Journal of Agricultural and Applied Economics, 38,2(August 2006):377–387

Economic Effects of Biofuel Production on States and Rural Communities

Joe L. Parcell and Patrick Westhoff

This study summarizes research on farm-, local-, regional-, and macro-level economic effects of ethanol production. Given current production levels, the ethanol production industry annually employees approximately 3,500 workers, pays out nearly $132 million in worker salaries, generates over $110 million in local taxes, and takes in some $2 billion in government incentive payments. Projections for a 60 million gallon per year ethanol plant indicate an annual increase in corn usage of 21 million bushels, a one-time capitalization of $75 million, an increase in local corn prices of between $0.06/bushel and $0.12/bushel, a 54 direct and a 210 indirect jobs created, an increase in local tax revenues of $1.2 million, a decrease in federal commodity program outlays of $30 million, and an increase in ethanol production incentives (federal only) of around $30.5 million.

Key Words: biofuel, ethanol, local economy, government subsidies

JEL Classifications: O13, Q40, Q42, R10

The Energy Policy Act of 2005 establishes guidelines to promote domestic biofuel production growth well into the next decade. Policy makers (United States Department of Energy) see increased biofuel production as a way to achieve a range of policy objectives, including increased energy self sufficiency, farm income, and rural economic activity. Most biofuel plants built during the last decade are located in areas where corn production is concentrated and rural population is declining (Renewable Fuels Association; United States Department of Agriculture–Economic Research Service). The influx of economic activity in rural areas resulting from biofuel production is seen as a means to combat population loss and expand the economic base.

Joe L. Parcell is associate professor, Department of Agricultural Economics, University of Missouri–Columbia. Patrick Westhoff is research associate professor, Food and Agricultural Policy Research Institute, Department of Agricultural Economics, University of Missouri–Columbia.

Policy makers often ask: What is the economic effect on the local rural economy of a new biofuel processing plant? What does an increase in biofuel production mean for the national agricultural economy? Our objective in this paper is to summarize previous research to develop metrics for economically analyzing future biofuel production growth. We focus on corn-based ethanol, which accounts for the majority of current U.S. biofuel production.

Ethanol production has quite possibly stimulated as much policy debate as any other single agricultural sector initiative. By the end of 2006, more than 100 plants with more than 4 billion gallons of ethanol production capacity will exist in the United States (Renewable Fuels Association). These plants require power from local utilities and corn from local farmers, stimulate job creation in the local economy, and pay taxes to local governments. To encourage increased ethanol production, significant government support is provided in the form of tax incentives and use mandates.

Gardner determined that the net welfare effects from an ethanol mandate are greater than those associated with ethanol tax incentives and farm commodity program payments. He also concludes that ethanol subsidies have a greater net welfare effect than government commodity program outlays. Today the U.S. ethanol industry receives over $2 billion annually in ethanol production incentive payments from federal government alone. So, if the net welfare effects are positive, as reported by Gallagher, Otto, and Dikeman, then understanding how the economic benefits from ethanol production are distributed is beneficial when assessing future growth in ethanol production and establishing future biofuel policy.

This paper is broken down into seven parts. First, an ethanol industry summary is provided. Second, the operation economics of the industry is summarized with economic census data. Third, research evaluating the local economic activity from an ethanol plant start-up is summarized. Fourth, farm-level effects are reported. Fifth, an aggregate assessment of planned growth in the ethanol industry is provided. Sixth, a summary and discussion of economic incentives used to facilitate ethanol production is given. Finally, on the basis of current and future ethanol production, economic activity is summarized and discussed.

Ethanol Industry Overview

In early 2006, domestic annual ethanol production capacity was over 3,904 million gallons, and an additional 1,893 million gallons of capacity was under construction (Renewable Fuels Association). Over 130 ethanol plants are either on-line or will shortly be on-line, of which over 50% are producer owned (Renewable Fuels Association). In contrast, 36 ethanol plants produced 1,770 million gallons of ethanol in 1997 (Renewable Fuels Association; United States Department of Commerce–U.S. Census Bureau). This is a greater than 100% increase in ethanol production capacity in just 8 years. Actual ethanol production reached 3.4 billion gallons in 2004, and some have estimated that production could double again by 2012 or sooner (Food and Agricultural Policy Research Institute [FAPRI]).

The top five ethanol production capacity states are Iowa, Illinois, Minnesota, Nebraska, and South Dakota. These states represent over 80% of total U.S. ethanol capacity and account for the bulk of U.S. corn production (United States Department of Agriculture–National Agricultural Statistics Service). With the exception of Illinois, these states are also characterized by a relatively weak corn basis (DTN AgDayta). For 2004, the National Corn Growers Association estimated that 1.26 billion bushels of corn were used for domestic ethanol production, and the United States Department of Agriculture–Office of the Chief Economist estimated in December 2005 that 1.575 billion bushels of corn will be used for ethanol production during the 2005/2006 marketing year.

United States imports of ethanol are limited, accounting for less than 5% of domestic supplies in 2004. Under terms of current trade agreements, up to 7% of domestic ethanol needs can enter the United States duty free from countries in Central America and the Caribbean. Imports from other countries are subject to a tariff of more than $0.50/gallon. Primary exporters of ethanol to the United States include Brazil, Jamaica, Costa Rica, and El Salvador (United States International Trade Commission; Yacobucci). Imports from Brazil have been particularly volatile because they only occur when Brazilian prices fall sufficiently below U.S. prices to offset transportation costs and the import tariff.

On the demand side, over one half of annual ethanol demand is used for meeting federal reformulated gasoline requirements, and annually, over 1 billion gallons of ethanol is used for conventional gasoline production (Renewable Fuels Association). Sixteen states now ban methyl tertiary-butyl ether (MTBE) as an oxygenate additive, which ensures the use of ethanol in those states, and current plans to phase out MTBE use in the rest of the country will contribute to increased ethanol demand. The Federal Highway Administration estimates that total annual U.S. ethanol-blend fuel use to be over 32 billion

gallons. The top five states for use of ethanol-blend fuel are California, Illinois, Minnesota, Ohio, and Michigan. More interesting are the states that, at the end of 2005, have no or little ethanol-blend fuel usage (e.g., Florida, New York, New Jersey, and Texas, as well as the District of Columbia).

Globally, ethanol production is widespread; top countries producing ethanol include Brazil (1), United States (2), China (3), France (5), and South Africa (7) (Renewable Fuels Association). Several countries, provinces, and cities across the globe have mandated ethanol use. Examples included Brazil, requiring 25% ethanol-blend fuel for all gasoline consumed, and the European Union, setting a target of 5.75% biofuel blend by 2010 (Renewable Fuels Association).

Summarizing Economic Census Data for the Ethanol Industry

The 1997 and 2002, Economic Census of Business data provided a snapshot of domestic ethanol economic activity (Table 1). The lower portion of Table 1 lists the number of total workers, number of production workers, and production hours worked per ethanol plant establishment and per million gallons of ethanol produced. On average, an ethanol plant employs 32 persons with an average annual salary of $43,000. The wage gap between production workers and management is calculated to be around $15,000 annually.

Between 1997 and 2002, the annual capacity of all ethanol plants decreased by nearly 19 million gallons per plant. A few large firms dominated the ethanol industry in 1997, but many new start-up plants opened after 1997 that had annual plant capacities below 24 million gallons per year, reducing the average capacity per plant. Although one might assume a significant economies of size associated with ethanol production, increased worker productivity offsets the effect of smaller plant size, and the number of total workers and production workers per million gallons of production significantly declined between 1997 and 2002. Production hours worked per million gallons of ethanol production were up slightly, but not

Table 1. Ethanol Industry Economic Census Data for 1997 and 2002

	No. of Companies	No. of Establishments/ Production	No. of Workers	Payroll ($000)	Production Workers	Production Hours Worked	Value Added ($000)	Total Cost ($000)	Total Value ($000)	Total Capital Expenditures ($000)
1997	31	36	1,503	58,421	1,037	2,288	226,520	994,308	1,222,166	36,694
2002	61	69	2,181	94,346	1,592	3,788	592,756	1,475,038	2,054,771	123,191
Per establishment										
1997			41.75		28.81	63.56				
2002			31.61		23.07	54.90				
% Change			−24.29		−19.90	−13.62				
Per million gallons produced										
1997		49.16 MGY	1.16		0.80	1.76				
2002		30.87 MGY	1.02		0.75	1.78				
% Change			−11.44		−6.30	1.05				

Source: United States Department of Commerce–U.S. Census Bureau.
Notes: In 1997, 1,770 million gallons of ethanol were produced, and in 2002, 2,130 million gallons of ethanol were produced. MGY is million gallons per year.

as much as the percent decrease in production workers per million gallons of ethanol produced. This indicates, as industry representatives suggest, that technological advances have allowed for increased ethanol production efficiencies.

In 2002, total value of shipments was $2.054 billion, total cost of inputs was $1.475 billion, and ethanol-only value added (value less cost) was $593 million. This implies a before tax, depreciation, and interest value–added margin (coproduct sales are excluded) of approximately $0.28/gallon. In 1997, the before tax, depreciation, and interest value–added margin was approximately $0.13/gallon, which indicates that margin volatility in the ethanol industry is significant because of gasoline price and corn price uncertainty (Parcell).

Local and Regional Economic Effects

Great interest is given to the local and regional economic effects from the start-up and operation of an ethanol plant. Most previous studies use an input-output (IO) analytical process to assess the local and regional economic effects. Table 2 is used to summarize the results of seven previous studies that have projected the local and regional economic effects from ethanol plant operations. The chosen impact assessment studies only represent those most readily available and by no means represent the population of ethanol impact assessment studies completed. The economic effect varied across studies, because of differences both in the size and location of the plants and in the analytical approaches.

The level of the effect of direct employment, by study, is consistent with values reported in the economic census data, whereas indirect employment effects vary by study. The expected economic effects from ethanol plant production are large. The range of total economic effects is between $25 million and $282 million, depending on ethanol plant operating capacity. The total local employment increase ranges from 3 to 15 persons per million gallons of production, with one outlying study suggesting over 30 jobs created per mil-

Table 2. Summary of Previous Studies Investigating Total Local and Regional Economic Effect from Ethanol Production

Source	Year	Size (MGY)	State	Employment		Labor Income ($, mil.)		Taxes ($, mil.)	Total Output ($, mil.)
				Direct	Indirect	Direct	Indirect		
Swenson	2005	41	IA	32	135	1.5	2.7	Tax abatement of $1.5	66.2
BBI International Consulting (2004)	2004	20	ID	28	363		12		67.5
Outlaw et al.	2003	80	TX				41	1.3	232
Petersan	2003	24	NE	31	73	1.42	1.03	0.384	34.5 (direct)
BBI International Consulting (2003)	2003	10	HI	22	154		5.1		28.6
Urbanchuk and Kappell	2002	40	n/a	41	694		19.6	1.2	110.2
Resource Systems Group	2000	50	NY	53	1,753	1.13	46.54	3.11	

MGY is million gallons per year; mil. is million.

lion gallons of ethanol production. Most studies reported here indicate that the total labor income effect is around $0.50/gallon of ethanol production, whereas the Swenson study suggests this value is closer to $0.10/gallon of ethanol production.

On the basis of IO analysis at the county level, Swenson's study offers the greatest amount of information for justifying the economic effect values reported. Swenson suggests a multiplier of 1.16 to compute total industrial output from ethanol plant operations. For example, if an ethanol plant has total revenues of $80 million, then the total economic output is $92.8 million. He suggests a 3.87 employment multiplier, so that a 40-employee ethanol plant would add 155 total jobs to the local economy. He suggests a labor income multiplier of 2.80, indicating that an ethanol plant with a $1 million payroll will have a total local income effect of $2.8 million. Because it is common for local government to offer incentive packages for an ethanol plant to locate in close proximity to the community, the economic effect multipliers here represent a good approximation of the expected increase in economic activity from an ethanol plant without the need for a full-scale IO study.

Farm-Level Effects

Four recent reports on how ethanol production affects farm-level corn price and income are reported in Table 3. The FAPRI report is for the aggregate U.S. farm economy, the McNew and Griffith and the Parcell and Fort reports are more micro-level, and the Urbanchuk and Kappell study is more a general assessment. For a 100 million gallons per year (MGY) ethanol plant, the FAPRI study estimates a $0.006/bushel increase in the national average price of corn.

The other three studies summarized in Table 3 are fairly consistent in their message of an effect on local corn prices of between $0.05/bushel and $0.15/bushel. The McNew and Griffith and Parcell and Fort study each suggest that the corn price effect will vary depending on the ratio of ethanol plant corn use to available supply of corn around the ethanol plant.

Aggregate Farm-Level Effects

This section details farm-level and macro-level effects associated with the start-up of a 100-MGY ethanol plant on the basis of provisions set forth in the Energy Policy Act of 2005 and the total annual effect on the U.S. agricultural economy from the Energy Policy Act of 2005. The analysis was carried out by FAPRI in August 2005.

FAPRI reports changes from baseline projections in absolute and percent effects for farm-level economic factors (Table 4). They projected an increase of $0.006/bushel for each bushel produced in the United States from an additional 100 MGY of ethanol production. Corn area planted increases by 35,000 acres, mostly at the expense of soybeans and other crops. Total crop cash receipts increase by $74 million per year because of the increase in corn prices and production. On the other hand, increased corn prices reduce government farm program payments by $49 million per year and increase feed expenses by $14 million. As a result, the average annual estimated increase in net farm income is only $12 million.

A more aggregate assessment of ethanol's effect on U.S. agriculture is given by the annual projected effects for the 2011–2015 period from the 2005 Energy Policy Act. Under the provisions of this bill, FAPRI projects corn use for ethanol to increase 32.6% (632 million bushels) above baseline (no Energy Policy Act) levels. If this level of additional corn demand is realized, the domestic farm-level corn price is expected to increase by $0.125/bushel above current baseline projections. This price increase results in a $1.578 billion increase in annual producer receipts from corn marketings, but this is offset by a $990 million reduction in government payments because higher corn prices translate into lower countercyclical payments and marketing loan benefits. Farm production costs increase as well, so the increase in net farm income is projected

Table 3. Summary of Previous Research Investigating Farm-Level Effects from the Presence of Ethanol Processing

Source	Background	Findings
FAPRI[a]	Determined corn price and farm income effect for a 100-MGY ethanol processing plant (note: values reported are for entire agricultural sector and not just localized).	Net farm income increases $12 mil. Government payments decrease $49 mil. Feed expenses increase $14 mil. Corn receipts increase $77 mil. Planted corn acres increase 35,000 acres. Corn price increases $0.006/bushel.
McNew and Griffith	Studied the corn price change around 12 ethanol plants that started operation in 2001 and 2002.	Determined that, on average, corn price immediately around the ethanol plant increased by $0.125/bushel, and a price increase could be observed for up to 68 miles from the ethanol plant.
Parcell and Fort	Determined the direct and spill-over effect on corn price to assess the change in land values because of the start-up of a producer-owned ethanol plant in northeast Missouri.	Corn sold to the ethanol plant was priced at a $0.09/bushel premium and all other corn in the region was priced $0.10/bushel more after the ethanol plant start-up. A weighted average corn price effect of $0.12/bushel was computed. A net present value of increased returns to farmland was computed to be $161/acre.
Urbanchuk and Kappell	Determined general economic effects for the start-up of a 40-MGY ethanol plant. As a subcomponent of the study, analyzed corn basis effect for seven various sizes of ethanol plants.	Concluded that between $0.05/bushel and $0.10/bushel corn price effect is observed in the area surrounding the ethanol plant.

MGY is million gallons per year; mil. is million.
[a] Assumes dry milling.

to increase $298 million annually, less than one fifth of the increase in corn receipts.

Other studies investigating the macro-level effect of ethanol production are few. Another study by Gallagher, Otto, and Dikeman analyzed the total ethanol economic effect by state, should each state achieve ethanol production capacity to meet regional use under a blending mandate program. Looking at Midwest states, they estimated an annual 205.6 million bushel increase in corn demand, approximately $176 million in annual income enhancement, a $1.105 billion increase in annual total industrial output, and a net welfare gain of $399 million. Gallagher, Otto, and Dikeman computed a Midwest region increase of $0.035/bushel in corn price and a net farm income increase of $128.2 million annually for implementation of an ethanol-blend mandate.

Subsidies, Incentives, and Initiatives

Federal and state production subsidies, incentives, and initiatives are of significant debate. The federal ethanol tax incentive is $0.51/gallon, in the form of a retail 10% ethanol-blend fuel tax credit, which the Energy Policy Act of 2005 extends beyond the previous 2008 sunset. Also, there is a federal incentive of $0.10/gallon of ethanol produced for ethanol

Table 4. Summary of U.S. Net Farm Income Effects; 2011–2015 Averages, for a 100-MGY Dry Mill and the Energy Policy Act of 2005

		Absolute Effects ($, mil.)		Percentage Effects	
	Baseline ($, mil.)	100-MGY Dry Mill	2005 Energy Bill	100-MGY Dry Mill	2005 Energy Bill
Corn receipts	22,344	77	1,578	0.34	7.06
Oilseed receipts	15,827	−14	−95	−0.09	−0.60
All other crop receipts	77,795	12	230	0.02	0.30
Total crop cash receipts	115,966	74	1,713	0.06	1.48
Livestock cash receipts	110,257	0	246	0.00	−0.22
Government payments	18,108	−49	−990	−0.27	−5.47
Sum of above	244,331	25	477	0.01	0.20
Feed expenses	28,393	14	154	0.05	0.54
Purchased livestock	16,887	−9	−211	−0.05	−1.25
Rent to nonoperators	12,623	5	181	0.04	1.44
Other production expenses	166,645	2	49	0.00	0.03
Total production expenses	224,548	12	173	0.01	0.08
All other net income*	34,249	0	−6	0.00	−0.02
Net farm income	54,032	12	298	0.02	0.55
Farm price of corn ($, per bushel)	2.303	0.006	0.125	0.26	5.41%

Source: Reproduced from FAPRI report.
MGY is million gallons per year.

plants producing less than 15 MGY. Other examples of subsidies include $100 million in 2001 and 2005 and $150 million in 2002–2004 paid out by the Commodity Credit Corporation for existing biofuel plants to enhance renewable fuels processing capacity.

Most states with significant ethanol production have some form of state ethanol subsidy, incentive, or initiative (Table 5). With Missouri as an example, a 60-MGY ethanol plant could receive up to $3.125 million in state government ethanol incentives. So, per gallon of production for a 60-MGY ethanol plant in Missouri, the annual incentive totals $0.59, or $35 million annually. Furthermore, in Missouri, agricultural producers qualify for a value-added investment tax credit. For the case of a 60-MGY plant, agricultural producers qualify for $3 million in tax credits for the project, with a maximum of $15,000 per producer-investor on 50% of their investment.

Two federal initiatives that have generated considerable exploratory capital and working capital for biofuel facilities include the United States Department of Agriculture Producer Value Added Grants Program and Renewable Energy Initiative. Since 2001, 88 biofuel awards have been made through the Producer Value Added Grants Program for a total of $19.4 million dollars (United States Department of Agriculture–Rural Development). These monies can be used for planning costs associated with a new facility or expanding an existing facility or for working capital to enhance the profitability of an ethanol plant. Between 2003 and 2005, the Renewable Energy Initiative allocated $90 million in grants and $250 million in loan guarantees for biofuel processing plant start-up costs and operational costs.

Supporting a domestic program that promotes renewable fuels entails considerable taxpayer cost. As mentioned in the Economic Census section, the ethanol gross profit margin in 2002 was approximately $0.27/gallon. In comparison, federal and state subsidies and incentives amount to nearly $0.60/gallon. This is not to mention the initiatives developed to

Table 5. Summary of Ethanol Production Incentives, by Selected State

State	State Excise Tax Exemption	State Producer Credits	Special Information
Iowa	$.01 tax exemption	No producer credit	Sunset 2007; Income tax credit available to retailers who sell more than 60% ethanol–blended fuel at their station, including E85.
Kansas	No tax exemption	Average $.07 per gallon producer credit	Provides $.05 per gallon for producer in operation prior to July 1, 2001 during FY 2002–2004. Increased capacity of 5 mgy or more on-line on or after July 1, 2001 receives $.075 per gallon, limited to 15 mgy. Producers who begin production on or after July 1, 2001 are eligible for $.075 per gallon, limited to 15 mgy.
Maryland		$.20 per gallon producer credit for ethanol produced from small grains; $.05 per gallon producer credit for ethanol from other agricultural products	Maximum total payment of $3 million/year for all ethanol produced. To reach maximum, would need at least 15 mgy of ethanol from small grains in a facility that began operating or expanded after 12/31/04. Sunsets 12/31/17.
Minnesota	No tax exemption on 10% blend; $.058 tax exemption E85	$.20 per gallon producer credit; subject to reduction pending on state budget	Producer credit applies to the first 15 million gallons per plant per year. There is a $3 million annual cap per plant. Cap is 10 years from date of plant start-up.
Missouri	No tax exemption	$.20 per gallon applies to the first 12.5 million gallons. $.05 per gallon to the next 12.5 million gallons produced	Producer credit applies to the first 60 months of plant production.
South Dakota	$.02 tax exemption	$.20 per gallon producer credit	416,667 gallons per month maximum allowable to ensure equal distribution among all producers.
Texas		$.20 per gallon producer credit for ethanol and biodiesel	Credit applies to first 18 mgy of production per plant for ten years. Imposes fee on ethanol and biodiesel producers of 3.2 cents for each gallon produced up to 18 million gallons per facility.
Wyoming	No tax exemption	$.40 per gallon producer credit	Program has a $4 million per year cap. Plants constructed after 7/1/03 eligible for 15 years. Plants in existence prior to 7/1/03 eligible until 6/30/09, unless they expand by at least 25%, in which case they are eligible for 15 years following the date of expansion.

Source: Reproduced from Renewable Fuels Association (www.ethanolrfa.org) and National Conference of State Legislators.

Note: To conserve space states left off this list include: Alaska, Connecticut, Hawaii, Idaho, Illinois, Indiana, Maine, Mississippi, Montana, North Dakota, Oklahoma, Pennsylvania, and Wisconsin.

Table 6. Projected Annual Economic Activity from a 60-MGY Ethanol Plant

Economic Factor	Size of Impact
Corn price (local)	Between \$0.06/bushel and \$0.13/bushel, depending on location
Corn usage increase (local)	Approximately 21 million bushels
Farm net farm income (noninvestment)	Approximately \$2.5 million in the region and approximately \$7 million to the total farm sector
Government farm payment reduction (total farm sector)	Approximately \$30 million
Ethanol production/use incentives (plant specific)	Federal: approximately \$32 million State (varies): approximately \$5 to \$8 million
Ethanol plant jobs created (plant specific)	
Total	Approximately 54 workers
Production workers	Approximately 41 workers
Salary	Approximately \$2.4 million
Total jobs created (local)	Approximately 210
Taxes generated (local)	Approximately \$1.2 million
Capitalization expenses (one time)	Approximately \$75 million
Economic output (local)	
Plant	Approximately \$85 million
Total	Approximately \$97.5 million
Economic multipliers for assessing total impact (from Swenson)	
Total jobs	3.87 × ethanol plant employees
Total income	2.80 × total salaries paid to ethanol plant workers
Total output	1.16 × total value of goods sold from ethanol plant

provide start-up and operating support for renewable energy sources. Thus, it is straightforward to determine that the ethanol industry would not have been profitable in 2002 were it not for government subsidies. The economics of ethanol plants, of course, are very different when the price of petroleum is \$60/barrel rather than \$30/barrel.

Current and Future Economic Effects

At an annual domestic ethanol capacity of around 4 billion gallons, 3,500 persons are employed by the ethanol production industry and an additional 8,500 jobs are created. Ethanol industry plant employees earn approximately \$132 million annually, and an additional \$238 million in indirect income is earned by the indirect labor force. Approximately 1.5 billion bushels of corn was used for ethanol production in 2005. Total domestic ethanol production creates \$110 million in taxes (not including indirect tax effects) for communities. Finally, at the current ethanol production level, federal tax incentives alone of \$2.2 billion is allocated for ethanol production annually.

What metrics can be used to project total economic activity from future ethanol production? With the use of information garnered from several previous studies, a set of metrics was established for a 60-MGY ethanol plant. The 60-MGY-capacity plant represents an ethanol plant size that will capture economies of size. Suggested metrics are reported in Table 6.

Decision makers might find these approximate effects helpful when completing an initial analysis of the local economic effects from ethanol production. The suggested values are not indicative of whether the ethanol plant can economically operate. This would require an economic feasibility study of the specific ethanol plant rather than an estimate of local economy effects if a plant does operate.

Summary

With this study, we analyzed several previous ethanol research projects to assess possible economic assessment metrics to be used for future ethanol production increases. Because it appears that domestic ethanol production is poised to double over the next decade, questions about ethanol plant location, community support, and community economic effect will be asked. As the primary corn production areas become increasingly saturated with ethanol plants, it will become increasingly important for decision makers and policy makers to understand the cost-benefit of championing additional ethanol capacity in the local area. To date, federal and state subsidies and incentives have been significant. Federal and state taxpayer dollars play a much more significant role in subsidizing ethanol production than do local governments. Thus, as long as the subsidies continue, rural communities will be asked to "invest" in their future through financial support and social acceptance of local ethanol production.

[Received Month 200x; Accepted Month 200x.]

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