Food vs. Fuel: No Conflict

Using corn to produce ethanol does not compromise national or global food security. Price incentives and steady advances in technology are enabling farmers to supply both the food and fuel markets. Current economic data shows that food prices have remained steady in recent months, even as corn prices have risen in response to demand for corn ethanol. Higher corn prices could even help to stabilize food supply by providing an economic boost to rural Americans and third-world farmers. Much of the corn used to produce ethanol actually re-enters the food supply as high-value livestock feed as a byproduct. Finally, investment in corn-based ethanol production is laying the groundwork for production of renewable fuels from agricultural wastes and other non-food materials.

1. Corn supply can meet the demands for food and fuel

US corn supply is expected to exceed demand by about 987 million bushels, according to a June report issued by the USDA.[1] Farmers in the US and abroad have already begun to respond to increased demand for corn by expanding production. According to the United States Department of Agriculture, US farmers are expected to plant 90.5 million acres to corn in 2007 – a 60-year high and an increase of about 10 million acres over 2006.[2] Additionally, thanks to new seed technologies and more efficient farming practices, corn yields per acre are improving at a steady rate of about 2-3% per year.[3] Given that the last decade has seen little increase in the demand for corn from livestock and other sectors, corn production is on track to keep pace with the growing demand for fuel while still meeting the demand for food.[4] The United States Department of Agriculture's 10-Year Baseline Outlook projects that increases in corn acreage and yield gains will outpace ethanol demand and allow corn prices to ease.[5]

There is no shortage of corn, and there will be no shortage of corn as long as the market delivers the price signal for producers to produce. The decrease in planted acres in 2006 comes from surplus production and resulting low prices. The market did not signal more acres and more production at the time planting decisions were being made. – Business Week, Feb. 2007.

Corn growers intend to plant 90.5 million acres of corn for all purposes in 2007, up 15 percent from 2006 and 11 percent higher than 2005. If realized this would be the highest acreage since 1944, when 95.5 million acres were planted for all purposes. Expected acreage is up in nearly all States as high corn prices are encouraging farmers to plant more acres to corn…Illinois farmers intend to plant a record high 12.9 million acres of corn this spring, up 1.60 million acres from last year. North Dakota and Minnesota growers also expect to plant record high corn acres, up 910,000 and 600,000 acres, respectively. – USDA Prospective Plantings Report, March 30, 2007.

Sharply higher planted area and higher expected yields in 2007 are projected to push corn production to a record 12,195 million bushels. This is up 1,660 million bushels from 2006 and 388 million higher than the current record in 2004. With normal abandonment and silage production, 79.8 million acres are expected to be harvested for grain. The national average yield is projected at 152.8 bushels per acre based on trend analysis of 1990-2006 yields. This forecast reflects yield gains in recent years attributable to earlier planting, higher plant populations, and improved genetics, as higher farm income has boosted producer investment in equipment and driven rapid adoption of the latest crop genetics. – USDA Grains and Oilseeds Outlook for 2007, March 2, 2007.

"U.S corn yields have doubled since 1980 and are on a trend line to increase by an average of 2 percent to 2.5 percent per year, adding an additional 160 million bushels a year with no increase in

[1] http://www.bloomberg.com/apps/news?pid=20601012&sid=a4bAvtoeDuRQ&refer=commodities
[2] http://usda.mannlib.cornell.edu/usda/current/ProsPlan/ProsPlan-03-30-2007.txt
[3] http://www.ncga.com/news/OurView/pdf/2006/FoodANDFuel.pdf
[4] *Ibid.*
[5] *Ibid.*

acres" - Gerald Tumbleson, NCGA president and Minnesota farmer, May 2006.

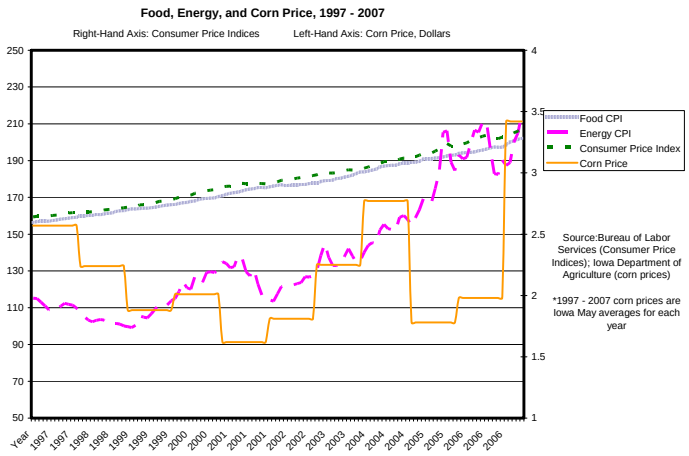
"Don't underestimate the ability of U.S. and global agriculture to respond to higher prices" – Keith Collins, USDA Chief Economist, quoted in Business Week, Feb. 2007

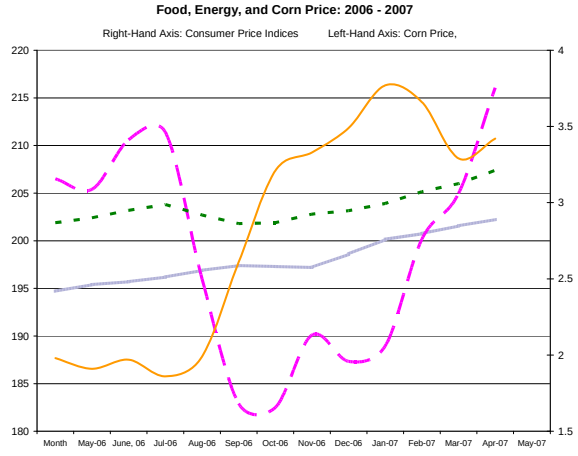
2. Pricing and availability of food is not directly correlated with corn prices or ethanol demand

While the price of corn rose by nearly $2.00 per bushel between January 2006 and March 2007, prices for food staples have remained relatively stable over the past year. Milk prices rose only $0.19 per gallon between May 2006 and May 2007, while the price of fresh chicken went up just $0.09. In fact, Americans are spending a smaller percentage of their disposable income on food than ever before.[6]

Corn inputs actually represent only a small fraction of total food production costs. For example, according to the National Corn Growers' Association, in 2004 feed grains accounted for less than 10 percent of the total input costs for every 100 pounds of gain on a feeder pig.[7] A wide range of other factors, including costs for transportation, packaging, labor, and marketing, play a significant role in determining the final food prices faced by consumers.

Furthermore, corn prices have little impact on food availability in the third world. The United Nations' Food and Agriculture Organization reports that food availability per capita is at an historic high.[8] Third world food shortages are largely due to political and social issues such as poverty, government corruption, and inefficient distribution.





Data from the past decade and from the past twelve months shows that food prices (measured by the food and beverage component of the Consumer Price Index) are not strongly correlated with the price of corn. The cost of food has risen commensurate with aggregate CPI. Deviations of both the food component and the aggregate CPI from their overall growth trends reflect major fluctuations in the cost of energy to a much greater extent than they reflect the volatility of corn prices.

Food Staple Price Comparisons, 2006 – 2007: *Compared to the rise in corn prices between 2006 and 2007, increases in food prices were minimal. While the price of corn rose by nearly $2.00 per bushel between January 2006 and March 2007, prices for food staples have remained relatively stable over the past year. Milk prices rose only $0.19 per gallon between May 2006 and May 2007, while the price of fresh chicken went up just $0.09.*

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[6] *Ibid.*
[7] *Ibid.*
[8] http://www.fao.org/AG/agp/agps/georgof/Georgo4.htm

	No. 2 Yellow Corn (bushel)	Milk (gallon	Cheese (lb)	Butter (lb)	Chicken, fresh (lb)	Turkey, frozen (lb)	Eggs (dozen)	Bacon (lb)	Ground beef (lb)	Non-diet soda (2 liters)
May 2006	*$1.98*	$3.07	$3.70	$2.97	$1.03	$1.08	$1.21	$3.31	$2.24	$1.08
May 2007	*$3.42*	$3.26	$3.74	$3.06	$1.12	$1.15	$1.50	$3.65	$2.31	$1.26

Source: Bureau of Labor Statistics (food prices, CPI data), Iowa Department of Agriculture (corn price)

"Higher corn prices are good for farmers and so are higher milk prices...they are not a big part of retail prices because raw materials are such a small portion of the retail price."

-Ephraim Leibtag, USDA economist, quoted in the Wichita Eagle, July 2007

Only about 20 percent of the U.S. consumer's food dollar goes to pay for the raw materials received from the farmer. The other 80 percent goes to food marketing services, including labor, packaging, transportation and energy.

Wichita Eagle, July 2007

Increases in energy prices… exert a greater impact on food prices than does the price of corn. A 33 percent increase in crude oil prices – which translates into a $1.00 per gallon increase in the price of conventional regular gasoline – results in a 0.6 percent to 0.9 percent increase in the CPI for food while an equivalent increase in corn prices ($1.00 per bushel) would cause the CPI for food to increase only 0.3 percent. – John Urbanchuk, agricultural economist, "The Relative Impact of Corn and Energy Prices in the Grocery Aisle," June 2007.

[H]igh energy prices have direct costs in outlays for fuel and electricity and indirect impacts, such as the cost of fertilizer needed to produce crops. These increase farm production costs but, more significantly, increase the costs of transporting, processing and marketing food products to the region's 2.7 billion consumers. – Pacific Economic Cooperation Council, November 2006.

Ethanol Pushing Popcorn Prices?

A recent headline article in Reuters blames raw popcorn price increases, paid to the grower, for the rising price of popcorn in stores and movie theatres. Here's what Brent Searle of the Oregon Department of Agriculture had to say in response:

"Check the price for microwave popcorn at costco.com ... $14.99 for a 24 package, about 6 lbs. of popcorn, or $2.50 per lb…

Note that the price to growers, as quoted in the article, went from 9 cents per pound to 13 cents per pound. That's an increase of about 3% of the retail cost to 5% of the retail cost. More than 95% of the retail cost is ADDED AFTER THE FARM!!!! Increasing the price paid to the grower a whole 4 cents per pound means roughly 25 cents additional for the 24 package box of microwave popcorn at Costco -- about ONE cent per package!"

For more on this issue, go to

Take a look at the Reuters article at *http://www.reuters.com/article/reutersEdge/idUSN1024930520070710*

… the base price of milk in California is calculated each month from a formula. State officials plug in the market prices for the four globally traded dairy commodities…The prices of two of these commodities -- milk powder and whey -- are very high right now, thanks to a supply shortfall driven by a variety of global trends, including dairy policies in Europe, a long-term drought in Australia, growing demand for milk powder in Asia and the rapid growth of cheese consumption in the United States…Corn is a staple feed on large dairy farms, and it is about 35 percent more expensive this year than last, largely due to the demand from new ethanol plants. But feed costs are not part of the formula that determines the price of milk, so there's no direct way for dairy farmers to pass on their costs to bottlers and consumers. – Sacramento Bee, June 27, 2007.

"While there has been much in the media on this issue [of rising tortilla prices in Mexico], no one in Mexico is pointing fingers at the United States…They recognize that this is a supply issue coupled with a political situation in Mexico." – Chris Corry, USGC Senior Director of International Operations, quoted in Ethanol Monitor, Feb. 2007.

The corn used for tortillas is white corn, which is a premium-priced product normally used for food for people, while much of the less expensive yellow corn crop is used for purposes like animal feed or making ethanol. – "Fed Up With Tortilla Costs" in Trade Observatory (a publication of the Institute for Agriculture and Trade Policy), April 2007.

In recent years advances in agriculture have led to the production of more food per capita, in both developed and developing countries… in 1990, the calorie supply at the global level was more than 110% compared with the total requirement. Enough food is now produced worldwide to provide sufficient calories for the entire human population, but distribution is uneven and inequitable. – "Regional Perspectives on Seed Security" (Report to the Food and Agriculture Organization), 1998.

While many people don't have the finances or resources to purchase or grow food, including 11 percent of Americans, ethanol production isn't the problem…Hunger is caused, primarily, by governments that haven't made it a priority to make sure all people have access to food. For example, during a famine in Africa, the country was exporting food while its own citizens died. – Food First Development Director Marilyn Borchardt, referenced in Ethanol Producer Magazine, September 2006.

"While some envision a severe food-for-fuel tradeoff with expanded biofuel production, I envision a milder effect." – Siwa Msangi, International Food Policy Research Institute, quoted in Ethanol Producer magazine, September 2006.

While there is plenty of rhetoric in the media about higher corn prices due to ethanol causing higher consumer food prices, nearly all the evidence points to other factors. The reality is that to date higher corn prices have had very little impact on consumer food prices. At some future date higher corn prices will probably be more of a factor in rising food prices, but even then the increases are likely to be moderate and extended over a period of several years. Finally, any increase in food prices will be more than offset by the diversification of our energy supplies, lower farm program payments and the improved environmental effect of utilizing ethanol. It is a win-win situation for consumers, farmers and taxpayers.

- Terry Franel, Senior Economist, American Farm Bureau Federation, July 2007

3. Higher corn prices and increased demand for U.S. corn benefit rural Americans, third world farmers, and the U.S. taxpayer

Higher corn prices have provided a much-needed boost to rural economies, stabilizing farmers' incomes and helping to ensure the future of America's food supply. As farmers' market profits increase, farm subsidies will constitute a smaller burden on American taxpayers and federal resources. Federal subsidies to farmers, which are tied to commodity crop prices, are expected to drop by over $6 billion – nearly 75% - between 2006 and 2007.[9] The benefits of ethanol production also accrue to farmers in developing countries, as the US ethanol market absorbs grain surpluses that would otherwise be dumped on the international market, giving small third-world farmers a better chance of staying in business.

And the world is changing around us. We are now in a much stronger farm economy than we saw in '01 and '02 …Farm cash receipts should reach a record $259 billion in '07; that's up $20 billion from just two years ago and up $16 billion from just last year. Those are very large jumps…the demand for energy crops is literally transforming rural America.

– Secretary of Agriculture Mike Johanns, March 2007.

…higher agricultural commodity prices are a boon in many ways. Corn farmers are having a rare period of prosperity, and the federal government is getting a break. In 2006, Uncle Sam gave corn farmers $8.8 billion in subsidies. Thanks to high corn prices, subsidies are expected to drop to $2.1 billion in 2007. 'All the price-dependent spending is getting wiped out' explains the USDA's [chief economist Keith] Collins.

[9] http://www.businessweek.com/magazine/content/07_06/b4020093.htm?chan=top+news_top+news+index_top+story

- Business Week, Feb. 2007.

Potentially, using up surplus grain supplies in developed countries for biofuels could actually have a positive impact on the problem of hunger in poor countries… If rich countries were no longer dumping cheap food on the commodities market, farmers in developing nations would have a better chance of staying in business.

- Suzanne Hunt, Worldwatch Institute Biofuels Manager, referenced in Ethanol Producer Magazine, September 2006.

Higher world corn prices and smaller export supplies may increase the profitability of corn production in certain developing countries, stimulating an increase in their corn output"

- Cassman, et al, "Convergence of Agriculture and Energy: Implications for Research and Policy," College of Agricultural Science and Technology, November 2006.

"[biofuel] could be a lifesaver for Third World countries…It can help keep farmers on the land without providing huge public subsidies."

– David Morris, Institute for Local Self-Reliance, quoted in Business Week, Feb. 2007.

4. Ethanol processing is a value-added component of the food cycle.

Only the starch component of corn – about 70% of the kernel - is used to produce ethanol. Protein, fats, and nutrients all go toward production of distillers grain, a livestock feed used in the cattle, sheep, pork, and poultry industries. In removing the starch, the ethanol production process leaves behind a feed with a nutritional value 120 to 130 times that of the original corn.[10] Given that corn used to produce ethanol is primarily destined for livestock rather than human consumption in any case, ethanol production merely concentrates the feed, and does not remove protein or nutrients from the food cycle.

Every 56-pound bushel of corn, which produces about 2.8 gallons of ethanol, also generates 17 to 18 pounds of distillers grain.[11] United States ethanol plants are expected to produce 17 million tons of distillers grain by 2012. As demand for livestock products rises worldwide, and particularly in Asia and the third world, distillers grain has increased in importance as an export product. Livestock producers in Mexico, Taiwan, China, Japan, and the European Union all have the potential to absorb significant quantities of US-produced distillers grain.

Protein, which is left intact by the ethanol process, is a highly valued product in world food and feed markets. Conversely, starch is abundantly available and lower in value.

– National Corn Growers' Association, November 2006.

The protein, fiber, germ, vitamins and all the nutritional parts of the grain remain in the distillers grains (DG). Now, in most cases in the U.S. today, that DG is used as livestock feed and it puts pounds on livestock that in turn is slaughtered to become part of the food chain.

– Shirley Ball, Executive Director, Ethanol Producers and Consumers (EPAC)

Feed and residual use of corn rises only slowly in the baseline as increased feeding of distillers dried grains (DDG), a coproduct of dry mill ethanol production, helps meet growing livestock feed demand.

- USDA Baseline Projection, 2006

Distiller's Dried Solubles…is a rich source of vitamins, and is [low] in fiber and [high] in fat, yielding a DE value that is approximately 91% of that found in corn.

- University of Minnesota, College of Food, Agriculture, and Natural Resource Sciences

Two significant opportunities for expanding DDG export markets exist in Mexico. Hog growers there have expressed a keen interest in importing significant quantities of DDG to blend into their hog feed, and they have the infrastructure to handle it. The poultry industry, while having a less advanced

[10] http://www.rurdev.usda.gov/rbs/pub/sep06/measuring.htm
[11] http://www.ncga.com/news/OurView/pdf/2006/FoodANDFuel.pdf

infrastructure, is still very promising. The poultry market in the Veracruz region alone has the potential to displace 60,000 tons of corn per month…Importing processed feeds such as DDG does not require an import certificate and avoids the quota system that regulates the volume of Mexican corn imports.

- Anthony Crooks, USDA Agricultural Economist, September 2006

5. Corn-based ethanol production is an intermediate step toward cellulosic ethanol production, a technology that will meet fuel needs without compromising food supply

Today corn ethanol plays an important role in reducing reliance on foreign oil, reducing air pollution and greenhouse gas emissions, and stimulating rural economic development. But in the long term, new technologies are necessary to meet rising demand for renewable fuels. Cellulosic ethanol is a critical part of that future. Converting one billion tons of cellulosic biomass such as trees and agriculture waste into ethanol would displace 30 percent of US petroleum consumption – and land resources in the United States are sufficient to produce 1.3 billion tons of biomass per year without encroaching on parks, reserves, or area currently planted to food crops.[12] Cellulosic ethanol also offers tremendous environmental benefits. Life-cycle greenhouse gas emissions from cellulosic ethanol are 80 to 90 percent less than those from gasoline.[13]

The producers, investors, and infrastructure that support the corn-based ethanol industry will ultimately play a key role in facilitating a production of fuels from cellulosic biomass. Ethanol producers are already investing in cellulosic ethanol research and production. With support from the US Department of Energy, producers of corn-based ethanol have begun to plan demonstration facilities that will serve as precursors to commercial-scale cellulosic ethanol plants. As new technologies become commercially viable, ethanol producers will be able to diversify their current operations to accommodate national and global demand for both food and fuel.

…making ethanol from cellulose dramatically expands the types and amount of available material for ethanol production. This includes many materials now regarded as wastes requiring disposal, as well as corn stalks, rice straw and wood chips or "energy crops" of fast-growing trees and grasses.

– Renewable Fuels Association

Since [energy, fertilizer, pesticide, and herbicide] inputs are very low in the case of cellulosic ethanol…net greenhouse gas emissions are also very low. Several detailed life cycle studies have concluded that greenhouse gas emissions accompanying use of cellulosic ethanol are less than 10% accompanying use of gasoline, and zero or negative net greenhouse gas emissions have been estimated for some scenarios.

– "Cellulosic Ethanol Fact Sheet," National Commission on Energy Policy Forum, June 2003.

… we're giving a very high priority to research into ways to make cellulosic feedstocks, such as grasses, and woodchips and agricultural waste, a cost-effective alternative… in making ethanol and biodiesel fuel.

– Mike Johanns, United States Secretary of Agriculture, March 2007.

Collocating a cellulosic ethanol refinery at the site of an existing corn ethanol plant is a good way to edge toward commercialization…[Javier] Salgado [CEO of the Abengoa Bioenergy Business Group], said he believes the integration of starch and cellulosic technologies into hybrid biomass plants is the strongest solution to the economic challenges preventing the proliferation of ethanol from biomass. "Our hybrid plant concept lowers the technology risk and the capital requirements—essential for an economically viable project—to secure financing in the marketplace," he said.

– Ethanol Producer Magazine, December 2006.

Ensuring the economic and environmental sustainability of the corn-ethanol industry is a critical foundation to support development of a viable cellulosic industry.

[12] http://www.ethanolrfa.org/resource/cellulosic/
[13] http://grist.org/news/maindish/2006/12/04/montenegro/

- Cassman, et al, "Convergence of Agriculture and Energy: Implications for Research and Policy," College of Agricultural Science and Technology, November 2006.

FURTHER READING

For background on this and other ethanol issues, please consult the following sources:

United States Department of Agriculture: www.usda.gov

Renewable Fuels Association: www.ethanolrfa.org

Canadian Renewable Fuels Association: http://www.greenfuels.org/ethanol/food.htm

Pacific Economic Cooperation Council: http://www.pecc.org/food/

Food and Agriculture Administration: www.fao.org

National Corn Grower's Association: www.ncga.com (for information on the food vs. fuel debate, visit http://www.ncga.com/news/OurView/2006/05_24_06.asp
or consult http://www.ncga.com/news/OurView/pdf/2006/FoodANDFuel.pdf)

Agricultural economist John Urbanchuk on relative impacts of corn and energy prices on food costs: http://www.ethanolrfa.org/objects/documents/1157/food_price_analysis_-_urbanchuk.pdf

Text of Agriculture Secretary Mike Johann's remarks on the 2007 Farm Bill: http://www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB/.cmd/ad/.ar/sa.retrievecontent/.c/6_2_1UH/.ce/7_2_5JM/.p/5_2_4TQ/.d/0/_th/J_2_9D/_s.7_0_A/7_0_1OB?PC_7_2_5JM_contentid=2007%2F03%2F0072.xml&PC_7_2_5JM_parentnav=ENERGY&PC_7_2_5JM_navid=NEWS_AUSUMS

The American Farm Bureau on corn and food prices: http://www.tnfarmbureau.org/wcms/Editor/assets/Press%20Releases/Fuels%20versus%20Food%20or%20Rhetoric%20versus%20Reality.doc

Ethanol Producer Magazine: www.ethanolproducer.com

Bureau of Labor Statistics: www.bls.gov