

# Iowa Farm Outlook

January, 2012

Department of Economics  
Ames, Iowa

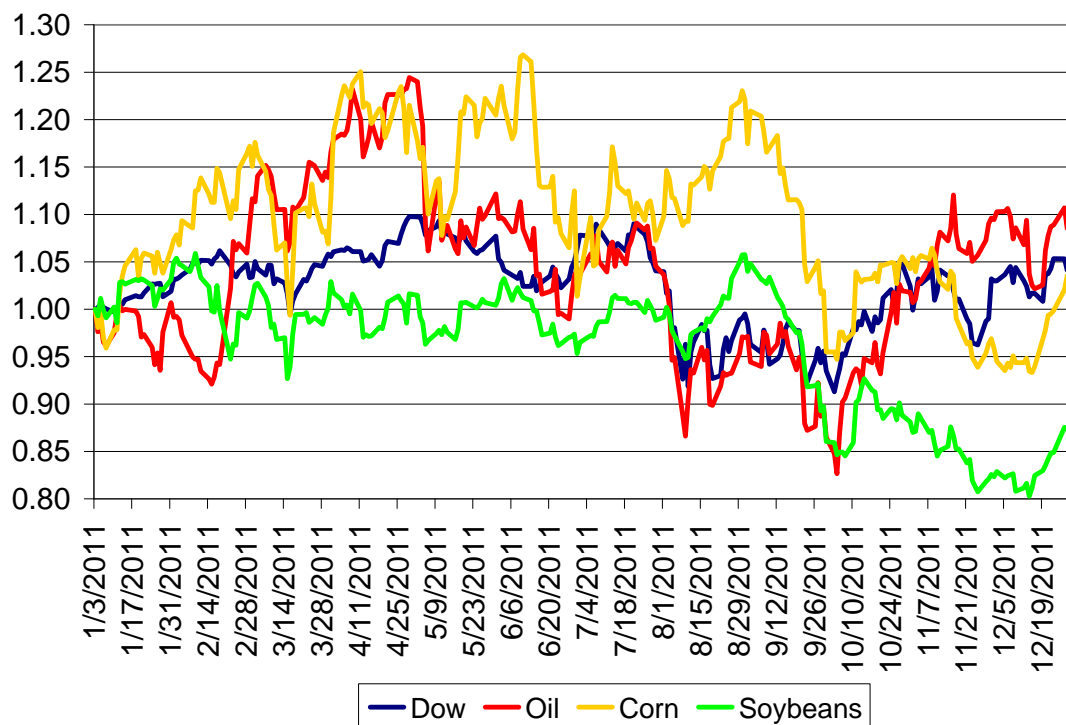
Econ. Info. 2021

## Ending on an Up Note

Calendar year 2011 ended on a positive note for crop agriculture. Corn and soybean prices rallied throughout the Christmas season. Overall, 2011 was like a roller coaster ride, plenty of ups and downs, but you end up basically where you started. Figure 1 shows the price shifts over the year. The Dow Jones Index started the year in positive territory, remained there until August when European debt concerns gripped the markets, languished in negative territory for a quarter, and recovered to post a 5% gain for the year. Fuel markets followed a similar pattern to the Dow, but experienced higher highs and lower lows. For a brief time in April 2011, oil prices were up 25% for the year. By the beginning of October 2011, oil prices were down 17%. But that price drop was short-lived as oil prices recovered strongly in October and November. For the year, oil prices rose 8%.

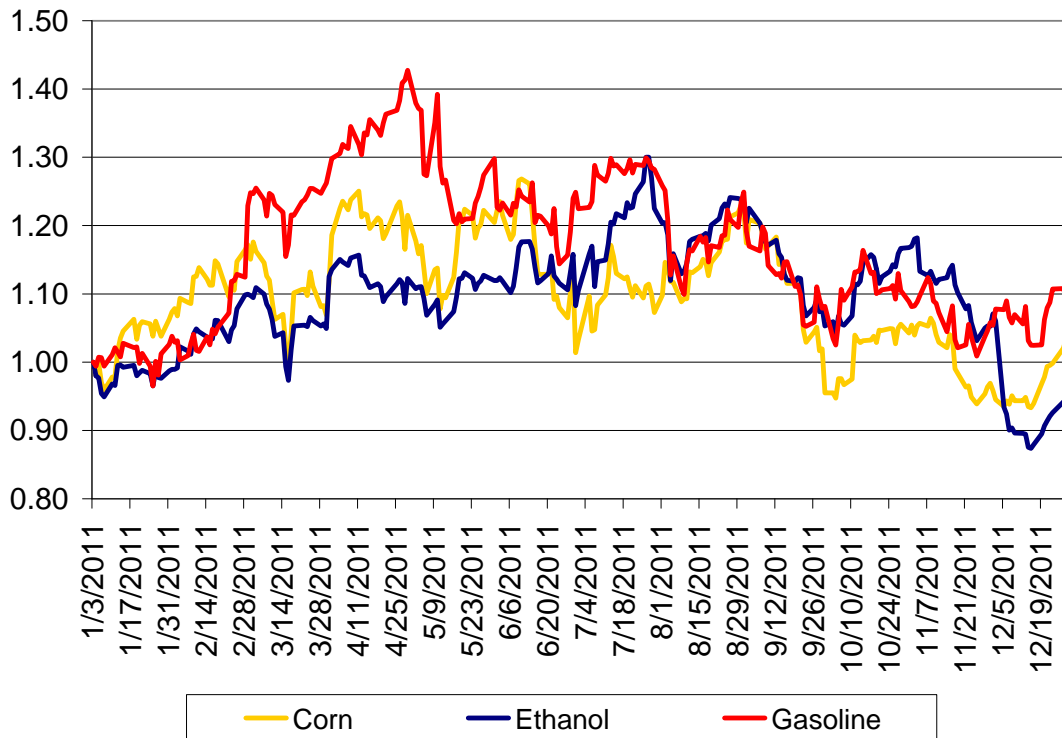
Corn prices were very strong throughout most of 2011. For more than half of the year, corn prices were at least 10% above the prices at the start of the year. In fact, it wasn't until we were deep in the September price slide that corn prices fell below the beginning of the year values. Since then, the corn market has bounced around in the -5% to +5% range, ending the year up 5%. Out of the four markets in the graph, the soybean market was the one market that didn't have a strong run in 2011. While corn, oil, and even the Dow, found price strength early in the year, soybeans did not. Soybean prices remained around beginning of the year values through September. The European crisis and the drop in export demand this fall set soybeans back nearly 20%. But some strength has emerged at the end of the year, so soybean prices are now only down 12% for the year.

**Figure 1. Price Changes in 2011 (Jan. 3, 2011 = 1)**



One of the keys for corn's price strength through the year was the ethanol industry. 2011 was a record year for the ethanol industry, in terms of production, consumption, and trade. With over 13 billion gallons of ethanol being produced in the U.S. and the vast majority of that production based on corn, ethanol's demand for corn provided tremendous support to the corn market. Figure 2 shows the price changes in 2011 for corn, ethanol, and gasoline. Early in 2011, gasoline prices shot up by 40%. That price run provided room for ethanol in the fuel market and set the stage for a record year. While gas prices backed off for the rest of the year, we ended 2011 with gas prices that were 10% higher than a year ago. Ethanol prices lagged behind gasoline prices during the first half of the year, catching up right before the August swoon in the financial and fuel markets. A surge in ethanol production to finish the year drove ethanol prices down in December. Thus, ethanol prices are down nearly 8% for the year.

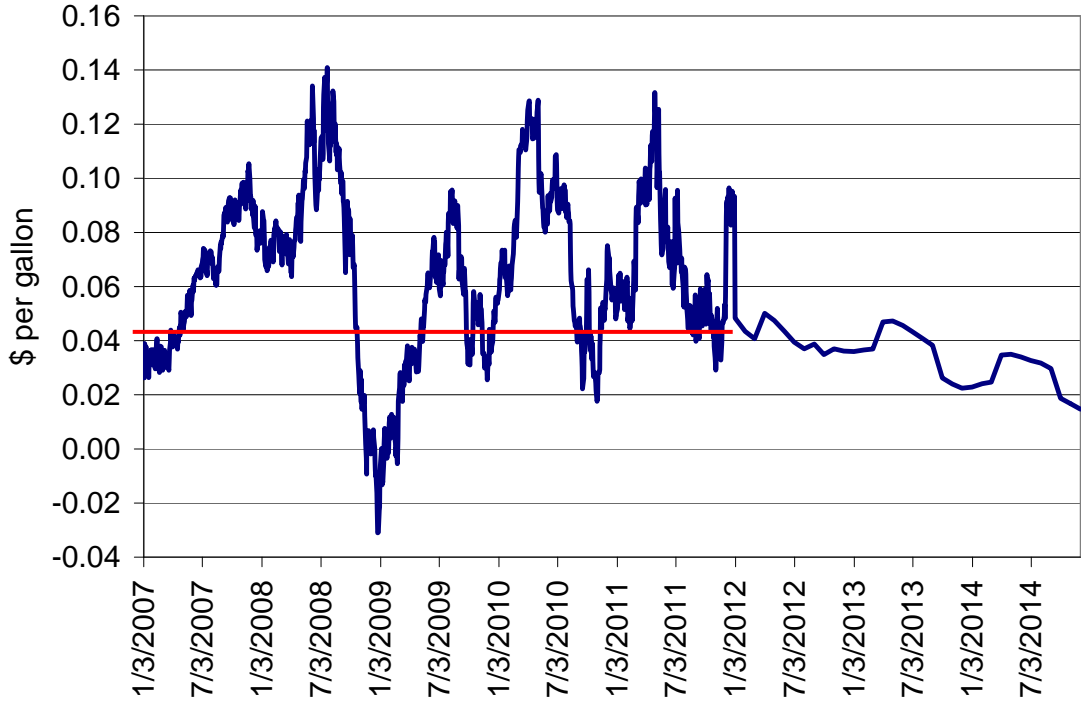
**Figure 2. Price Changes in 2011 (Jan. 3, 2011 = 1)**



However, that drop in ethanol prices is bolstering blending margins going into 2012. Figure 3 shows the blending advantage to ethanol historically, along with current projections based on futures prices for gasoline and ethanol. Throughout most of 2011, not only were ethanol blending margins positive, they were often significantly above the value of the ethanol tax credit (shown as the red line in the graph). While the tax credit has expired with the new year, the blending margins look to remain positive for the foreseeable future.

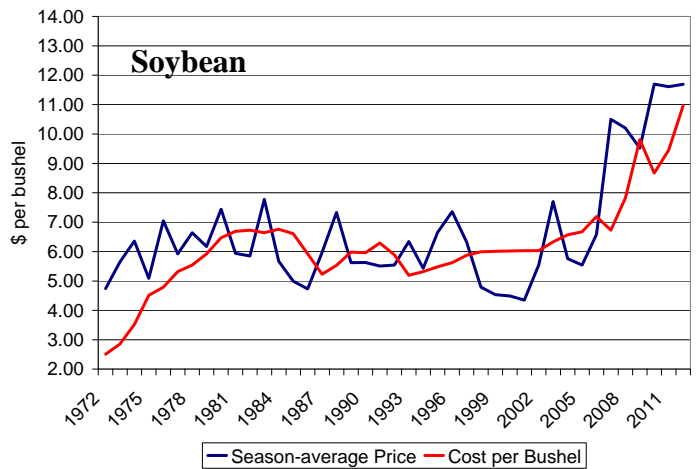
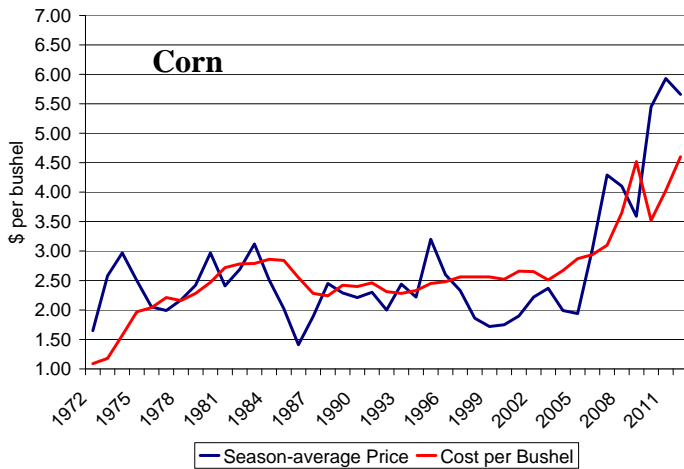
Looking forward to the 2012 crop year, current futures prices indicate that the 2012 crops will carry steady to slightly lower crop values. Figure 4 shows historical crop prices and costs for Iowa crops, along with projections for 2012. The 2011 corn crop is basically tied with the 2010 corn crop as the most profitable on a per-bushel basis, with returns around \$1.90 per bushel. The outlook for 2012 is for slightly lower prices and higher production costs, but corn margins are expected to remain strong. Right now, corn futures are pointing to roughly \$1 per bushel returns in 2012. Soybean margins were above \$3 per bushel for the 2010 crop. Those margins dropped slightly in 2011. And that tightening continues for 2012. Before the recent run-up in soybean prices, the projected 2012 margin was at breakeven. Now, there is roughly a 75 cent per bushel margin in place for soybeans.

**Figure 3. Blending Margins for Ethanol**



Given the continuing concerns about the economy and extreme weather conditions, the crop markets will remain choppy during the first third of 2012. We'll likely continue to see significant price swings in both directions as planting season approaches. Luckily, we will experience this price volatility starting with profitable price levels. So good prices can be locked in today, but we may see better marketing opportunities coming up.

**Figure 4. Iowa Crop Prices versus Costs**



# Estimating the Importance of the Ethanol Industry to the Iowa Economy in 2011

At ISU we produce estimates of the total value of certain industries to the state's economy using modeling systems that contain up-to-date secondary data on the major components of industrial production in the state. We, for example, periodically describe the importance of agriculture and ag-related manufacturing to jobs and incomes in Iowa for the College of Agriculture and Life Sciences as it promotes its education and outreach services to its many and diverse stakeholders. Similar studies have been done for manufacturing clusters, like the Cedar Rapids area food and kindred products manufacturing sector, or whole industries, like the state's vaunted insurance sector.

This report summarizes the ethanol industry's value to the state of Iowa using the same methods ISU employs with other industries it periodically evaluates as well as the same methods it has deployed in previous studies of Iowa's ethanol sector.<sup>1</sup>

## The Industry's Direct Values

Iowa's ethanol industry has 43 establishments and 1,650 persons employed at those plants according to payroll employment data compiled by the Bureau of Labor Statistics (BLS). Those data are for 2010, but there were no plants added in 2011, so the employment number is steady. Average total earnings at those facilities are an estimated \$56,000 per year per worker after adjusting BLS values for likely employer-paid benefits, so total worker earnings at Iowa's ethanol refineries are \$92.4 million. Total value added in the industry, which would include all payments to labor, all payments to investors, and all indirect taxes on production activity would be approximately 750 million.<sup>2</sup> Value added is the same as Gross Domestic Product (GDP), so it is a useful measure of the potential worth of the industry to Iowa's overall economy and allows for a standardized comparison to other industries.

## The Industry's Total Iowa Impacts

When we measure the contribution of an industry to the state's economy, especially one that boomed as the ethanol industry did over the past five years, we are careful to segregate net new productivity from productivity that already existed in the Iowa economy. That means we carefully scrutinize the schedule of inputs the industry requires. We discount the corn inputs from the modeling structure because the corn was already here,<sup>3</sup>

---

<sup>1</sup> See for example, Swenson, Dave in Determining the Regional Economic Values of Ethanol Production in Iowa Considering Different Levels of Local Investment, Bioeconomy Working Group, College of Agriculture, Iowa State University, September 2006, and Understanding Biofuels Economic Impact Claims, Department of Economics Staff Report, Iowa State University, April, 2007. For an earlier survey and critique of the practice of impact analysis of biofuels see also Input-Outrageous: The Economic Impacts of Modern Biofuels Production. Paper presented at the biennial IMPLAN Users Conference, Indianapolis, Indiana, June, 2006.

Iowa State University research on the economic impacts of ethanol plants was extensively investigated and replicated by Low, Sarah A., and Andrew M. Isserman in Ethanol and the Local Economy: Industry Trends, Location Factors, Economic Impacts and Risks, Economic Development Quarterly 23 (Feb. 2009): 71-87. Finally, this topic was broadly addressed in Swenson, David, A Review of the Economic Rewards and Risks of Ethanol Production, Chapter 3 in David Pimentel (ed), Biofuels, Solar and Wind as Renewable Energy Systems. Springer Science+Business Media B.V. 2008.

<sup>2</sup> This estimate assumes that \$.20 in net profit will have been generated on 3.2 billion gallons of ethanol production in 2011, which includes profits on co-product, plus all labor income of \$92.4 million, plus estimated taxes on production of \$11.25 million equals \$748.5 million in value added. The Iowa Ag Marketing Resource Center shows a monthly average net return per gallon of \$.153 for the past year. Rounding to \$.20 per gallon to include co-products is therefore a conservative, but reasonable, assumption on plant profits.

<sup>3</sup> Iowa's ethanol producers buy upwards of 1.15 billion bushels of Iowa corn, but the corn was already here, so they do not incite more land based agricultural activity, per se; instead, they opportunistically co-locate in order to maximize their access to the states plentiful corn supply. While plants may up the bid locally for corn, in and of themselves they do not create more crop production in Iowa. If there are price and profit conclusions to be drawn from higher corn prices, those prices and profits have also been influenced by

and because what we are interested in documenting are the net additions to Iowa productivity associated with ethanol production. The ethanol industry does not create more farm production jobs, but the modeling structure does not know that unless an analyst switches off that relationship. The industry has, however, very strong input requirements for skilled maintenance and facilities management, chemicals, fuels, utilities, and transportation. Once the modeling structure has been re-calibrated to emphasize those value inputs, the results for Iowa yield these outcomes:

### **Estimated Economic Impacts of Iowa's Ethanol Industry in 2011**

Total Iowa Jobs	5,995
Total Value Added (or GDP)	\$1.06 billion
Total Labor Income (a subset of GDP)	\$280.14 million

Given these results, the ethanol industry in adding value to Iowa corn produced the following net additions to the state's economy per 100 million bushels of corn processed in 2011:

Total Iowa Jobs	525
Total Value Added (or GDP)	\$92.8 million
Total Labor Income (a subset of GDP)	\$24.5 million

### **Conclusion**

Iowa's ethanol industry has emerged as an important component of the state's economy. Given current federal laws and the evolution of the industry, the industry is not expected to grow through mid-decade. There are two cellulosic ethanol plants scheduled to begin production in 2013; however, as there has yet to be a successful commercial-scale advanced ethanol production facility in the U.S., one must cautiously monitor the industry's potential growth and the value of that growth to the state of Iowa. If that industry does take off, it will involve a completely different analysis than the one just completed as cellulosic ethanol will require a substantial amount of net-new economic activity up the feedstock supply chain. If the industry is able to grow, it will have a very robust impact in the immediate feedstock supplying area.<sup>4</sup>

Nonetheless, the corn ethanol industry, as it exists now, accounts for nearly 6,000 Iowa jobs, \$1.06 billion in GDP and \$280.14 million in incomes to all workers whose jobs directly or indirectly depend on this industry. Had this industry not grown at the time it did, Iowa's total employment would have been lower, and its rate of unemployment would surely have been higher.

*David Swenson*

---

federal policies, blenders' credits that have helped provide a floor for those prices, and production mandates. While the subsidies expired at the end of 2011, the imputed Iowa production value of those subsidies was perhaps as high as \$1.2 billion in 2011. Readers will note, therefore, that the imputed blender credit subsidies exceed the estimated total GDP or value added impact estimate produced in this report.

On the other side of the economic impact ledger, a thorough analysis of the consequences of robust corn prices on all other Iowa users of corn would note that feeders of pork, beef, and poultry have had to absorb those robust prices. Rolling overall farm-level profits into a conclusion about the impact of the ethanol industry on Iowa's economy is, therefore, a dicey process fraught with offsets, adjustments, caveats, and significant debate among agricultural economists.

<sup>4</sup> The potential economic impacts of cellulosic ethanol production have been systematically estimated for the state of New York considering the use of woody biomass, corn stover, and grasses as feedstock sources. See Swenson, Dave, Appendix I: Biofuel Industry Industrial Impacts and Analysis, in Renewable Fuels Roadmap and Sustainable Biomass Feedstock Supply For New York, Final Report 10-05. New York State Energy Research and Development Authority (NYSERDA). When production characteristics for Iowa cellulosic production become established, the NYSERDA methodologies will be applied to the Iowa experience to properly project job, income, and GDP impacts for the state and its subregions.

---

Dr. Chad Hart, Asst. Professor  
Grain Marketing Specialist  
468 Heady Hall  
Phone: (515)294-9911  
Fax: (515) 294-1700  
[chart@iastate.edu](mailto:chart@iastate.edu)  
[www.econ.iastate.edu/~chart](http://www.econ.iastate.edu/~chart)

Shane Ellis  
Extension Livestock Economist  
475 Heady Hall  
Phone: (515) 294-8030  
Fax: (515) 294-1700  
[shanee@iastate.edu](mailto:shanee@iastate.edu)  
[www.econ.iastate.edu/prosci/ellis](http://www.econ.iastate.edu/prosci/ellis)

---

David Swenson  
Economist  
177 Heady Hall  
Phone: (515) 294-7458  
Fax: (515) 294-4545  
[dswenson@iastate.edu](mailto:dswenson@iastate.edu)  
[www.econ.iastate.edu/prosci/swenson/swensonpage.htm](http://www.econ.iastate.edu/prosci/swenson/swensonpage.htm)

Liesl Eathington  
Economist  
175 Heady Hall  
Phone: (515) 294-2954  
[leathing@iastate.edu](mailto:leathing@iastate.edu)

---

Kristen Schulte  
Extension Farm & Agribusiness Management Specialist  
132 1<sup>st</sup> Avenue West  
Cresco, IA 52136  
Phone: (563) 547-3001  
[kschulte@iastate.edu](mailto:kschulte@iastate.edu)

---

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Many materials can be made available in alternative formats for ADA clients. To file a complaint of discrimination, write USDA, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964.