ABF Economics
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CONTRIBUTION OF THE RENEWABLE FUELS INDUSTRY TO THE ECONOMY OF IOWA

Prepared for the Iowa Renewable Fuels Association

John M. Urbanchuk
Managing Partner

January 26, 2017

The U.S. ethanol industry experienced another record-breaking year in 2016 despite a challenging economic and regulatory environment. Industry output through October 2016 was 3.5 percent above 2015 levels and was poised to set a new record of 15.2 billion gallons for the year. American corn growers also posted a record crop in 2016 which pushed feedstock prices lower throughout the year to the benefit of ethanol producers. Average cash market corn prices during 2016 were 5.1 percent lower than a year earlier. World oil and gasoline prices started off the year at the lowest levels in more than a decade and posted a modest recovery through year's end. Despite this, average prices for all of 2016 were lower than 2015 averages. Ethanol prices were mixed; Iowa prices (FOB plant) increased 1.6% from 2015 levels while Omaha Rack prices fell 3.2 percent for the full year.[1]

On the demand side, consumers responded to sharply lower retail gasoline prices by increasing consumption of finished motor gasoline. Reflecting this, domestic ethanol use increased 2.9 percent during 2016 to record levels. The export markets are proving to be one of the brightest elements of demand. While still small relative to domestic use, ethanol exports posted a 28 percent increase in 2016 over 2015 are and expected to top one billion gallons for the year, the largest level of exports in six years. Iowa, as the nation's leading ethanol producer, participates in the export markets.

The ethanol industry continued to face both economic and regulatory challenges in 2016. The economic challenges included falling world oil and refined product prices. West Texas Intermediate crude oil prices bottomed out at $30 per barrel in February, the lowest monthly average price in more than a decade. Prices strengthened during the year but averaged an 11.4 percent decline for the year. During this same

[1] No. 2 Yellow Corn, Central Illinois; ethanol FOB Iowa Plant and Ethanol Omaha Rack. Source USDA/AMS

period ethanol prices (Omaha Rack) were down 3.2 percent. As pointed out, feedstock (corn) prices fell in 2016 but co-product prices were mixed. DDGS prices (10 percent moisture, Iowa) fell 18.6 percent while corn distiller's oil prices posted an 8.7 percent gain for 2016. The impact of these price changes were unsettling for ethanol profitability. According to Iowa State University, net returns over variable costs for a typical Iowa dry mill ethanol plant declined sharply in the first few months of 2016 but recovered during the second half of the year so that returns for the year posted a small increase over depressed 2015 levels. [2]

The regulatory and trade environment also provided challenges for the industry. In November 2015, the EPA released the final volume requirements for 2016 under the Renewable Fuel Standard (RFS) program. The volumes required by the final rule for all biofuels remained well below the statutory requirements set forth by the 2007 law establishing the RFS. Specifically, EPA set the "renewable fuel" portion of the RFS (the category in which corn ethanol qualifies) 500 million gallons below the statutory level in 2016; that's roughly equivalent to the annual output of six average-sized ethanol plants. Further, certain regulatory barriers, including EPA's disparate application of volatility regulations to E10 and E15, also constrained domestic demand for ethanol.

As pointed out above, ethanol exports expanded significantly in 2016. However, the trade environment for both U.S. ethanol and co-products, notably DDGS, was hampered by restrictive trade barriers in key markets. China, the top market for DDGS exports in recent years, implemented anti-dumping and countervailing duties against U.S. DDGS. The duties imposed by China sharply reduced U.S. exports to that market, resulting in lower DDGS prices across the board. China's actions are likely to continue to depress the export market for DDGS, as Chinese officials announced earlier this month that the anti-dumping duty would be raised from the preliminary rate of 33.8 percent to a range of 42.2 to 53.7 percent. In addition, the anti-subsidy tariff will range from 11.2 to 12 percent over the next five years.[3] U.S. ethanol exports faced challenges as well, with the European Union continuing to enforce a 9.5 percent anti-dumping duty on ethanol imported from the United States. Before the duty was implemented

[2] Iowa State University AgDecision Maker Ethanol Profitability and Biodiesel Profitability available at http://www.extension.iastate.edu/agdm/energy/xls/d1-10ethanolprofitability.xlsx and http://www.agmrc.org/renewable_energy/biodiesel/biodiesel-profitability accessed January 18, 2017

[3] "China to raise anti-dumping tax on US distillers grains" Chinadaily.com 2017-01/11

in 2012, the EU served as a top market for ethanol exports. In June, the EU General Court annulled the duty, but the European Commission appealed the decision in August and the issue remains unresolved.

Iowa's ethanol industry posted a 1.5 percent increase in output during 2016, with the state's 43 operating ethanol plants producing at an annual rate of nearly 4.1 billion gallons. Iowa continued to lead the nation in ethanol production accounting for 27 percent of U.S. output. Iowa also is the nation's leading biodiesel producer. According to the Iowa Renewable Fuels Association (IRFA), Iowa's nine operating biodiesel plants produced 297 million gallons of biodiesel in 2016, up 22.7 percent over 2015 levels.[4]

The environment facing Iowa's biodiesel industry was more favorable than that experienced by ethanol producers. While the weighted average of fats and oils prices used by Iowa's biodiesel industry increased 10.2 percent for all of 2016, biodiesel (output) prices increased 13.4 percent. This was reflected in industry profitability. Iowa State University reports that returns over variable costs for Iowa biodiesel producers more than doubled in 2016 averaging $0.47 per gallon.

Both the ethanol and biodiesel industry continued to benefit from a diversification of feedstocks and co-products. In particular nearly all Iowa dry mill ethanol plants are recovering distiller's corn oil, and yields have increased reflecting improvements in technology. This co-product is proving to be an additional revenue stream for ethanol producers and an increasingly important feedstock for the biodiesel industry.

Construction and expansion of biofuels refineries has provided an economic boost to Iowa for over a decade. However, EPA's Renewable Volume Obligation (RVO) for 2016 that fell short of statutory levels, political and regulatory uncertainties, and low prices combined to restrain new investment. Consequently no major new construction or expansion took place in 2016.

Failure to fully implement the RFS was felt in other sectors as well. Farmers have continued their historic trend of producing more output with fewer inputs on fewer acres. Between 2005 and 2013, increases in ethanol production utilized much of the increased corn production, resulting in robust farm gate prices and record farm income. However subsequent increases in corn production outstripped modest growth in ethanol production and declines in feed and export demand so that ending stocks of corn grew and

[4] http://www.iowarfa.org/biodiesel_refineries.php

pushed prices down significantly. Average farm level corn prices which peaked at $6.89 per bushel in the 2012/13 marketing year fell nearly 50 percent by 2015/16 and are projected to fall further this season. This decline has reduced income for farmers nationwide and in Iowa.

In addition to biofuel refining and agriculture, both public and private sector research and development aimed at discovering and developing advanced biofuels feedstocks and the technology needed to meet the RFS2 targets for cellulosic and advanced biofuels continued. We have assumed that R&D spending on biofuels continued to expand during 2016 as the need for new feedstocks grows. Reflecting this we assumed that industry R&D expenditures grew at the overall rate of inflation and totaled an estimated 865 million in 2016.[5] Iowa is a major participant in these R&D activities.

The renewable fuels industry is multifaceted. Ethanol and biodiesel producers are part of a manufacturing sector that adds substantial value to agricultural commodities produced in Iowa. The first and second-generation feedstocks used to produce renewable fuels are produced primarily by Iowa farmers, and the R&D expenditures for renewable fuels provide important support for Iowa's universities. Combined, these activities make a significant contribution to the Iowa economy. Based on its size and scope the renewable fuels industry had the following impacts on Iowa's economy in 2016.[6]

- Accounts for about $4.7 billion, or about 3.5 percent, of Iowa GDP;
- Generates $2.3 billion of income for Iowa households; and
- Supports more than 42,000 jobs through the entire Iowa economy. This is equivalent to 3 percent of total State employment.

The annualized contribution of the ethanol and biodiesel industries is summarized in Table 1.

[5] Estimates of the amount of R&D spending on biomass and biofuels vary substantially. For a discussion of R&D spending on biofuels see "Agricultural Preparedness and the Agriculture Research Enterprise". President's Council of Advisors on Science and Technology. Washington DC, December 2012. A 2013 study prepared by Mary Solecki, Anna Scodel and Bob Epstein at E2 Environmental Entrepreneurs. "Advanced Biofuel Market Report 2013" suggests that R&D spending on biofuels approaches $1.7 billion. A (relatively) new report on federal spending on R&D in energy published by EIA ("Direct Federal Financial Interventions and Subsidies in Energy in Fiscal year 2013", March 2015) estimates Federal R&D expenditures for biomass of $300 million in FY 2013. This study does not include estimates for corporate (private sector) R&D.

[6] This study estimates the annualized impact of producing 4.1 billion gallons of ethanol and 297 million gallons of biodiesel on Iowa's economy. These figures reflect the capacity of ethanol and biodiesel plants operating at year's end.

Table 1
Total Economic Impact of the Renewable Fuels Industry for Iowa: 2016

	Purchases (Mil 2016$)	GDP (Mil 2016$)	Household Earnings (Mil 2016$)	Employment (Jobs)
Ethanol*	$6,487.5	$4,249.4	$2,000.4	38,563
Biodiesel	$864.5	$447.0	$303.0	3,856
Total	$7,352.0	$4,726.3	$2,303.4	42,419

* Includes agriculture, investment in R&D, and exports

Methodology

The spending associated with renewable fuels production, construction, and R&D circulates throughout the entire Iowa economy several fold. Consequently this spending stimulates aggregate demand, supports the creation of new jobs, generates additional household income, and provides tax revenue for State and local governments. We estimate the impact of the renewable fuels industry on the Iowa economy by applying expenditures by the relevant supplying industry to the appropriate final demand multipliers for value added output, earnings, and employment.

This study utilizes IMPLAN (Impact Analysis for Planning) economic model to develop this understanding of the economy, including the sectors that support the ethanol industry, the links between them, and the level of economic activity. IMPLAN is a commonly used economic input-output (I-O) model. I-O models are constructed based on the concept that all industries within an economy are linked together; the output of one industry becomes the input of another industry until all final goods and services are produced. I-O models can be used both to analyze the structure of the economy and to estimate the total economic impact of projects or policies. For this analysis, a model for the Iowa economy was constructed using the most recent IMPLAN software and data and used to estimate economic impacts of the ethanol and biodiesel industry. Detail regarding the IMPLAN model and how it was used is presented in Appendix A.

In addition to using the updated IMPLAN data discussed above we continued to recognize the impact of income generated by locally owned renewable fuels firms. All corporations earn income that directly

impacts GDP. However the income earned by firms owned by Iowans largely stays in Iowa and has a more significant impact on the State economy than earnings that are transferred to firms domiciled outside of Iowa. A review of ownership of ethanol and biodiesel firms based on information provided by IRFA suggests that more than half of Iowa's ethanol and biodiesel plants are locally owned. The earnings of locally owned firms are treated as an addition to the household sector since the income is paid to Iowans and their impact is estimated using multipliers for the household sector. The earnings by firms domiciled outside of Iowa are treated as direct additions to GDP.

Changes to the Analysis

The major change to this year's analysis is the incorporation of the explicit impact of ethanol and DDGS exports. The methodology for estimating the impact of trade differs from that used for industry output.[7] We have estimated the impact of ethanol and DDGS exports by applying USDA Agricultural Trade multipliers for output and employment to the estimated value of exports for 2016. Since ethanol and DDGS are outputs of the chemical industry we used the USDA trade multipliers for the other organic chemicals industry. The USDA multipliers have three major components (or margins): production, transportation and warehousing, and wholesale/retail trade. Since IMPLAN already incorporates the impact of ethanol and DDGS production, to avoid double counting impacts we only applied the margins for transportation and trade to the value of exports. This represents the post-production (or ex-plant) impacts from exports. These results were added to the IMPLAN results. Since Iowa is the nation's largest ethanol producer the Iowa industry participates in the export market. Reflecting this we applied Iowa's share of total production to the total national export impact.

Contribution of the Renewable Fuels Industry

The contribution of the renewable fuels industry to the economy of Iowa is detailed in Table 2. The ethanol industry provides a significant contribution to the Iowa economy, spending $6.5 billion on raw materials, other inputs, goods and services to produce more than 4 billion gallons of ethanol. The largest share of this spending is for corn and other grains used as the raw material to make ethanol, distiller's grains and refiner's corn oil.

[7] https://www.ers.usda.gov/data-products/agricultural-trade-multipliers.aspx

Table 2
Contribution of the Renewable Fuels Industry to Iowa: 2016

	GDP (Mil 2016$)	Jobs (Thou)	Income (Mil 2016$)
Ethanol Manufacturing			
Direct	$634.2	2,100	$368.1
Indirect	$981.8	5,892	$415.1
Induced	$330.9	4,471	$161.4
Subtotal	**$1,946.9**	**12,463**	**$944.7**
Biodiesel Manufacturing			
Direct	$55.1	270	$73.1
Indirect	$335.7	2,416	$187.6
Induced	$86.2	1,170	$42.3
Subtotal	**$477.0**	**3,856**	**$303.0**
Agriculture			
Direct	$358.0	6,547	$152.3
Indirect	$1,283.4	10,878	$517.9
Induced	$274.9	3,714	$134.0
Subtotal	**$1,916.3**	**21,139**	**$804.2**
R&D			
Direct	$134.9	1,768	$121.0
Indirect	$93.9	1,071	$50.1
Induced	$69.6	938	$33.9
Subtotal	**$298.4**	**3,777**	**$205.1**
Exports (Total)	**$87.7**	**1,185**	**$46.5**
Total			
Direct	$1,182.3	10,684	$714.6
Indirect	$2,782.5	21,441	$1,217.2
Induced	$761.6	10,293	$371.6
2016 Grand Total	**$4,726.3**	**42,419**	**$2,303.4**
Change from 2015	1.85%	-0.54%	1.64%

The Iowa ethanol industry currently uses more than 1.4 billion bushels of corn, or 53 percent of Iowa's corn crop.[8] At 2016 Iowa farm gate prices this amounts to $4.8 billion of revenue to Iowa corn farmers.

[8] The 4.1 billion gallons of ethanol production required 1.45 billion bushels of corn. This amounts to 53 percent of the 2.7 billion bushels of corn harvested in Iowa in 2016. Without the demand for corn provided by the

Reflecting lower prices, expenditures for feedstocks (corn) by Iowa ethanol producers fell 13.5 percent from 2015 levels.

Ethanol

As pointed out earlier, U.S. ethanol exports have expanded significantly over the last decade and are projected to near 1.1 billion gallons for all of 2016 with an export value of $2.2 billion. Exportable supplies of ethanol have grown over the past seven years as production exceeded domestic use. Moreover, the ethanol industry is generating a trade surplus and helping to reduce the nation's trade deficit. Exports are estimated to generate $331 million of GDP for the U.S. and support 4,471 jobs. Iowa's share of this amounts to nearly $88 million of GDP and 1,185 jobs.

In addition to providing a growing and reliable domestic market for Iowa farmers, the ethanol industry also provides the opportunity for farmers to enjoy some of the value added to their commodity by further processing. Locally owned ethanol plants account for nearly half of Iowa fuel ethanol plants and production capacity.

The remainder of the spending by the ethanol industry is for a wide range of inputs such as industrial chemicals, electricity, natural gas, and water, labor, transportation and services such as maintenance, insurance, and general overhead. Spending for these goods and services represents the purchase of output of other industries, mostly in Iowa.

Most ethanol is produced in Iowa is by dry mills that also produce valuable co-products in the form of distillers dried grains (DDGS) and (industrial) distillers' corn oil.[9] The Iowa ethanol industry produced an estimated 13 million short tons of DDGS and 913 million pounds of industrial corn distiller's oil in 2016 with an aggregate market value of $1.8 billion. A significant share of these co-products are used by Iowa

ethanol industry Iowa farmers would likely plant fewer acres to corn, purchase fewer inputs, and produce a smaller crop, thereby reducing the economic contribution provided by the corn industry.

[9] DDGS and refiners corn oil production is reported monthly in the USDA Grain Crushings and Co-Products Production report. http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1899. According to the Iowa Renewable Fuels Association dry mills account for 85 percent of production capacity.

livestock producers and the Iowa biodiesel industry. It is notable that these co-products are produced with little additional expenditure.

The price assumptions used in estimating the value of expenditures for both ethanol and biodiesel are shown in Appendix Table 1.

- The gross value of the ethanol industry output (ethanol and co-products) amounts to $7.7 billion. Based on the IMPLAN model, the ethanol and supporting agriculture industries accounts for nearly $4.3 billion of Iowa GDP.

- Jobs are created from the economic activity supported by ethanol production. While ethanol production is not a labor-intensive industry, accounting for about 2,100 full time equivalent direct jobs in Iowa[10], the economic activity resulting from the full activities of the ethanol industry supports a much larger number of jobs in the economy. The direct jobs supported by the ethanol industry are concentrated primarily in manufacturing and agriculture. When the indirect and induced effects of ethanol manufacturing and associated R&D are considered, the industry accounts for nearly 12,500 full time equivalent jobs throughout the entire economy.

- Since renewable fuels production uses feedstocks produced by Iowa farmers, the ethanol and biodiesel industry has the largest impact on agriculture, supporting 6,547 direct farm and farm-related jobs. Most of the agriculture jobs supported by the ethanol industry are farm workers and laborers associated with grain production. However, a wide range of jobs in support activities related to crop production ranging from farm managers and bookkeepers to farm equipment operators are supported by ethanol production. As the impact of the direct spending by the ethanol and biodiesel industry expands throughout the economy, the employment impact expands significantly and is spread over a large number of sectors. The indirect and induced jobs supported by the agriculture output used by renewable fuels amount to an additional 14,500 jobs throughout the entire Iowa economy for a total impact from agriculture of 21,100 jobs.

[10] The Census Bureau does not report employment in ethanol production. The number of direct jobs associated with ethanol production is based on a conservative estimated industry average of 50 jobs per plant.

- Increased economic activity and new jobs result in higher levels of income for Iowa households. The ethanol and supporting agriculture industry generated $2 billion of income for Iowans in 2016.

Biodiesel

The Iowa biodiesel industry is not as mature as the ethanol industry but also makes sizable contributions to the Iowa economy. According to the Iowa Renewable Fuels Association (IRFA), Iowa's nine operating biodiesel produced 297 million gallons of biodiesel in 2016.[11]

The Iowa biodiesel industry spent nearly $865 million on raw materials, other inputs, goods and services in 2016. The largest share of this spending is for fats and oils used as the raw material to make biodiesel. The Iowa biodiesel industry used nearly 1.5 billion pounds of soybean oil in 2016 to produce biodiesel totaling two thirds of total feedstock use. In addition Iowa biodiesel producers used approximately 314 million pounds of animal fats, 213 million pounds of distillers' corn oil (supplied largely by Iowa ethanol producers), 168 million pounds of canola and 67 million pounds of used cooking oil. The majority of the raw material for biodiesel production in Iowa is procured locally. The remainder of the spending by the biodiesel industry is for a wide range of inputs such as industrial chemicals, electricity, natural gas, water, labor, and services such as maintenance, insurance, and general overhead. As with ethanol, spending for these goods and services represents the purchase of output of other industries.

The spending associated with biodiesel production also circulates throughout the entire Iowa economy stimulating aggregate demand, supporting jobs, generating additional household income, and creating new tax revenue. The following summarizes the economic contribution of the Iowa biodiesel industry at the end of 2016.

- The gross value of the biodiesel and glycerin produced in Iowa totaled more than $964 million. When the impact of manufacturing and R&D are combined the biodiesel industry accounts for nearly $480 million of Iowa GDP.

[11] http://www.iowarfa.org/biodiesel_refineries.php

- Jobs are created as a consequence of increased economic activity caused by biodiesel production. The increase in economic activity generated by biodiesel production supports more than 3,800 full time equivalent jobs in all sectors of the Iowa economy.

- Increased economic activity and jobs result in higher levels of income for Iowa households. The biodiesel industry accounts for about $300 million of household income for Iowans.

Challenges for 2017

There are a myriad of challenges and opportunities facing the renewable fuels industry in 2017. Perhaps the most significant recent development is the election of Donald Trump as President of the United States. A new administration will mean new faces at the Departments of Agriculture and Energy, and a new Administrator of the EPA. Not only will the Cabinet secretaries change but so will the senior political appointees in each Department that guide the implementation of important rules and regulations. During the campaign, President Trump was a strong and vocal supporter of agriculture and biofuels and pledged to protect the RFS. Time will tell how the new administration may impact policies and regulations that affect ethanol, as well as programs that affect the overall economy, environment, and trade.

Another challenge will be managing the relationships with major trading partners and expanding export market opportunities for ethanol and co-products. Specifically, this means dealing with and responding to anti-dumping and anti-subsidy measures for DDGS and increased tariffs on U.S. ethanol put in place by China, as well as pursuing resolution of the EU ethanol trade case.[12]

Developments in other industries will continue to provide challenges and threats for ethanol and biodiesel producers. The ethanol industry has benefitted from low input (corn) prices prompted by record crops. Corn farmers are likely to reduce acreage this spring in response to declining profitability. Whether this occurs and what impact it may have on production and prices is a major unknown. Similarly, ethanol prices have suffered from low gasoline prices. Oil and gasoline prices have firmed in recent months but there are few signs that a significant rebound in prices is in the offing anytime soon. The biodiesel

[12] China's Ministry of Commerce increased tariffs on imported ethanol from 5 percent to 30 percent in early January. Biofuels International January 11, 2017.

industry has realized higher product prices and higher input prices reflecting a tighter supply and demand situation for oilseeds.

Finally, the industry sorely needs new investment in cellulosic and advanced biofuel production capacity. The recent EPA final rule for 2017 RFS blending requirements sends a very positive signal to investors. If this is accompanied by an improvement in the overall investment outlook provided by pro-business policies of the new Trump administration, we may see an upturn in ethanol investment.

Conclusion

The renewable fuels industry continues to make a significant contribution to the Iowa economy in terms of job creation, generation of tax revenue, and displacement of imported crude oil and petroleum products. The importance of the ethanol industry to agriculture and rural economies is particularly notable. Continued growth and expansion of the renewable fuels industry through new technologies and feedstocks will enhance the industry's position as the original creator of green jobs, and will enable America to make further strides toward energy independence.

APPENDIX A

IMPLAN Methodology

We estimate the impact of the ethanol industry on the economy of Iowa by applying expenditures by the relevant supplying industry to the appropriate final demand multipliers for value added output, earnings, and employment.

To understand how the economy is affected by an industry such as renewable fuels production, it is necessary to understand how different sectors or industries in the economy are linked. For example, in the renewable fuels production sector, the ethanol industry buys corn from the agriculture sector; which in turn, buys inputs from other suppliers such as fertilizer and pesticide producers that also purchase products from a range of other industries. These are referred to as backward linkages. Use by other sectors of natural gas as an input, such as manufacturing operations, is a forward linkage. Natural gas production and transmission industries are linked through both forward and backward linkages to other economic sectors in each state's economy.

The household sector is linked to all sectors as it provides the labor and management resources. In turn, changes that affect incomes of the household sector typically have significant impacts compared to a change in the sales of other sectors. This is because households typically spend most of their income on both retail and service goods and this is a critical component of the economy

This study uses an economic model known as IMPLAN (Impact Analysis for Planning) to develop a model of the national economy, including sectors that support the ethanol industry, the links between them, and the level of national economic activity. IMPLAN is a commonly used economic input-output (I-O) model. I-O models are constructed based on the concept that all industries in an economy are linked together; and the output (i.e., sales) of one industry becomes the input of another industry until all final goods and services are produced. I-O models can be used both to analyze the structure of the economy and to estimate the total economic impact of projects or policies. For this analysis, a model for the Iowa economy was constructed using current IMPLAN software and the most recent data available.

IMPLAN models provide three economic measures that describe the economy: value added, income, and employment.

- Value added is the total value of the goods and services produced by businesses in the country and is generally referred to as GDP. It is equivalent to the sum of labor income, taxes paid by the industry, and other property income or profit.

- Labor income is the sum of employee compensation (including all payroll and benefits) and proprietor income (income for self-employed work). In the case of this analysis, demand for corn and other feedstock to produce ethanol supports farm income through higher crop receipts than would be the case without ethanol production.

- Employment represents the annual average number of employees, whether full or part-time, of businesses producing output. Value added including labor Income and employment represent the net economic benefits that accrue to the nation as a result of increased economic output.

There are three types of effects measured with a multiplier: direct, indirect, and induced effects. Direct effects are the known or predicted changes in the economy. Indirect effects are the business-to-business transactions required to produce direct effects (i.e., increased output from businesses providing intermediate inputs). Finally, induced effects are derived from spending on goods and services by people working to satisfy direct and indirect effects (i.e., increased household spending resulting from higher personal income).

APPENDIX TABLE 1: PRICES

	IA Corn Farm Price ($/bu)	IA Corn No 2. Yel ($/bu)	Distillers Grains 10%, Iowa ($/ton)	Ethanol FOB Iowa ($/gal)
Jan	$3.55	$3.36	$121.91	$1.31
Feb	$3.48	$3.37	$122.57	$1.31
Mar	$3.47	$3.36	$123.98	$1.41
Apr	$3.52	$3.42	$115.81	$1.50
May	$3.60	$3.54	$132.10	$1.56
Jun	$3.75	$3.69	$160.67	$1.43
Jul	$3.55	$3.10	$140.28	$1.48
Aug	$3.08	$2.90	$118.09	$1.42
Sep	$3.06	$2.91	$111.95	$1.43
Oct	$3.30	$3.05	$102.80	$1.48
Nov	$3.20	$3.02	$102.00	$1.40
Dec		$3.14	$99.49	$1.33
Average	$3.41	$3.24	$120.97	$1.42

	Crude Soy Oil Iowa (cents/lb)	Distillers Corn Oil Iowa (cents/lb)	Choice W. Grease Central US (cents/lb)	Yellow Grease Midwest (cents/lb)	B100 FOB Plant Iowa ($/gal)
Jan	29.07	24.31	18.13	17.00	$2.75
Feb	30.10	26.00	19.97	19.31	$2.88
Mar	30.54	28.30	24.70	25.25	$3.09
Apr	32.48	30.38	28.15		$3.22
May	30.84	30.42	28.06	27.00	$3.35
Jun	30.22	28.00	26.38	25.17	$3.34
Jul	29.50	25.83	24.16	24.50	$3.07
Aug	31.69	26.80	24.45	23.69	$3.35
Sep	32.69	27.88	24.79	24.33	$3.29
Oct	34.35	28.38	24.04	23.25	$3.28
Nov	34.82	27.00	24.19	22.50	$3.54
Dec	35.88	27.00	23.63	23.00	$3.47
Average	31.85	27.52	24.22	23.18	$3.22