Farmland
IN PERSPECTIVE

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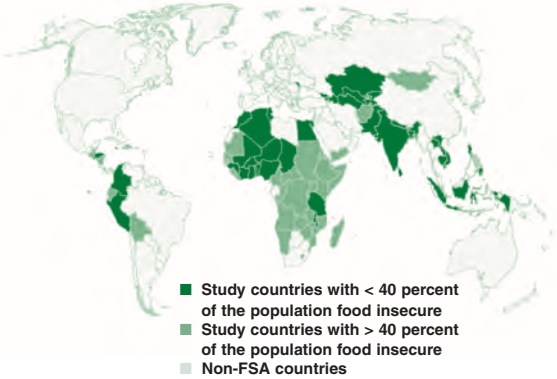
Food insecurity was concentrated in Sub-Saharan Africa in 2012

Nearly 400 million people in the 39 Sub-Saharan African countries analyzed by the Economic Research Service of the U.S. Department of Agriculture were estimated to suffer from food insecurity in 2012. This equals 42% of the population of these countries.

By contrast, 30% of the population in the 11 Latin American and Caribbean countries examined are food insecure. An estimated 18% of the population in the 22 Asian countries studied are food insecure. People are defined as food insecure when their estimated food availability falls below 2,100 calories per day.

Distribution of lower income, food-insecure countries, 2012



FSA = Food Security Assessment.
Source: Calculations by USDA, Economic Research Service.

How ethanol economics, energy policy and farmland values interrelate

By Wallace E. Tyner • James and Lois Ackerman Professor • Purdue University

Ethanol and energy policies affect corn prices, which in turn influence farmland prices. Let's review past activity, today's situation and what the future may hold.

Historical Perspective

The US fuel ethanol industry began in the early 1980s, stimulated by a subsidy provided by the 1978 Energy Tax Policy Act. For more than 30 years, federal and state governments have subsidized corn ethanol. When crude oil averaged $20 per barrel between 1983 and 2003, the subsidy was enough to slowly grow the corn ethanol industry.

Starting in 2004, oil prices began to rise, and the combination of higher oil prices and a subsidy keyed to $20 oil led to rapid growth in the industry. Then the Renewable Fuel Standard (RFS) mandated a certain quantity of different types of biofuels. Corn ethanol was mandated to reach 15 billion gallons by 2015; the total for all biofuels is to reach 36 billion gallons ethanol equivalent by 2022.

Between 2006 and 2012, the corn ethanol industry grew rapidly due to government incentives and high oil prices. At present, we have the capacity to produce about 14 billion gallons of corn ethanol. The industry will be unlikely to grow much in the future, unless production capabilities expand.

Cellulosic Biofuels

The biofuels sector hopes to see development of the cellulosic biofuels industry in the next decade. Cellulosic biofuels are liquid fuels made from any cellulosic feedstock such as corn stover, switchgrass, miscanthus, forest products and residues, and even municipal solid waste. Depending on the conversion process, cellulose can be converted to ethanol or to what are called drop-in fuels: direct substitutes for fossil-based gasoline, diesel, or aviation fuel.

These days, more interest is seen for drop-in fuels from cellulosic feedstocks than for producing ethanol for a number of reasons. However, uncertainties remain related to development of the cellulosic biofuels industry.

These uncertainties can be grouped into five categories:

- *Market conditions—what will be the future price of oil?*
- *Feedstock availability and cost*
- *Conversion technology and cost*
- *Environmental effects of a large-scale industry,* ***and***
- *Government policy*

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The cellulosic biofuel technologies become market-competitive at around $140 per barrel of crude oil. We are a ways from that today, so the only current market is created by government policy.

Feedstock cost is another big issue. Early U.S. Department of Energy (DOE) estimates put the feedstock cost at around $30/ton. Today's estimates range between $80 and $120 per ton, 3–4 times the early DOE figures. No commercial cellulosic biofuel plants are in place. Huge uncertainty exists regarding how well they will work and what the conversion cost will be.

Although most assessments of environmental effects show environmental benefits of cellulosic biofuels, unanswered questions remain regarding the environmental effects of a large industry such as that mandated by Congress.

Finally, government policy is highly uncertain. The books carry a cellulosic biofuel subsidy today, but it expires at the end of 2012 before any significant amount of cellulosic biofuel will be produced.

The RFS, established by Congress, has off-ramps, meaning it does not provide the iron-clad guarantee of a market needed by investors in today's environment. So indeed, government policy creates uncertainty.

Perhaps the military is the best prospect for development of cellulosic biofuels, as they want alternative fuels for national security reasons. However, so far, Congress has refused to grant the military authorization to pursue this pathway.

The major government policy in effect today is the RFS. But it is also subject to controversy. It creates a fixed demand for biofuels regardless of the price of corn or crude oil. Thus, in a drought year like 2012, the RFS (unless waived) holds the demand for corn for ethanol constant, and other sectors such as livestock and exports must handle more of the adjustment.

Ethanol policy is also subject to criticism that it increases food prices – the so-called food-fuel debate.

Renewable Fuel Standard

Given the 2012 drought, the EPA has been petitioned to waive all or part of the RFS for 2013 with a ruling on the petitions expected in November 2012. However, ethanol has become such a standard part of the fuel system that is it quite possible the oil industry could not or would not change their use of ethanol short term even if the EPA waived the requirement.

Even with $8 corn, ethanol is still quite a bit cheaper than gasoline, and it has added value for its high octane and fuel additive properties. A short-term waiver might not make much difference.

The ethanol blend wall poses a big issue. We consume about 132 billion gallons of gasoline type fuel per year in the US. The RFS for 2012 is 13.2 billion gallons, or 10 percent of the blended fuel. Most gasoline is blended at 10 percent, which has been the blend limit except for E85 used in flex fuel cars.

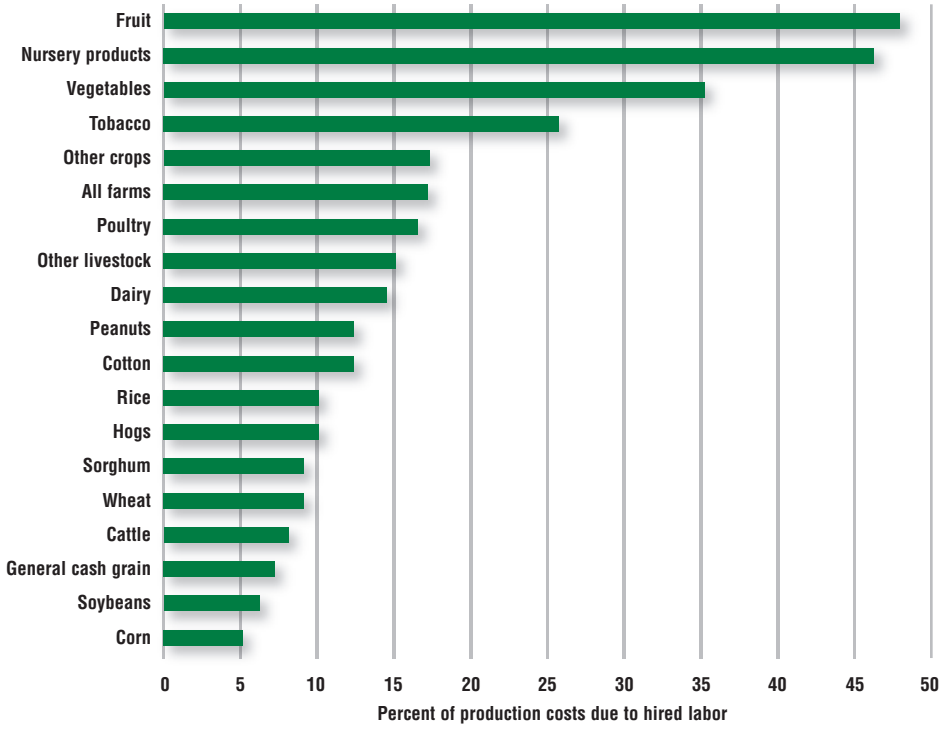
The E85 market is tiny and not expected to grow quickly. This year EPA approved E15 for 2001-and-newer cars, but it also is not expected to grow rapidly. In 2013, the RFS goes to 13.8 billion gallons – more than can be blended at 10 percent.

Fuel blenders have carry-forward credits that can be used to make up the difference, but those are expected to be used up in 2014–15. That means ethanol production will be constrained by the size of the domestic market – the blend wall.

Farmland Values

What does all this mean for farmland values? The surge in growth of demand for corn for ethanol is over. Commodity prices are likely to remain high for a year or two until buffer stocks return to normal, and that depends on weather in 2013

Hired labor accounts for a large share of production costs for some crops



Source: USDA, Economic Research Service using data from USDA's 2006–10 Agricultural Resource Management Survey.

and 2014. After that, yield growth will slowly reduce the fraction of corn going to the ethanol market, as ethanol demand stays constant while other demands grow.

Uncertainty exists as to what will happen to the RFS. Pressure exists to change or eliminate it, but there are strong arguments on both sides of the issue. Without the RFS, there is a good chance ethanol production would diminish over time, although even that is not certain.

Since land gets its value from the expected income it produces, with the ethanol boom having peaked, it is likely that the land boom also will weaken to the extent it has been driven by higher prices partly induced by corn ethanol.

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Weather impacts commodity prices

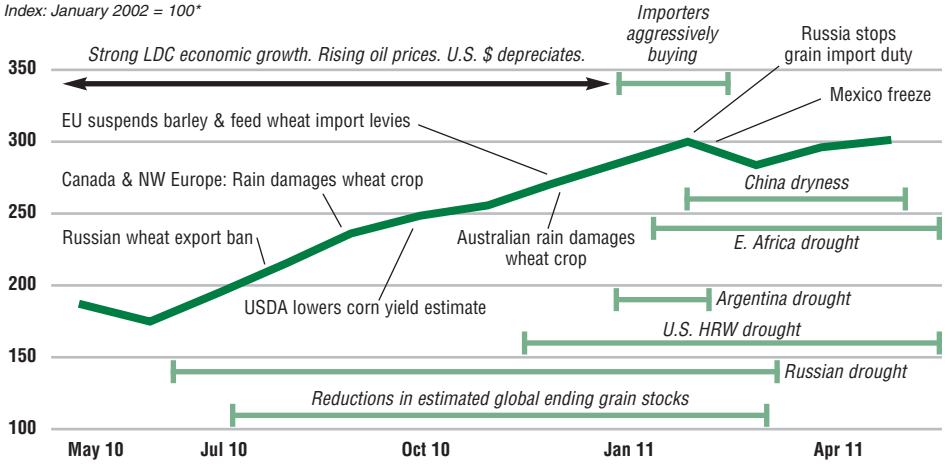
During periods of significant increases in food commodity prices, the effects of weather on agricultural production typically are a major contributor to the price increases. That was true in 2010–11.

Beginning in June 2012, a series of adverse weather events were compressed into 10 months. Weather around the world was too dry, too wet, too hot, or too cold, sharply reducing expectations for 2010 global crop production and stock levels, which resulted in higher prices.

Similar production-reducing weather events occurred prior to the 2008 price peak, but they were spread over a 3-year period (2005–07). Consequently, expectations for world crop production dropped more quickly after June 2010 than during the 2005–07 price increases.

On the demand side, consumption of grains and oilseeds continued to rise. As a result, global stocks of aggregate grains and oilseeds declined and prices began to rise rapidly.

Adverse weather events were a major factor contributing to crop price increases



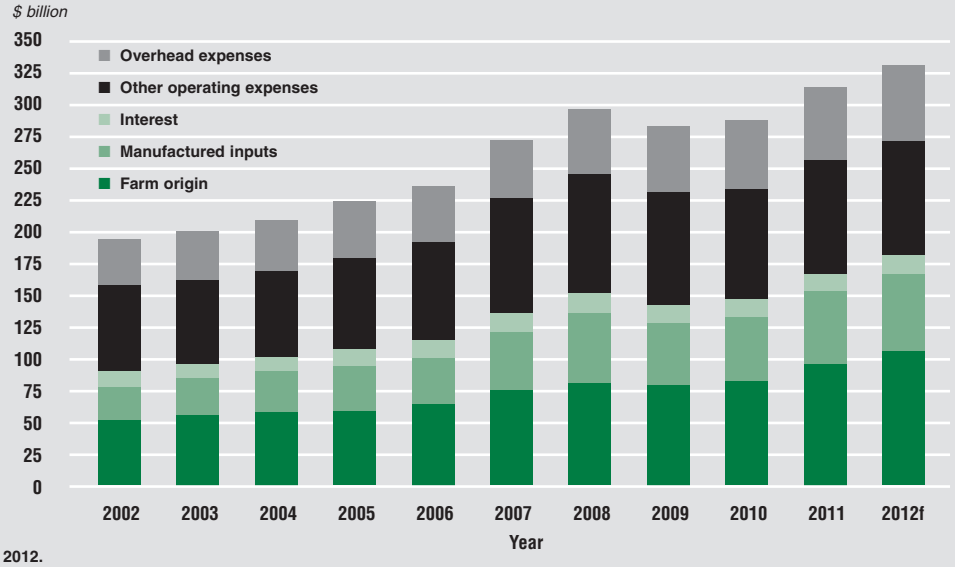
Notes: LDC = Less developed country.
HRW = Hard red winter wheat.
*** = Four-crop price index: Monthly wheat, rice, corn, and soybean prices, weighted by global trade shares.**

Source: USDA, Economic Research Service using International Monetary Fund, International Financial Statistics.

Farm production expenses post another increase

Total U.S. production expenses were forecast to rise $18.6 billion (6.0%) in 2012, following an 8.9% increase in 2011 and continuing a string of large year-to-year movements that have taken place since 2002. Farm-origin expenses and manufactured inputs have increased 116% since 2002, accounting for nearly 75% of the change in total production expenses during the period. The widespread drought is expected to affect production expenses principally through its impact on livestock feed. Most crops were already planted before the severity of the drought was established so only harvest-related expenses will be affected. Among livestock-related expenses, the price of feed is increasing – following a 20% jump in 2011, feed expenses were projected to rise another 13% in 2012.

U.S. production expenses climb to new record high in 2012



Source: Economic Research Service, USDA. Data as of August 28, 2012.

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