starting up an agricultural-based venture that's not tied to traditional commodity production.

The nationally recognized course is called "NxLevel, Tilling the Soil of Opportunity."

The 11 graduates from a four-county area completed the course led by Bob Wells, regional extension farm management specialist in Pike County.

"Participants gained a better understanding of why they must operate their family farms as a business," said Wells. "They said the course also gives them confidence in their ability to plan for a major expansion in their operation."

The 10-session course was delivered over a 12-week period. Participants are required to write out goals, a mission statement and detailed business plan for their value-added business enterprise.

"We look at ways that small to medium value-added projects can fit into existing farm operations," said Wells. "Our goal is to enhance opportunities for the family farms and help sustain the economic viability of our communities."

Wells presented graduates with their certificates at a dinner where the speaker was Deanne Hackman, director of the Ag Innovation Network at the Missouri Department of Agriculture.

Wells is one of a dozen county-based University Outreach and Extension agricultural business counselors across the state trained in the development of farm producer-owned value-added enterprises. .

Graduates were David and Amy Deters, Bowling Green, Joe and Patti Kendrick, Palmyra, Phillip Mashman, Louisiana, John and Dinah Noble, Curryville, Leonard Pratte, Bowling Green, Elmo Shaw and Steve Shaw, Louisiana. Wells said he plans a second course offering this fall and winter. For more information, call Wells at the Pike County Outreach and Extension Center (573) 324-5464.

AgriExpo 2001 Wrap-up

AgriExpo 2001 Conference-- in is third year running-- attracted more than 300 value-added participants in a newly expanded two-day format, March 20-21 in Jefferson City.

This means that over a three-year period, AgriExpo has drawn more than 900 participants.

This year's conference, called Guiding Entrepreneurs to Success, featured a new element--one-on-one counseling by the Agricultural Business Counselors to answer specific questions about starting or expanding a value-added agricultural-based business. These counselors are county-based Extension specialists trained in the startup of value-added businesses.

Day One of the conference centered on the fundamentals of starting a new value-added business. Participants could follow a checklist of writing a business plan, investigating market potentials, obtaining financing and understanding legal structures such as cooperatives and other group efforts.

Day Two delved into more detail with more than 40 speakers. Topics ranged from catering to the consumer needs and marketing on the Internet to cross-marketing opportunities, advertising, packaging and promotional tips and understanding the break-even point in a business.

Plans are underway for a fourth year of AgriExpo, said Joe Parcell, MOVADC director.

Upcoming Events of Interest

- May 19-Fiber Fair, Marshfield, MO. Call 417-859-2914.
- June 1-2-Annual Farm Day & Small Farms Conference, Buffalo, MO. Call 417-345-7358.
- June 1-3-MO Natural Colored Wool Growers Meeting, Butler, MO. Call 816-697-2104.
- June 5-7-Grant Writing I Workshop, Springfield, MO. Call 417-732-6485.
- July 17-19-Grant Writing II Workshop, Springfield, MO. Call 417-732-6485.
- July 31-Aug 2-Grant Writing III Workshop, Springfield, MO. Call 417-732-6485.
- Aug 9-19-Missouri State Fair, Sedalia, MO.

Websites of Interest

http://www.agfind.com/index.html
The industry's leading search engine that searches only agricultural websites to help you get the right info fast.

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