



Institute for Agriculture and Trade Policy

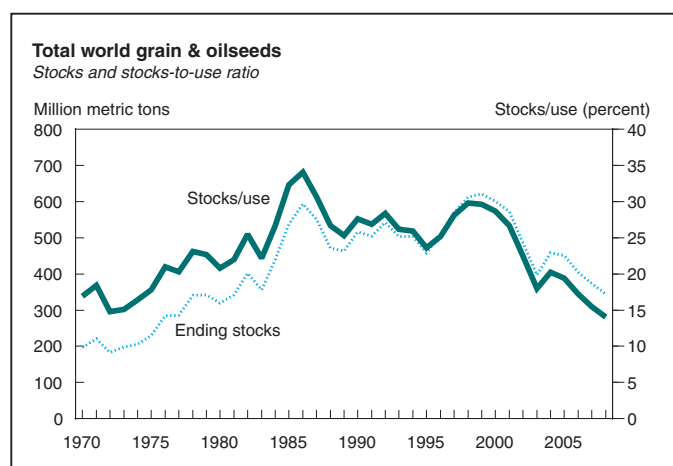
# Sustainable Agriculture Versus Unregulated Financial Markets

## Understanding the Food Crisis

The recent surge in food prices has made it clear that a food crisis can quickly put all other issues on the back burner. There are pressing environmental concerns about agriculture's contribution to greenhouse gas emissions, soil loss and water contamination, but these issues are ignored when food riots hit the news. Similarly, when agricultural commodity prices are too low, it's difficult to prioritize any food system issues except trying to keep farming financially viable. In the volley between high prices and low prices, long-term issues of resilience and sustainability are lost.

The volatility we're seeing in agriculture commodity markets is the result of major changes over the last 30 years. The world has become dramatically more globalized, and restrictions on trade have been significantly reduced. Additionally, domestic agriculture markets have been deregulated with the disappearance of supply management and antitrust enforcement. In theory, resources, capital and labor should now be much more efficiently distributed than in previous times. And food production and distribution systems should be more responsive to the market, and better meet the needs of farmers and consumers. But the theory hasn't proven true.

The dramatic increase in food prices in the past year is a clear example of what can happen when attempting to stuff the unpredictability of a biological system into an unregulated financial market. Some evidence, such as the stocks-to-use ratio of several commodities (which provides an indication of how well supply is meeting demand), indicated as far back as 2002 that the global availability of grain was declining, but it did not prompt an adequate increase in production levels. World production levels continue to increase for most crops in most years, but not at the scale needed to keep pace with the growth in demand. Earlier this year concerns about grain availability shifted to panic in some locations, causing unrest in Haiti, Malaysia and Bangladesh.<sup>1</sup>



SOURCE: USDA, ECONOMIC RESEARCH SERVICE

In an era when we have vastly superior global food chains, unprecedented global communications through the Internet and cell phones, and a plethora of multi-lateral and bilateral trade agreements that have reduced barriers to trade, shouldn't agricultural commodity markets be much more efficient than in the past?

There is some consensus on the main drivers contributing to rising food prices:<sup>2</sup>

- ◆ Growth in overall demand for agricultural commodities due to population growth, increased meat consumption and emerging industrial uses of these commodities.
- ◆ Increase in fossil fuel prices, a major cost in agricultural production.
- ◆ Weather and crop disease issues that reduced production in recent years.

- ◆ Depreciation of the value of the U.S. dollar (and as commodities are usually priced in dollars, the cost of these commodities rise).
- ◆ Government intervention into commodity markets through the subsidization of biofuels and other agricultural policies.
- ◆ Increased price volatility due to expanding trading volumes by speculators.
- ◆ Lagging investment in agricultural research and subsequent slower growth in agricultural productivity.

All these drivers have likely contributed to rising food prices, but the specific weight of each is impossible to determine.

More important than debating the relative weight of these factors, however, is the realization that a food system has evolved that is less resilient to these fluctuations. Many parts of the world have experienced unusual weather events over the past few years, for example, and bad weather can certainly be partly blamed for higher food prices. But bad weather is nothing new, and climate change raises the possibility of more extreme weather events in the future.<sup>3</sup> In fact, with a longer historic perspective and considering world wars, global depressions and environmental catastrophes such as the Dust Bowl, our current concerns with government policies and high petroleum prices look relatively minor. What will happen to food prices when energy markets, the financial sector and weather events become even more volatile? Is the global food and agricultural system evolving into one that has the resilience and long-term production potential to keep farming economically viable, strengthen soil and water resources, and keep people fed?

#### **The market limitations of agriculture**

Like any other industry, supply and demand are the critical drivers of agricultural commodity prices. Increases in commodity prices in recent years have created an incentive for farmers to produce more. The expansion, however, has come too slowly to adequately moderate price increases.

Why hasn't our increasingly deregulated trade and farming system helped to get price signals back to the producers? The problem is that the immediate nature of financial markets contradicts the annual nature of farming.

One of the most important decisions that a farmer makes is what to plant—a decision that can generally be made only once a year. Thus, at that point a farmer needs to analyze all of the available market data, the costs of inputs, soil fertility and disease issues in an attempt to estimate what crop will provide the best return anywhere from three months to a year later, and in the case of perennial crops, even longer.

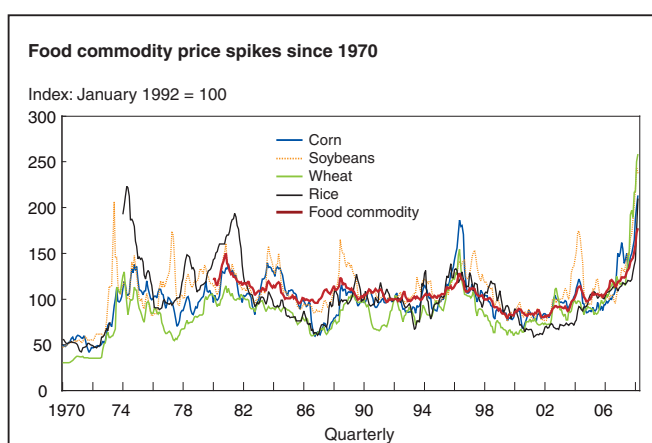
Farmers also have a sense of history that lends itself to being reserved about jumping on commodity price bandwagons. The price boom of the 1970s enticed Midwest farmers to take on too much debt, resulting in a bubble in land values and the farm crisis of the 1980s. A similar, but smaller, cycle occurred in the mid-1990s. Consequently, farmers have developed a healthy distrust in financial markets; \$6 a bushel corn in March does not necessarily mean anything about corn prices in October.

The market problem goes beyond the long lag times between planting decisions and harvest. In many ways, volatile market forces work against sustainable agriculture practices and the long-term productive capacity of agriculture. One of the basic tenets of sustainable agriculture is to have long crop rotations, so that farmers don't plant corn every year but rather, follow corn with a rotation such as a year of soybeans, a couple of years of wheat and three years of a perennial grass like alfalfa. That way, the soil doesn't become imbalanced from too many years of a high nutrient demand crop like corn, and the variety of crops inhibits the proliferation of insects and diseases. This well-documented science<sup>4</sup> of agricultural systems runs directly against the concept of farmers becoming more responsive to evolving markets. A farmer can incorporate a multi-year plan for his or her farm, or a farmer can make decisions about planting, fertilizing and harvesting based on current market forces, but he or she cannot do both.

### A short-term perspective hurts the environment

Farmers are therefore caught in a Catch-22. In order to maximize profits for themselves and keep global commodity markets functioning as needed, they need to respond to market forces. But in order to maximize the productivity of their land and maintain healthy soil and water resources, they need to respond to the needs of the biological farming system.

For many years, particularly since the creation of the World Trade Organization in 1994, conventional wisdom has been that reducing trade barriers and agricultural subsidies would make a more efficient agricultural system. The United States famously declared that it rid agriculture of government interference after the 1996 Farm Bill, known as Freedom to Farm. But despite the unleashing of these agricultural markets, commodity prices plummeted and generally remained below production costs from 1998 to 2004. Congress responded not by addressing the issues that were causing these market failures, but by substantially increasing government payments. In the past few years, commodity prices have jumped to levels that many consumer groups feel are excessive.



SOURCE: INTERNATIONAL MONETARY FUND, INTERNATIONAL FINANCIAL STATISTICS

Evidence suggests that excessively low and high prices can have adverse impacts on the long-term productivity of agriculture. Low commodity prices tend to drive more consolidation and industrialization of agriculture, as small farmers sell out to larger, better capitalized farms. The remaining farmers need to worry more about meeting the bottom line than maintaining soil quality and crop rotations.

High commodity prices provide tremendous benefits to agricultural economies, but can also strain environmental programs, anti-hunger efforts and other societal objectives. The U.S., for instance, has seen a significant decline in farmer participation in conservation programs (particularly set-aside programs) as farmers seek to take advantage of high prices by planting as much as possible.<sup>5</sup> High commodity prices also tend to lead to higher land values, which benefit land owners but are a hindrance to the growing number of farmers who rent much of their land.<sup>6</sup>

From a short-term, economic perspective, price fluctuations allow a market to get back into equilibrium. As is commonly stated, high prices are the solution to high prices. But from a long-term perspective, the damage from these price swings is not easily undone. The farmers who are driven out of business during periods of low prices don't come back when prices rebound. The land that is mined of nutrients takes years to recover. And the riots and panic that occur during times of high prices can be particularly damaging to developing countries.

Producing food is different from producing iPods. Free market policies simply do not provide the appropriate price signals to assure that agriculture can maintain its needed productivity decades into the future.

### Keeping agriculture productive

For too long, policymakers have pretended that free markets will magically create an efficient food and agriculture system. But it is not government intervention that is the primary obstacle to efficient commodity markets; it is the long-term, biological nature of agriculture. The years of good farming practices required to build soil quality and maintain clean water supplies do not fit well into the short-term, cyclical nature of commodity markets. Ignoring this fact hurts farmers with long periods of excessively low commodity prices, hurts low-income consumers with periods of high food prices, and impairs the natural resources that future generations will need to feed, clothe and power a growing population. Additionally, low commodity prices have reduced incentives for agricultural research and investment, as prices were too low to justify those investments. Some reports partly attribute current high prices to inadequate R&D funding in recent years.<sup>7</sup>

Grain reserves and other policies that moderate the volatility in commodity markets have fallen out of favor in recent years. But the fallout that we are experiencing from price swings demonstrates that these sound policies are needed more than ever.

### **Preparing for a future full of unknowns**

Amazingly, straightforward, market-oriented solutions to this conundrum already exist and have already been tested. When prices of key commodities such as corn and wheat are too low to keep agriculture economically viable, a government agency or some other entity can purchase the grains and keep them in storage, thereby reducing the supply and raising prices. When prices are too high for consumers, these stored grains can be released onto the market and increase the supply, which lowers the price. These policies provide farmers, consumers and investors with enough financial stability so that other important environmental and socioeconomic issues in agriculture can be prioritized. When the U.S. government utilized these programs in the 1940s and 1950s, it actually generated a profit—a markedly different scenario than the tens of billions that have been spent on agricultural subsidies in recent years.<sup>8</sup> Under those supply management programs, dramatically more federal money was available for agricultural conservation than in the current Farm Bill.<sup>9</sup>

The past two years of high agricultural prices have led to plenty of finger-pointing between public interest groups, such as anti-hunger groups working against renewable fuels advocates. While the differences in philosophy are very understandable, focusing on them takes our attention away from the elephant in the room: the fact that a few businesses, such as grain buyers and traders, can do well in a volatile marketplace but most everyone else suffers. Farmers work in annual cycles and cannot adequately respond to marketplace volatility, innovative agricultural researchers have a difficult time raising capital when investors are continually worried about price collapses, and developing countries are constantly given mixed signals about whether they should invest in domestic production (when prices are high) or import from wealthy countries (when prices are low).

The urgency to better understand and adapt to the instability of biological systems is growing. Many experts agree that climate change presents the most serious threat to long-term food security. Domestic and international agricultural policies should focus primarily on finding alternatives to agriculture's dependence on fossil fuel, developing climate-friendly agricultural fuel and energy sources, using agricultural soils to sequester carbon and adapting to future changes in climate. Not much progress can be made on this important issue when market failures keep policymakers focused on short-term food security. Concerns about food availability keep farmers and policymakers focused on maximizing current production, which means using conventional, energy-intensive production practices and not experimenting with alternatives.

Events over the past few years have challenged the conventional wisdom that the problem with agricultural commodity markets is government intervention. Misguided government policies have certainly contributed to market volatility, but agriculture's inherent dependence on the slow, volatile growth of biological systems appears to be the primary cause of commodity markets not functioning as hoped.

Our goal should not be to facilitate an unfettered, free market, but rather to create a market that maintains adequate food supplies, provides environmental services from agriculture, keeps farmers' and agricultural communities economically viable, and pushes agriculture to become more innovative, more productive and more sustainable. Managing the volatility in these markets, which provides farmers and consumers with a buffer against the unpredictability of biological systems, is a good step in the right direction.

## Notes

- <sup>1</sup> Anthony Faiola, “The New Economics of Hunger,” *Washington Post* April 27, 2008 <<http://www.washingtonpost.com/wp-dyn/content/story/2008/04/26/ST2008042602333.html>>.
- <sup>2</sup> Philip C. Abbott, Christopher Hurt, and Wallace E. Tyner, “What’s Driving Food Prices?” The Farm Foundation, July 2008 <<http://www.farmfoundation.org/news/articlefiles/404-FINAL%20WDFP%20REPORT%207-28-08.pdf>>.
- <sup>3</sup> William Easterling, Pramod Aggarwal, et al., eds. “Food, fibre and forest products,” *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, (Cambridge: Cambridge University Press, 2007) 273-313.
- <sup>4</sup> George Boody, Bruce Vondracek, David A. Andow, et al., “Multifunctional Agriculture in the United States,” *Bioscience* 55 (2005): 27-38.
- <sup>5</sup> Kerry Humphrey, “USDA Publishes Annual Report Online About Conservation Reserve Program,” USDA Farm Service Agency, June 3, 2008 <[http://www.fsa.usda.gov/FSA/newsReleases?area=home&subject=meda&topic=ner&newstype=newsrel&type=detail&item=nr\\_20080603\\_rel\\_1435.html](http://www.fsa.usda.gov/FSA/newsReleases?area=home&subject=meda&topic=ner&newstype=newsrel&type=detail&item=nr_20080603_rel_1435.html)>.
- <sup>6</sup> Mike Duffy, “Trends in Iowa Farmland Ownership,” *Iowa State University Ag Decision Maker Newsletter* October 2004 <<http://www.extension.iastate.edu/agdm/articles/duffy/DuffyOct04.htm>>.
- <sup>7</sup> Abbott, *op. cit.*
- <sup>8</sup> Daryll E. Ray, Daniel G. De La Torre Ugarte, and Kelly J. Tiller, “Rethinking US Agricultural Policy: Changing Course to Secure Farmer Livelihoods Worldwide,” Agricultural Policy Analysis Center, University of Tennessee, September 2003 <<http://agpolicy.org/blueprint.html>>.
- <sup>9</sup> Dennis Keeney, Mark Muller, and Heather Schoonover, “A Fair Farm Bill for Conservation,” Institute for Agriculture and Trade Policy, July 2007 <<http://www.iatp.org/iatp/publications.cfm?accountID=258&refID=99437>>.

For more on the food crisis, go to IATP’s Trade Observatory at [www.tradeobservatory.org](http://www.tradeobservatory.org).

*This fact sheet was authored by Mark Muller,  
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