

Big Biotech and the Global Food Crisis

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1. Introduction

The global food crisis is a phenomenon affecting hundreds of millions of people in primarily developing countries where doubling (even tripling) of food prices are crippling the survival of already impoverished individuals and families. Food riots have broken out in Egypt, Indonesia, Cameroon, Peru and Haiti and this process will most likely continue unless drastic steps are taken. In this paper I will outline the key causes to this global food crisis and in particular focus on the role of the Big Biotech companies, companies specializing in

producing new bio-fuels, higher yielding seeds, etc., in driving up food prices and seeking to find out to what extent the blame placed on these multinational corporations, is justified.

It is difficult to pinpoint exactly when the global food crisis began but last year of 2007, when India imposed export curbs to protect domestic supplies, was one of many warnings of what was to come. At the end of 2007, rice was priced at \$360 a metric ton. In April 2008, medium-grade Thai rice (considered a market benchmark) hit \$795 a ton; and further rises, up to 1000\$ a ton, is expected. Rice isn't the only soft commodity to experience a sudden price surge. According to the United Nations' Food and Agriculture Organization (FAO), food costs worldwide spiked 23 percent from 2006 to 2007. Grains rose 42 percent; edible oils 50 percent, and dairy products 80 percent. Corn, wheat and soybean futures have all set new records on the Chicago Board of Trade this past quarter. But rice is probably the most politically sensitive commodity on the market.¹

2. Key causes to the Global Food Crisis

2.1. Fossil-fuel-intensive farming, market volatility and 3rd world dependence

The U.S. and other developed countries have utilized a farming model in which farms are large, heavily mechanized and geared for export to distant markets. This model has destroyed many of the small-scale, local farms in developing countries that had the ability to grow food locally and sustainable; instead, food is 'dumped' abroad at prices below local prices putting small farms out of business. Also, these large farming and export-oriented complexes consume large amounts of fossil fuels in transporting massive amounts of food around the globe, in running mega-tractors, and in making non-organic fertilizer using natural gas. The price of food can therefore arguably be linked to the shifting, and rapidly rising, price of crude oil.

World markets within the agricultural industry are notoriously unstable and can fluctuate suddenly and it is the poor that bear the bulk of the costs. However, food and market conditions in less developed countries up until the 1980's were generally pretty stable with the countries producing food for their own consumption and more as surplus; used for stockpiling or export. In 1960, the developing nations of the world produced about \$7 billion more in farm products than they imported each year. But at the end of the 1970's and the beginning of the 1980's the tide was going to turn as many LDC's (less developed countries) found themselves in debt due largely to the oil crisis of the time which pushed up oil prices to then unprecedented levels. Experiencing major current account deficits many of these nations called for aid from the World Bank and the IMF. The structural adjustment programmes (SAP) were therefore set into place as a western remedy to the fiscal difficulties experienced by the LDC's and the policies enacted here would strongly influence the agricultural sector. The loan receiving countries were to stop using tariffs, quotas, and other policy tools that protected their farmers from being driven out of business by factory-farmed imports.

The World Bank pushed these policies through its economic advice and conditions for loans and aid. NAFTA, for instance, turned Mexico into a corn importer and drove more than a million '*campesinos*' off of their land,

¹ <http://www.cnbc.com/id/23992438/site/14081545/?site=14081545>

while the WTO required prospective members to abandon import quotas and other key parts of the poor-nation farm policy toolbox.²

2.2. Bio-fuel production and energy independence

In the face of record high oil prices, political instability in key oil rich regions in the world and an environmentally aware public, European governments and especially the US have become increasingly concerned with looking ahead and creating policies to move away from fossil fuel dependence to ensuring energy security. One key to this is diverting resources and focus towards the stimulation and production of other types of fuels organically produced and with alleged minimal negative environmental effects; ergo, bio-fuels. Regardless of whether bio-fuels (like ethanol made from corn, sugar cane or grain) are more environmentally friendly in terms of direct emissions than traditional fossil fuels (an open debate), the increasing conversion of arable lands of traditional food production into bio-fuel production is having a completely adverse impact on world food prices as less land is available for traditional production towards the world markets and therefore resulting in higher food prices.

In the US the prices of corn have risen dramatically in 2008 given the increasing demand for corn-based ethanol. The US turned 25% of its corn crop into ethanol in 2007 and projected that figure will rise to 30% in 2008. Ethanol plants are popping up all over the country because of the large amount of government subsidies given to farmers producing primarily corn/maize for bio-fuel production. Many farmers are positive to the development as they are now making up to twice as much money from a single bushel of corn. This is also supported by the fact that the US government and the EU have import tariffs in place towards cheaper ethanol from countries such as Brazil (The irony here is striking considering how these countries lecture LDC's about abolishing tariffs and import quotas to promote free trade). This year about a quarter of U.S. corn will go to feeding ethanol plants instead of poultry or livestock and this at the same time as global grain demand is growing. People who use corn to feed livestock are being squeezed by high corn prices and many pass the higher costs onto the consumers.

The US government has increased legislation through bills that require widespread ethanol use in motor fuels. A target set for 2015 includes the production of 15 billion gallons of ethanol, about 10% of total motor fuel. The bills consisted of a response from the Bush government towards those worried about energy security and who were becoming increasingly eager to substitute a home-grown energy source for a portion of U.S. petroleum imports. But much of the criticism has now turned towards increasing food costs. One could also debate the long term sustainability of the bio-fuel project when to fill one SUV tank with corn ethanol takes 450 pounds of corn—enough to feed a person for a year. U.S. ethanol production is estimated to have caused at least half of the rise in world corn demand for the last three years; corn is displacing wheat acreage on many U.S. farms.³

² Palmberg, Elizabeth, 2008, *A Human-made disaster*

³ http://www.washingtonpost.com/wp_dyn/content/article/2008/04/29/AR2008042903092_2.html?sid=ST2008042903585

2.3. Continuing depletion of grain reserves

Until the 1996 Farm Bill, the U.S. set aside grain reserves. Many other countries have also cut or eliminated their own reserves in recent years. The principle reason behind this action is that given the relatively interconnected global economy of today it is easier to import and produce large quantities of grain with modern technology than it was 50 years ago; the idea now being that grain can be provided quickly if needed. China still has grain reserve holdings of at least 30 percent of annual production—and, in the wake of the current crisis, you can however expect other countries to take a renewed interest in stockpiling for future emergencies and volatilities on the markets.

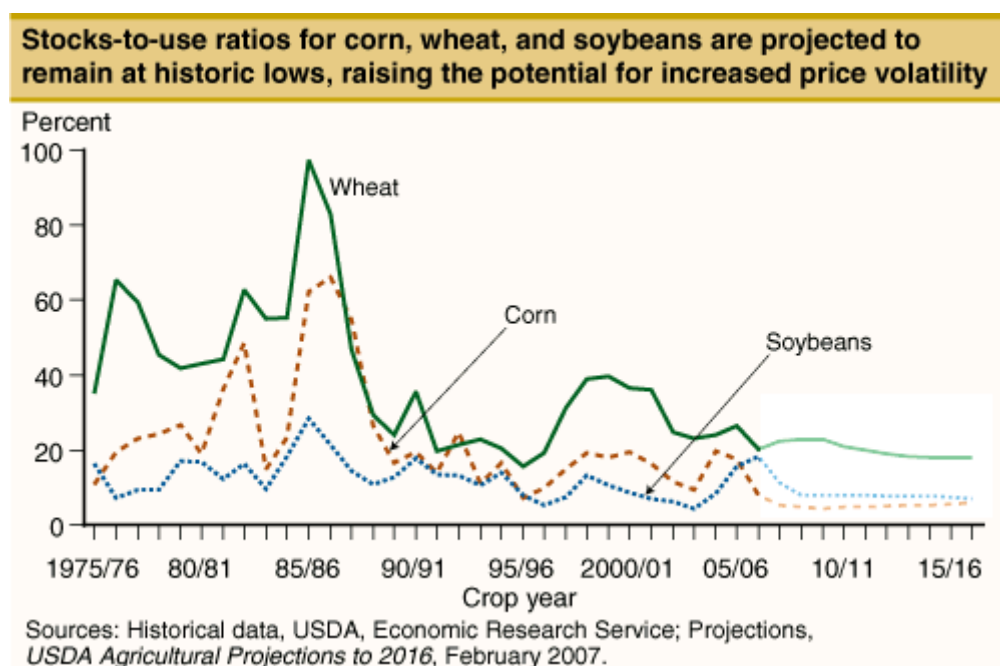


Figure 1

Figure 1 above shows how food stocks and reserves in the United States in relation to use are on a more or less steady decline since the 1980's. The Global food crisis will surely diminish these stockpiles further in terms of increasing foreign aid, food for fuel initiatives, etc.

2.4. Agribusiness (Big Biotech) and GMO's

GMO's (Genetically Modified Organism) can arguably be a method in creating larger food stocks in a time of global crisis but can in turn undermine locally produced agricultural products. In Mexico the traditional corn/maize production is under threat from GMO's coming in from the US under pressure from big biotech companies such as Monsanto. However, a counter argument is that the growing of GMO's is a necessary 'evil' to curb the global food crisis in creating larger yields (larger supplies) which in turn could push down prices. Many developing countries have been discouraged in planting GMO's in fear of economic sanctions from the

EU which is reluctant towards GMO's because of pressure on governments from a more agitated and environmentally aware populous.

But although GMO corn, for instance, remains officially banned in Europe, seven EU members will grow the modified maize this year which may be a sign that big biotech companies such as Monsanto are breaking down European resistance in the face of the food crisis.⁴

2.4.1. *Monsanto and Archer Daniels Midland*

The Monsanto Company is a multinational agricultural biotechnology corporation. Monsanto is by far the leading producer of genetically engineered (GE) seeds, holding 70%–100% market share for various crops. Agrateus, owned by Monsanto, exclusively produces soybean seeds for the commercial market. In March 2005, it finalized the purchase of Seminis Inc, making it also the largest conventional seed company in the world. Monsanto's development and marketing of genetically engineered seeds and bovine growth hormones have made the company controversial around the world in terms of their alleged negative effects on local crop yields (referred to as 'seeds of death' in India or 'semillas asasinas' in Mexico) and that they are making record profits from today's high prices on corn used for ethanol production.

In terms of Monsanto's influence on global food prices one should be prudent to draw too hard a conclusion of one company's role, but Monsanto has already increased the price of its corn seed by \$100 a bag, or about 35% since the food crisis began. So being a farmer with 1,000 acres in corn he will approximately be charged an extra \$40,000 this year. One wonders over the timing of this price hike and whether this was intentional by Monsanto considering it coinciding with the global food crisis. One can not deny the large profitability of the agribusiness which the food crisis has brought upon. For instance, *Monsanto's* net income for the three months ending in February 2008 was \$1.12 billion, more than double the year before. *Cargill's* profits in the first quarter of 2008 were more than \$1 billion, up 86 percent from a year earlier. *Bunge*, a big soybean processor, had quarterly net earnings up 1,964 percent. One reason for these profits is the lack of strong competition within the agribusiness sector. Just three companies (*Cargill*, *Archer Daniels Midland* and *Bunge*) dominate global grain trading. Four companies account for almost all fertilizer sold, and five companies control the world seed market. This oligopolistic market structure allow for measures to keep prices and profits high and therefore in turn minimizing farmers' profit margins.

So, as rising commodity prices are 'fueling' the global food crisis, ethanol producers like Archer Daniels, which uses corn to make fuel, are being criticized for this wasteful diversion of an important food resource. It's hardly surprising Archer Daniels is defending ethanol and other bio-fuels given that global demand for ethanol and other food products have helped push the Illinois-based company's stock 15% higher in the past year.

⁴ <http://www.soychicano.com/forums/showthread.php?t=42408>

3. Consequences of the global food crisis

3.1. Social and political unrest

According to the World Bank 33 countries around the world face potential social unrest because of the sharp hike in food and energy prices. In these countries food comprises from half to three quarters of consumption so there is little margin for survival. The World Bank reiterates that the first step should be to assist people with immediate needs. The UN's World Food Program requires at least \$500 million of additional food supplies to meet emergency responses. The US, the EU, Japan, and other donor countries are called upon to act soon to fill this gap to prevent further suffering.⁵



Figure 2

As can be seen by Figure 2 above, Africa has witnessed a number of riots and protests in response to the food crisis. The figure also shows the extreme price hikes of the three major food staples concerned.

3.2 Financial unrest

Rising inflation rates in the world economy is also exacerbating the food crisis.

The price of fertilizer has for instance risen over 400% in the past two years due to the increase in the price of natural gas, from which fertilizers are made. In the face of this, farmers costs are rising and families in the 3rd world are taking drastic measures to cope with less disposable income.

3.3. A rising occurrence of GMO's in food products

⁵ <http://www.crosswalk.com/news/11572379/>

The global food crisis has opened the door for GMO's becoming more and more accepted as a measure to stave off future food crises; as the promise of higher yields will appeal to many. Agribusiness such as Monsanto, Syngenta, ADM, etc., will be more difficult to resist. Monsanto announced that the company would be injecting millions of dollars in to public research on wheat and rice, and pledging to double yields on soy and cotton over the next 20 years. Some analysts are even saying that "there is no hope" for the food crisis without Monsanto's wares. So there will presumably be an easier and more pleasant environment for the biotech companies during and in the wake of the crisis on a national level to enable better food security in the future but consumers will continue to be wary of the health effects of bio-engineered products.

4. Conclusion/Solutions

Biotech companies/agribusiness are having an impact on perpetuating the global food crisis with more arable land being bought up and allocated for bio-fuel production (food for fuel) and raising prices of seeds and produce valuable for food production, and this is having negative repercussions on the world's poor in terms of social and political stability. Although biotech companies are not all to blame, as we have seen through other examples, they do play a significant role.

Assuming then that the biotech companies play an important role in the prolongation and the exacerbation of the global food crisis, two questions arise: What steps can be taken to minimize the risk of another global food crisis? Should we ban all production of bio-fuels? We are still exploring alternatives to fossil fuels and bio-fuels are a step in the right direction towards this end. Despite the dubious evidence towards the positive environmental effects of bio-fuels and the demonstrated negative impact it can have on world food prices, we currently lack concrete and viable alternatives to fossil fuels on a large scale.

But if bio-fuel production is to continue in its current capacity then what would be desired is greater regulation on the national, and if possible, on the international level. The fact that only a few major corporations, an oligopoly, control so much within the GMO's field and knowledge within the agricultural sector is worrisome (as we are seeing with Monsanto). Subsidies given to farmers/companies for ethanol production should also be decreased and trade restrictions of ethanol from other countries (such as Brazil) should be removed to open up the sector for competition and therefore more efficiency and lower prices.

Further research into cheaper and other alternative methods of fuel production should be top priority. The EU is in the forefront within this field but can do so much more. The US also needs to move itself in a direction further than its present course; the state of California is a potential leader in this respect.

End Note

It is important to remember that the development within the bio-fuel sector came about largely because of consumer demand and public outcry over high energy prices, the desire for energy independence and more environmentally friendly resources. So we should be aware of the role we ourselves play in creating change. So

just as easily as we can promote an introduction and development within the biotech sector, we can also stop this development if we believe that the negative consequences are too big to ignore.

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