

## Ethanol Impact Studies – Part 2: What Is Affecting Corn Prices and by How Much?

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There has been an ongoing campaign to undo the regulation and legislation currently providing support to the ethanol industry in the United States. A consortium of associations led by the Grocery Manufacturers of America (GMA) has hired a well known advertising agency, The Glover Park Group (GPG), and assigned them to accomplish four key objectives:

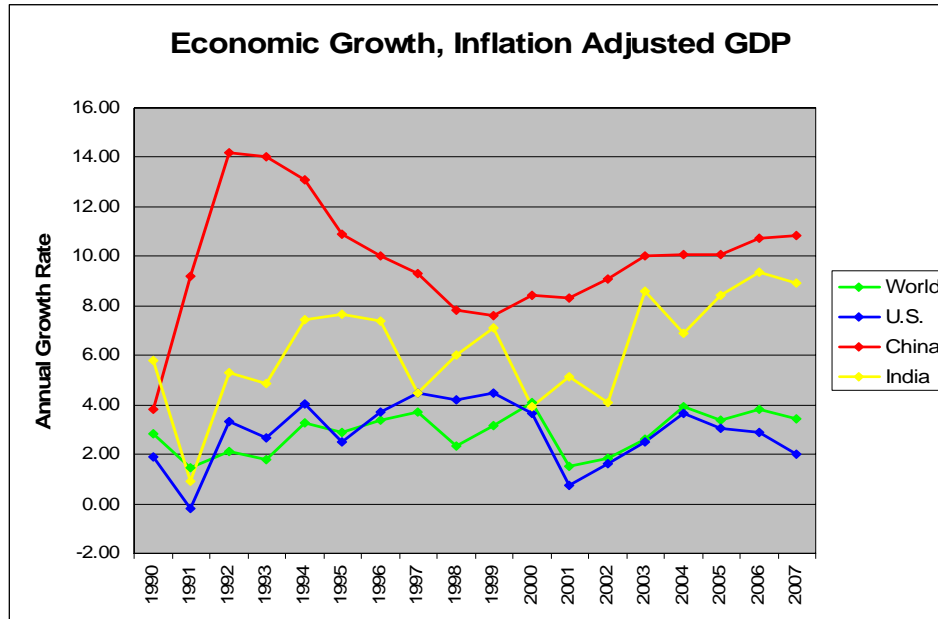
1. Reverse the Renewable Fuel Standard (RFS);
2. Eliminate the VEETEC (ethanol blender tax credit);
3. Eliminate all state mandates for ethanol; and
4. Lift the ethanol tariff and promote cheaper Brazilian ethanol imports.

In an associated effort, Texas Governor Rick Perry has petitioned to have the RFS reduced by 50%. This request is directed at the EPA who is now studying the issue in consultation with the U.S. Department of Agriculture and the Department of Energy and is expected to come to a decision by July 24<sup>th</sup>.

The main strategy of these efforts is simple and straight forward – to convince the public and Congress that ethanol is primarily, if not entirely, responsible for increasing food prices.

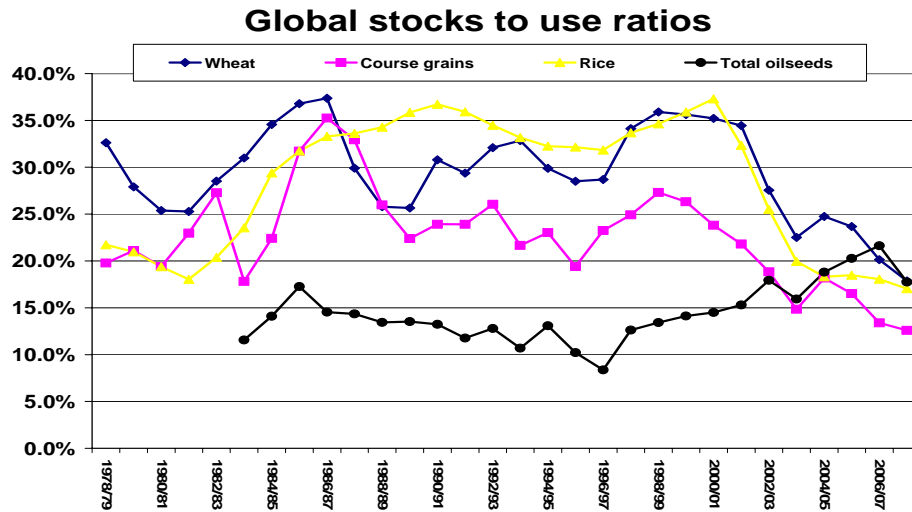
This article is the second in a three part series that looks at factors that have contributed to higher corn prices over the past couple of years and the effects on food prices. The first paper looked at the impact of weather on corn production and concluded that the below trend line corn yields of the past three and the (projected) current crop year have reduced U.S. corn production about 1.5 billion bushels. This development alone has increased corn prices by \$1.00 per bushel and perhaps as much as \$2.00 per bushel.

Other factors contributing to higher corn prices have been discussed to varying degrees in the papers cited earlier. One factor was the upsurge in world economic growth led by China and India as can be seen in the following chart. China and India together account for approximately 1/3 of the world's population and their economies have been growing at near, or above, double digit rates for the past five years. This has in turn led to a huge upsurge in the demand for all commodities including energy, metals and food.



A second factor is that the demand for the major crops in the world – coarse grains (mainly corn in the U.S.), oilseeds, rice and wheat – has outstripped production for most of the past decade as witnessed by the declining global stocks-to-use ratio chart shown below. This fall in stocks is a combination of demand and production shortfalls around the world such as a devastating two-year drought that reduced Australian wheat production by 50%. Although rice and wheat production have nothing to do with biofuels, their stocks-to-use ratios actually declined more than corn. Moreover, it needs to be emphasized that these trends were well in place long before ethanol became a market factor.

Two other things may have added to the declining world stocks situation. First, changes in various countries' farm programs that de-emphasized or eliminated government storage programs and thus increased the reliance on the market place to hold grain and oilseed reserves. Second, the move to just-in-time inventory management programs to reduce inventory cost which has been popular in the manufacturing sector. With this approach to the inventory management of agricultural commodities, however, increased price volatility will likely continue to be a fact of life in commodity markets.

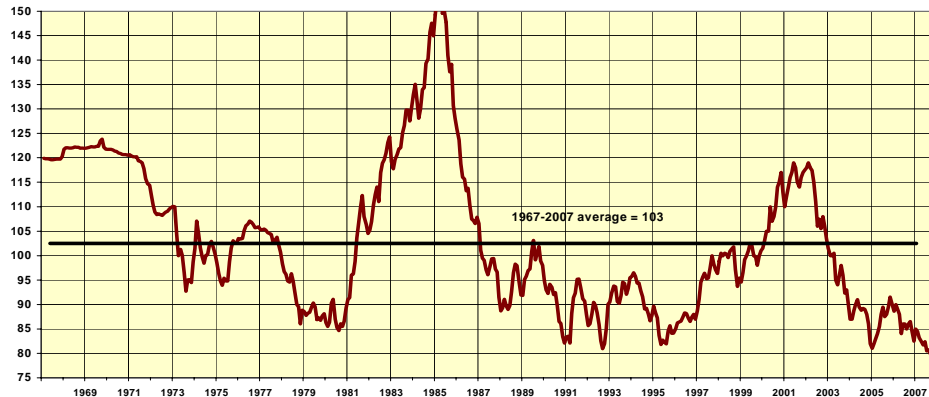


Source: Western Milling

Another factor has been the declining value of the U.S. dollar. This makes U.S. commodities more price competitive and serves to spur exports. However, there is less agreement in this area from the various papers cited. One of the papers discussed in the first article in this series was by Dr. Keith Collins, former Chief Economist for the USDA.<sup>1</sup> Dr. Collins points out that if the value of currencies of those countries purchasing U.S. corn is considered, they have declined less than the overall basket of currency shown in the following chart. While Collins' makes a valid point it should also be noted that there are substitute products involved such as feed-quality wheat for corn. While virtually no feed corn is sold to the EU due to their restrictions on biotech varieties, they may either buy feed-quality wheat or even corn from other countries who then in turn buy from another country. In a world market the demand eventually becomes apparent, although sometimes in an indirect and not easily traceable manner.

<sup>1</sup> Collins, Keith J. "The Role of Biofuels and Other Factors in Increasing Farm and Food Prices: A Review of Recent Developments with a Focus on Feed Grain Market Prospects." Prepared as supporting material for a review conducted by Kraft Foods Global, Inc., June 19.

Trade-Weighted Value of US Dollar in G10 Countries



Source: Robert Genetski, ClassicalPrinciples.com

Then there is the much discussed impact of the various commodity type funds on the markets. For example, it has been reported that the index funds has grown twenty fold in five years, from \$12 billion to \$260 billion. While only a portion of that amount has been allocated to the agricultural commodities, it is still a significant amount. How much impact these monies are actually having on the various commodities is the subject of on-going discussions and debates. However, this author noted that in the second week of March, at what might be described as the beginning of the sub-prime financial panic, the corn futures market declined approximately 70 cents per bushel when the funds started liquidating their positions. There were no underlying fundamental changes in the corn market that week so it can be postulated that the change was almost solely due to the funds activity. Soybean and wheat prices declined between \$2 to \$3 per bushel in that same week.

Finally, there is the impact of the increased demand for corn from ethanol. The estimates from the five cited papers in Appendix 1 are pretty wide ranging, from 16% in the CARD paper to perhaps as high as 60% in the Collins' paper. But the others fall in a narrower range of 20% for the FAPRI paper, 30 to 60 cents in the Texas A&M paper and 41 cents in the Wisconsin paper. (Assuming there was a \$3 per bushel change in corn prices that would imply a 10% to 20% change for the Texas A&M paper and a 14% change for the Wisconsin paper.)

It must be emphasized at this juncture that none of the aforementioned studies have broken down (disaggregated) the relative impact of all the factors cited above. This is because it cannot be done from a statistical analysis perspective. All the above factors change simultaneously so it is literally impossible to isolate and precisely measure the impact of any one factor compared to the other multiple factors at any one point in time. Unfortunately that begs the question of what is going on and which factors account for the increase in corn prices. Consequently, this author will attempt to make a subjective evaluation of the above research and develop a range of potential impacts for each of the factors that have been discussed.

Price affecting issue	Potential range of impact (dollars per bushel of corn)
Weather reduced U.S. yields	\$1.00-2.00
Higher world demand	0.50-1.00
Declining world stocks ratio	0.50-1.00
Depreciating U.S. dollar	0.25-0.75
Commodity funds	0.25-0.75
Ethanol production	0.50-1.00
Total	\$3.00-6.50

So how does this estimate of impacts square with reality? According to the USDA farmers received an average farm price for their corn market in the 2006/07 crop year of \$3.04 per bushel. The USDA predicts in the July World Agricultural Supply and Demand Estimates (WASDE) report that the price of corn in the 2008/09 crop year will range from \$5.50-6.50 per bushel, an increase of \$2.46-3.46 per bushel.<sup>2</sup> Currently corn futures prices for the period are trading in the \$7.00 +/- range so maybe the USDA is a little conservative and the actual increase might be in the \$3.00-4.00 range. Regardless of what numbers you use, they fit into the above range of possible price increase.

**Summary:** The critics of ethanol have pursued a long, arduous and expensive campaign to convince the public and Congress that ethanol has caused corn prices to rise precipitously, implying that this is also the cause of higher food prices. Considering the half dozen factors that have led to higher corn prices, ethanol probably only accounts for about 20% +/- of the increase.

Next: What the Critics Don't Want Consumers to Know About Ethanol

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<sup>2</sup> U.S. Department of Agriculture, World Agricultural Outlook Board. 2008. World Agricultural Supply and Demand Estimates, WASDE-460, July 11.

## Appendix 1

*The Effects of Ethanol on Texas Food and Feed*, Texas A&M, April 2008<sup>1</sup>

“Relaxing the RFS does not result in significantly lower corn prices.”

“—with a one-quarter RFS waiver price falling about \$0.30 per bushel below the full RFS price a few years hence, and the one-half RFS waiver price falling about \$0.50 to \$0.60 per bushel below the full RFS expected price.”

Food and Agriculture Policy Research Institute, FAPRI, January 2008<sup>2</sup>

“—implementation of EISA’s RFC (in the absence of the tax credit) will raise corn prices about 19%—the ethanol tax credit of \$0.51 per gallon (in the absence of the RFS) supports corn prices by a slightly smaller 11%. Because of the interactions between the two subsidies, it is estimated that joint implementation of both the RFS and tax credit supports corn prices by about 20%.”

Center for Agricultural Research and Development, CARD, March 2008<sup>3</sup>

“—jointly the RFS and tax credit supported the price of corn by a slightly smaller 16%.”

*The Effect of Ethanol Production on the U.S. National Corn Price*, University of Wisconsin, Madison, April 2008<sup>4</sup>

“—the model results above suggest that ethanol’s contribution to the price rise was about 41 cents per bushel, *ceteris paribus*.”

*The Role of Biofuels and Other Factors in Increasing Farm and Food Prices*, Keith Collins, June 2008.<sup>5</sup>

“This paper reviews various studies that have examined the relationship between corn used in ethanol production and corn prices. They suggest increased corn demand for ethanol could account for 25 to 50 percent of the corn price increase expected from 2006/07 to 2008/09. Another analysis presented in the paper suggests that ethanol could account for 60 percent of the expected increase in corn prices between 2006/07 and 2008/09—“

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<sup>1</sup> Anderson, D.P., Outlaw, J.L., Bryant, H.L., Richardson, J.W., Ernstes, D.P., Raulston, J.M., Welch, J.M., Knapek, G., Herbst, B.K., and Allison, M. 2008. “The Effects of Ethanol on Texas Food and Feed,” Agricultural and Food Policy Center, Texas A&M University, April 10.

<sup>2</sup> Food and Agricultural Policy Institute. 2008. “The Energy Independence and Security Act of 2007: Preliminary Evaluation of Selected Provisions,” University of Missouri-Columbia, FAPRI-MU #01-03, January.

<sup>3</sup> Du, Xiaodong, and Dermot J. Hayes. 2008. “The Impact of Ethanol Production on U.S. and Regional Gasoline Prices and on the Profitability of the U.S. Oil Refinery Industry,” Center for Agricultural and Rural Development, Iowa State University, Working Paper 08-WP467, April.

<sup>4</sup> Fortenbery, T. Randall, and Hwanil Park. 2008. “The Effect of Ethanol Production on the U.S. National Corn Price,” University of Wisconsin-Madison, Department of Agricultural Economics, Staff Paper No. 523, April.

<sup>5</sup> Collins, Keith J. “The Role of Biofuels and Other Factors in Increasing Farm and Food Prices: A Review of Recent Developments with a Focus on Feed Grain Market Prospects.” Prepared as supporting material for a review conducted by Kraft Foods Global, Inc., June 19.

## References

American Farm Bureau Federation. 2008. Backgrounder on Food Prices and the Role of Biofuels, April 24.

Anderson, D.P., Outlaw, J.L., Bryant, H.L., Richardson, J.W., Ernstes, D.P., Raulston, J.M., Welch, J.M., Knapek, G., Herbst, B.K., and Allison, M. 2008. "The Effects of Ethanol on Texas Food and Feed," Agricultural and Food Policy Center, Texas A&M University, April 10.

Babcock, Bruce A. 2008. Statement of Bruce Babcock, Center for Agricultural and Rural Development, Iowa State University, at the Hearing on Fuel Subsidies and Impact on Food Prices before the U.S. Senate Committee on Homeland Security and Governmental Affairs, May 7.

Barta, Patrick. 2008. "As Biofuels Catch On, Next Task is to Deal With Environmental, Economic Impact," *The Wall Street Journal*, March 24: A2.

Center for Strategic and International Studies, CSIS, 2007. "A Comprehensive View To 2030 Of Global Oil and Natural Gas." Presented at CSIS Seminar: Facing the Hard Truths About Energy, Washington DC, August 1.

Collins, Keith J. "The Role of Biofuels and Other Factors in Increasing Farm and Food Prices: A Review of Recent Developments with a Focus on Feed Grain Market Prospects." Prepared as supporting material for a review conducted by Kraft Foods Global, Inc., June 19.

Du, Xiaodong, and Dermot J. Hayes. 2008. "The Impact of Ethanol Production on U.S. and Regional Gasoline Prices and on the Profitability of the U.S. Oil Refinery Industry," Center for Agricultural and Rural Development, Iowa State University, Working Paper 08-WP467, April.

Food and Agricultural Policy Institute. 2008. "The Energy Independence and Security Act of 2007: Preliminary Evaluation of Selected Provisions," University of Missouri-Columbia, FAPRI-MU #01-03, January.

Food and Agricultural Policy Institute. 2008. "Biofuels: Impact of Selected Farm Bill Provisions and other Biofuel Policy Options," University of Missouri-Columbia, FAPRI-MU #06-03, June.

Fortenbery, T. Randall, and Hwanil Park. 2008. "The Effect of Ethanol Production on the U.S. National Corn Price," University of Wisconsin-Madison, Department of Agricultural Economics, Staff Paper No. 523, April.

Hanrahan, Charles E. 2008. "Rising Food Prices and Global Food Needs: The U.S. Response," Congressional Research Service, CRS Report for Congress. May 8.

Lee, Chinkook. 2002. "The Impact of Intermediate Input Changes on Food Prices: An Analysis of "From-the-Ground-Up" Effects," *Journal of Agribusiness* 20, 1, Spring.

Leibtag, Ehphraim. 2008. "Corn Prices Near Record High, But What About Food Costs?" *Amber Waves*, USDA, February.  
<http://www.ers.usda.gov/AmberWaves/February08/PDF/CornPrices.pdf>

McPhail, Lihong Lu, and Babcock, Bruce A. 2008. "Short-Run Price and Welfare Impacts of Federal Ethanol Policies," Center for Agricultural and Rural Development, Iowa State University, Working Paper 08-WP 468, June.

Reed, A.J., Hanson, Kenneth, Elitzak, Howard, and Schluter, Gerald. 1997. "Changing Consumer Food Prices: A User's Guide to ERS Analyses." USDA Economic Research Service, Technical Bulletin 1862, June.

Rosengrant, Mark W. 2008. "Biofuels and Grain Prices: Impacts and Policy Responses," International Food Policy Research Institute, May 5.

Schnepf, Randy. 2008. "High Agricultural Commodity Prices: What Are the Issues?" Congressional Research Service, CRS Report for Congress. May 6.

Tannura, Mike, Scott Irwin and Darrel Good. 2008. "Are Corn Trend Yields Increasing at a Faster Rate?" University of Illinois at Urbana-Champaign, Department of Agricultural and Consumer Economics *Marketing & Outlook Briefs* 08-02, February 20.

U.S. Department of Agriculture, World Agricultural Outlook Board. 2008. *World Agricultural Supply and Demand Estimates*, WASDE-460, July 11.