



Diana Hernández Codero

BIOFUELING HUNGER:

How US Corn Ethanol Policy Drives Up Food Prices in Mexico

ActionAid International USA
Report
May 2012

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EXECUTIVE SUMMARY

Tens of thousands of people marched through the streets of Mexico City when the price of tortillas rose by 25% in late 2006. Mexico's tortilla riots were the first to make international headlines as a global food crisis unfolded in 2007-8. The global crisis ultimately pushed 100 million people into extreme poverty and elevated global food security onto the agenda of world leaders. Now with high prices again in the news, on the eve of the G20 summit in Mexico, are world leaders finally ready to take the steps necessary to tame rising global food prices?

There is widespread agreement among experts that the recent surge in global biofuels production has been an important contributor to the rise in global food prices over the last six years. When staple food crops are diverted to produce fuel, prices rise. These rising prices have in turn hit import-dependent developing countries hard.

In this report, ActionAid looks more closely at one import-dependent country — Mexico — and one crop — corn — to gauge the extent of those impacts. The increase in corn ethanol production in the US has contributed to rising corn prices in several ways. Not only do prices rise when food and feed crops are diverted for use as fuel, but they also increase as land is diverted from other crops to biofuel crops, and as inventories decline. As global corn prices rise, so too do the prices for Mexico's imports and for its own corn production.

We find that rising corn ethanol production in the United States, fueled by a deadly cocktail of subsidies, mandates, and rising oil prices, has increased Mexico's food import bill. In turn, this has pushed up prices for staple foods like tortillas, and increased hunger in Mexico. Specifically, we found that:

- Since 2005, US ethanol expansion cost Mexico between \$1.5¹- \$3.2 billion² in higher corn import prices — or on average between \$250-\$500 million per year. This represents 10-20 times the amount Mexico spends annually on its Sustainable

Modernization of Traditional Agriculture (MasAgro) support program for small maize and wheat farmers, which the Mexican government highlights as the country's path toward reducing import dependence.³

The rise of Mexico's import dependency, in large part due to the North American Free Trade Agreement (NAFTA), has left the country vulnerable to rising US corn prices. Since 1990:

- Mexico's agricultural trade balance swung from a small surplus to a \$2.5 billion deficit in 2011;
- Mexico's import bill from the United States soared from \$2.6 billion to \$18.4 billion in 2011; and
- Mexico's imports of corn went from 7% to 34% in recent years.

The rising price of US corn combined with the increase in Mexico's corn imports has directly impacted Mexican consumers. The price spikes of 2007-2008 hit Mexicans hard, in part because corn tortillas remain the most important staple food in Mexico, particularly for people living in poverty, accounting for an estimated 40% of the calories consumed in the country.⁴ Between 2005 and 2011:

- tortilla prices increased by 69%; and
- the cost of the basic food basket that a Mexican family consumes increased by 53%.

Rising corn prices, attributable in part to the increase in US corn ethanol production, are fueling hunger in Mexico. In 2011, 56% of Mexicans suffered some period of food insecurity, and five million children are going hungry.⁵

In 2011, G20 leaders commissioned a report to review the key drivers of food price volatility, and the ten international organizations⁶ that authored the study identified biofuels as a key driver — and urged G20 countries to eliminate artificial incentives that encourage biofuels production. The G20 chose to ignore its own report.

With the 2012 Los Cabos summit approaching, the Government of Mexico is in a position to move the

world beyond analysis and towards action on biofuels. Mexico is an excellent case study of how rich country biofuels contribute to rising food prices and import costs. As chair of the G20, the Mexican government can take the lead in putting an end to the biofueling policies of hunger once and for all.

As this report shows, US biofuels policies are costing Mexico dearly, just as similar policies by other G20 members are affecting the world. Mexico should use its position as chair of the G20 to put biofuels policy on the table in Los Cabos.

We are calling on the G20 member countries to:

- Remove artificial incentives that promote biofuels expansion in order to protect food security and reduce food – fuel competition over land resources.
- Address import-dependency that leaves countries vulnerable to food price volatility by investing in small-scale producers, especially women, and in sustainable, agro-ecological farming methods to cultivate staple crops for internal consumption.

Mexico should lead this conversation in the G20 and model this approach by making the following commitments in its own policies. We encourage Mexico to:

- Invest significantly more in small-scale agriculture, with an emphasis on agro-ecological models and women producers, in order to reduce import dependency, protect food security and promote economic development in local communities.
- Demand of its principal trading partners that they adopt biofuels policies that do not increase the cost of basic staple foods.
- Maintain strong biofuels regulation that prohibits the use of corn for fuel and enhances biofuels policies by prohibiting land use changes from food crops to the production of fuel crops.

The US can also be a model for a better balance between food and fuel policy. The US has already abandoned the biggest ethanol subsidy and tariff, but can take the next step by removing volume targets for corn ethanol and reversing the decision to blend greater amounts of ethanol with gas.

INTRODUCTION

The 2008 global food crisis which pushed 100 million people into extreme poverty and sparked riots in over 30 countries around the world was followed all too quickly by another round of rising global food prices in 2010-2011. In late 2010, an additional 44 million people dropped below the extreme poverty line. In 2011 the deadly combination of drought, bad governance, and high food prices gave rise to a famine in the Horn of Africa, and most recently low yields and high food prices have sparked the 2012 food crisis in the Sahel region of West Africa.

There are many causes of increased global food prices and volatility in agricultural commodity markets. In the latest round of food price volatility, climate change, structural changes in commodities markets, food and energy speculation, and longer term trends on both sides of the food supply/demand equation are driving prices up. On the demand side the causes are population growth, rising incomes and affluence, changing diets, and the increasing use of grain for biofuels to supply motor vehicles. On the supply side: soil erosion (exacerbated by climate change), aquifer depletion, loss of cropland to non-farm uses, plateauing crop yields and the growing impacts of climate change are all squeezing supplies, while steadily rising oil prices have increased production, storage and transport costs. A weak dollar, ultra-loose monetary policies, and an explosion of speculative activity on food commodity futures markets are also likely amplifying price movements.⁷

The interaction of these various factors has compounded the problem and pushed prices up, but there are three factors that rise to the top of the food-price challenge.

Climate Change

Extreme and unusual weather in key exporting countries and regions has led to crop failures and production shortfalls and downgrades this year, which have restricted supply and driven up global prices. Scientists at Stanford University estimate that global warming is already cutting substantially into crop yields, with recent models indicating that global corn and wheat production declined by 3.8% and 5.5%, respectively, between 1980 and 2008.⁸ It is estimated that climate change adds approximately 6% to the cost of wheat and corn.⁹

Excessive Commodity Speculation

Excessive speculation on food commodity markets is believed to have played a “significant role” in increasing food prices and price volatility during the 2007/8 food price crisis.¹⁰ A special session of commodities experts at FAO in October 2010 concluded that speculation was one of the “main factors” behind the recent escalation in food prices.¹¹

The deregulation of commodity markets in the US allowed a rapid influx of such large sums of money into these relatively small markets, which “accelerated and amplified price movements” in food commodity markets between 2002 and 2008, according to UNCTAD.¹² Holdings in commodity indices jumped remarkably from \$13 billion in 2003 to \$400 billion in 2011¹³, and Barclays Capital estimates that \$60 billion was injected into commodities funds alone in 2010 — with much being placed by speculative “momentum investors”¹⁴.

Global Demand for Biofuels

The third factor is the stronger global demand for biofuels. It is this factor on which this report focuses. The food-versus-fuel debate has gained particular urgency in recent years and the diversion of a large and increasing share of US corn to ethanol production has drawn particular attention, and deservedly so. Unlike most other biofuel crops, corn is one of the key staple food crops in the world, the primary source of calories and nutrients for nearly one billion people worldwide. Corn is also one of the most widely used feed crops for animals, so its availability and price

have direct impacts on the price of dairy products, eggs, and meat. The United States is at once the world’s largest producer and exporter of corn, so what happens to US corn quickly affects prices worldwide.

Encouraged by a set of government policies in the last decade to encourage the production of ethanol, the United States quickly became the world’s largest corn ethanol producer, with ethanol elsewhere produced primarily from sugar cane. More than 40% of US corn is now consumed in the production of ethanol, up from just 5% a decade earlier. This represents an estimated 15% of global corn production. This rapid expansion coincided with the global food price crisis, which drove agricultural commodity prices to record highs in 2007-8. The price spikes sparked food riots and political instability in much of the developing world. Prices spiked again in 2010-11. While most agricultural commodity prices have come down from those peaks, corn prices remain stubbornly high (see Figure 1).

FIGURE 1
International Maize Prices
(2000-2012)



SOURCE: Global Maize Prices from <http://www.indexmundi.com>; tick marks are for January of each year.

Few dispute the importance of biofuels expansion to rising agricultural commodity prices. This occurs on a number of related levels:

- The direct impact as food and feed crops are diverted for use as fuel, as with corn for ethanol.

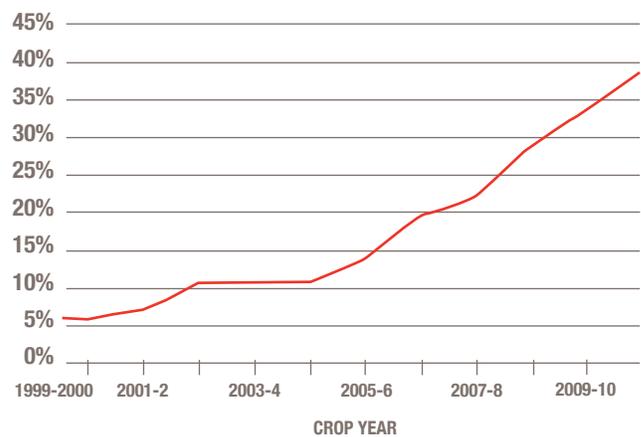
- The scarcities and higher prices resulting from the diversion of land from other crops into the higher-priced biofuel crop, such as soybean land going into corn when corn prices are particularly high, which tends to push up soybean prices.
- The related rises in prices for food crops that can serve as dietary substitutes, as demand for wheat, for example, increases when rice prices increase and demand goes down.
- The rise in the value of agricultural land, for biofuel and food/feed crops. Biofuel expansion contributes to increases in the value of land, creating both practical and speculative incentives to buy up land. The recent wave of “land grabs” in developing countries by resource-poor governments and international financial investors is the most worrisome expression of this trend.
- The strain biofuel demand places on inventories of key food staples. As inventories decline to dangerous levels, as they have in recent years, global markets (and prices) are more vulnerable to both sudden drops in supply (e.g., drought in key exporting country) or unexpected increases in demand (e.g., rising imports after a crop failure in a large importing country). Weather-related crop failures are on the rise, and they are expected to increase in frequency and severity with climate change.
- A rise in speculative buying and selling, which adds to price volatility in tight markets. Large volumes of financial assets have flowed into agricultural commodities markets since the financial crisis hit in 2007. Low inventories, partly due to biofuels, make such speculation more profitable for financial investors who gain from short-term price movements. This adds to price volatility.

It is impossible to isolate the impact of biofuels expansion on all these levels. But a recent report from Tufts University¹⁶ took on a simpler task. Researchers examined the expansion of one particular biofuel — corn ethanol — in one country — the United States — and estimated the resulting impacts on the prices for one crop — corn — and on the import costs for one country — Mexico. The results certainly understate the impacts, but their greater precision gives us a more reliable gauge that has implications well beyond corn and Mexico.

OVERVIEW: ETHANOL, BIOFUELS AND FOOD PRICES

Since 2000, the United States has seen increasingly rapid growth in the amount of corn used to produce ethanol. At 13.8 billion gallons, corn ethanol use today is nearly nine times what it was in 2000, while the share of US corn going to ethanol has risen from 5% to 40% in the last twelve years (see Figure 2). The increases have been particularly sharp since 2004, and they have coincided with recent food price increases.

FIGURE 2
Ethanol Share of US Corn Production



SOURCE: US Department of Agriculture, ERS, Feed Grains.

Ethanol expansion has been encouraged by several government policies, including a protective tariff, a tax credit, and a consumption mandate. The tariff protected the domestic ethanol industry from foreign competition by imposing a \$0.54 tax on imported ethanol from non-NAFTA countries, such as sugarcane ethanol from Brazil. Additionally, ethanol benefited from a sizable tax credit, which existed in some form for more than 30 years, and afforded blenders of ethanol a \$0.45 tax credit. In 2011, the value of this credit was estimated at \$6 billion. On top of this, the industry is supported with the Renewable Fuel Standard (RFS), which developed originally in 2005 and was expanded six-fold in 2007. The 2007 RFS mandates the consumption of an increasing amount of biofuel each year, culminating in 2022 with a 36 billion gallon mandate, at least 15 billion gallons of which can be produced from cornstarch. The remaining gallons are supposed to be filled with so-called “advanced” biofuels, including 16 billion gallons of

cellulosic biofuels, but as that industry continues to be slow to develop, it is unlikely that the United States will be able to fill that mandate by 2022.

Another important policy related to ethanol in the United States is “the blend wall,” or how much ethanol can legally be blended into a gallon of gasoline. While at present, the limit is 10% (known as E-10), the EPA has approved a petition to increase this limit to 15% (E-15) and has begun to register producers, making it possible that E-15 could be on the market in some places by the summer of 2012. Because E-15 is not compatible with certain engines, it remains unclear how much this will boost ethanol demand. Other minor forms of support — through loan guarantees, grants and other tax credits — also continue to subsidize the industry.

The US Congress declined to extend the tax credit and tariff at the end of 2011, but the RFS and blending mandate remain, keeping a floor beneath ethanol demand. Corn ethanol expansion could slow in coming years. Most agree that while government policies were key to the rapid expansion of corn ethanol in the United States, high oil prices now make ethanol a competitive substitute for gasoline. But the RFS may well stimulate continued corn ethanol expansion, as would moves toward a 15% blending wall.

Many researchers have attempted to estimate the impact of biofuels expansion on recent increases in food prices, and some have looked specifically at US expansion of corn-based ethanol. A recent report published by the National Academy of Sciences synthesizes the conclusions of eleven studies that examined the 2007 food price spikes, finding a range of 20-40% percent increase in commodity prices as a result of biofuels expansion internationally.¹⁷

This seems a good characterization of the literature, including studies that incorporate data from more recent years. For example, researchers at Purdue University in two different studies estimated high price impacts from US ethanol policies and expansion, accounting for as much as one-quarter of the large price increases in 2008 and continuing impact since.¹⁸ In terms of impacts on corn prices, a 2009 study attributed 22 percentage points of the 2006-8 price increases to US ethanol expansion.¹⁹

Much of the range in the estimates relates to the assumed elasticities, the price responsiveness to

changes in supply and demand. Lower elasticities lead to higher estimated impacts, as small changes produce large price swings, common for many food crops. For example, researchers used relatively high elasticities to estimate that corn prices in 2007 would have been 12% lower without added demand from corn ethanol, but with lower elasticities the price impacts could have been 25-30%.²⁰

Biofuels are projected to continue expanding globally, and so are high food prices. One projection, for example, suggests that corn ethanol trends will push corn prices 12% higher in 2017,²¹ while another estimates that with continued biofuel expansion the export price of corn will be 18% higher in 2020 than it would have been without added biofuels demand.²²

MEXICO: A CASE STUDY

The Rising Cost of Import Dependence

Mexico serves as a useful case study of the costs of rising import dependence in today’s high-priced food environment. And because one of Mexico’s most important food imports is corn, Mexico also offers an opportunity to examine the ways in which US ethanol expansion contributes to higher food imports. Mexico now imports more than one-third of its corn, overwhelmingly from the United States under the trade liberalization negotiated as part of the North American Free Trade Agreement (NAFTA). Since 1994, when the agreement took effect and trade protections began to be removed, corn, other basic grains, and meats have flowed south from the United States. Meanwhile, Mexico has expanded its exports of fruits and vegetables to its northern neighbor. With the implementation of NAFTA and other complementary economic reforms, Mexico’s dependence on corn imports has grown from 7% in the early 1990s to 34% in recent years.²³

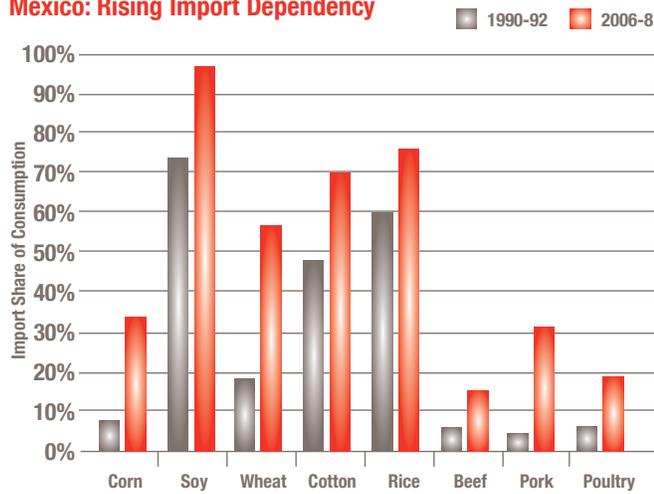
Corn is not the only agricultural product that has seen significant increases in import dependence. Import dependence in five key crops and three meats grew dramatically with the implementation of NAFTA (see Figure 3).

When NAFTA was negotiated, corn and most other agricultural commodities were relatively cheap. In fact,

agricultural commodity prices generally were mired in a decades-long slump, which ended only recently with rising prices in the mid-2000s, followed by sharp spikes in 2006-7 and 2010-11. Before then, importing corn was a relatively inexpensive policy option.

FIGURE 3

Mexico: Rising Import Dependency



SOURCE: USDA FAS Production, Supply and Distribution Online, 2009.

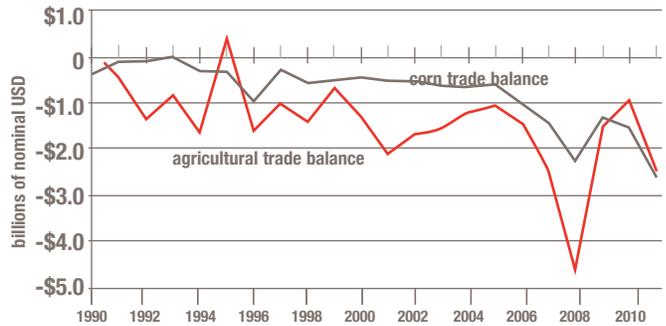
Rising prices changed all that. Mexico's food import bill just from the United States was \$2.6 billion in 1990, grew to \$6.4 billion in 2000, and by 2011 had jumped to a record \$18.4 billion. Even with the rapid increases in Mexico's agricultural exports to the United States, the country's agricultural trade balance worsened, going from a small surplus in 1990 to a deficit of \$1.3 billion in 2000, a disastrous \$4.6 billion in the food-spike year of 2008, and is still at \$2.5 billion in 2011. The costs of corn imports account for a rising share of Mexico's agricultural trade deficit, reaching \$2.6 billion in 2011. In the last two years, Mexico's corn import costs accounted for the entire agricultural trade deficit.²⁴ (See Figure 4.) Under NAFTA, the volume of imports had increased dramatically, and now so had the unit price.

The first price spikes hit Mexicans hard, in part because corn tortillas remain the most important staple in the Mexican diet, particularly for the poor. Though tortillas are made mostly from Mexican-grown white corn and imports are overwhelmingly yellow corn for animal feed and processed foods, rising international prices transmit to the Mexican corn market because white and yellow corn can be substituted in some uses. When imported yellow corn becomes

expensive, for example, livestock producers will feed domestically grown white corn to their animals. While there is usually a small price premium for white corn in the Mexican market, prices tend to move in tandem.

FIGURE 4

Mexico's Declining Agriculture & Corn Trade Balance (1990-2011)



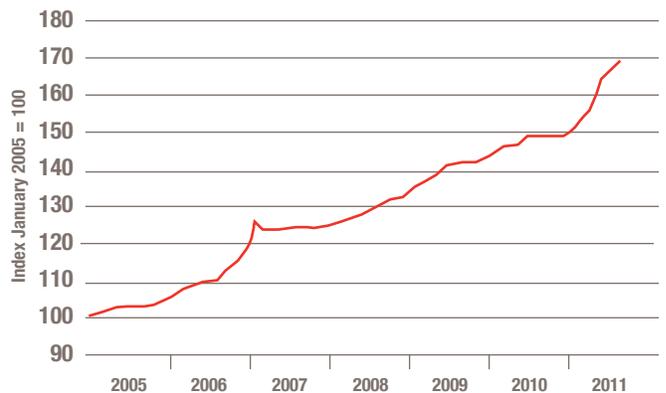
SOURCE: USDA FAS U.S. Trade Database. In nominal USD billions.

Tortilla prices spiked in 2007 during a wave of panic buying, producing widespread protests in Mexico. These led to government-imposed price controls, which were only partially effective. In nominal terms, the price of tortillas rose 69% from 2005-2011 (See Figure 5.)

While many farmers saw higher prices, a welcome change from the low prices they had received since NAFTA, the impacts on food security were significant. According to Mexican government sources, from 2006-2010, the poverty rate increased from 43% to 49% while the measure of extreme poverty jumped from 14% to 20%. The same agency estimated that 56% of Mexicans suffered some period of food insecurity in 2011, with 11% of the population reporting severe food insecurity.²⁵

FIGURE 5

Mexican Tortilla Price Index (2005-2011)



SOURCE: Banco de Mexico, Indice del precio al consumidor, tortilla, nominal prices.

Estimating the Cost to Mexico of US Ethanol Expansion

What share of Mexico's rising corn-import bill is the result of US ethanol expansion? As noted earlier, estimates of biofuels' contribution to recent price increases vary considerably. In general, they fall in a range of 20-40%, as the National Academy of Sciences concluded in its survey. The literature suggests that US ethanol is probably the most significant contributor among global biofuels.

To estimate the US ethanol impacts on corn prices, and their subsequent impacts on Mexico's corn import bill, we rely on recent results from a recent Tufts University study, using Bruce Babcock's "backcasting" model.²⁶ It covers multiple years (through crop-year 2009-10), it examines US corn ethanol in particular, and it estimates price impacts not just of US ethanol policies but separately the impacts of US ethanol expansion since 2004.²⁷

As the table shows, Babcock estimates that US corn prices would have been lower if ethanol had not expanded, with the price impacts growing from 2.5% in 2005-6 to 20.9% by 2009-10. The two biggest jumps were in 2006-7 and 2008-9. These percentages are generally consistent with the rising share of US corn going to ethanol. Tufts researchers used Babcock's estimates to extrapolate an additional year based on the assumption that the price impact varies in proportion to the share of corn going to ethanol. (The price estimate for 2010-11 is conservative because the share of corn to ethanol grew slightly in 2010-11, but the price impact is kept constant at 21%.²⁸)

The researchers calculated how much lower the average price would have been for each crop year if ethanol expansion had stopped at 2004 levels, then multiplied the savings per metric ton by the volume of Mexico's imports for each year. As noted earlier, during this period prices were rising and Mexico's corn imports were high, in part due to the full implementation of NAFTA at the beginning of 2008.²⁹

The results in the bottom line of the table show that US ethanol expansion since 2005 cost Mexico about \$1.3 billion in higher import bills. If we include preliminary estimates for the first six months of crop-year 2011-12 (September 2011-February 2012), assuming the same ethanol price impact (21%) as in the previous two years, we would add another \$254 million to this figure, as corn prices remained high and Mexico's import needs were large due to crop failures in parts of the country. **This would bring the total six-and-a-half-year cost of US ethanol expansion to Mexico to \$1.5 billion.**

Tufts researchers note that this estimate is likely to understate the cost, for a variety of reasons. First, Babcock's estimates of price impacts are on the low end of the 20-40% range suggested in the literature. And his estimates rise to the level of 21% only in 2009-10, while many researchers estimate 20-40% impacts starting as early as 2007-8. Because most of these estimates are for biofuels' contribution to food prices generally, one would expect estimates of the expansion of corn ethanol on corn prices to be among the larger of biofuel impacts.

Costs of U.S. Ethanol Expansion in Mexican Corn Imports, 2005-11

| | 2005-6 | 2006-7 | 2007-8 | 2008-9 | 2009-10 | 2010-11 | Total |
|--|--------|--------|--------|--------|---------|---------|--------|
| | (1) | (2) | (3) | (4) | (5) | (6) | |
| Average price (\$/bushel) | 2.00 | 3.04 | 4.20 | 4.06 | 3.60 | 5.18 | |
| Price w/o ethanol expansion (\$/bushel) | 1.95 | 2.64 | 3.76 | 3.30 | 2.84 | 4.10 | |
| Difference (percent) | -2.5 | -13.3 | -10.6 | -18.7 | -20.9 | -20.9 | |
| Difference (\$/bushel) | 0.05 | 0.40 | 0.44 | 0.76 | 0.76 | 1.08 | |
| Difference (\$/metric ton) | 2.0 | 15.7 | 17.3 | 29.9 | 29.9 | 42.6 | |
| Mexico: net corn imports (1000 mt) | 11,664 | 12,267 | 8,215 | 7,836 | 8,314 | 9,907 | 58,203 |
| Cost of US ethanol expansion (\$ millions) | 23 | 193 | 142 | 234 | 249 | 422 | 1,264 |

Sources: Prices from Babcock, "The Impact of U.S. Biofuels Policies on Agricultural Price Levels and Volatility," ICTSD, 2011 (column 6 extrapolated from Babcock); Mexico net imports: FAS.

Second, these estimates do not take full account of the extent to which US ethanol expansion contributed to price spikes, including from financial speculation, made possible by declining inventories. Corn inventories, in particular, were hard hit by the rapid rise in corn use for ethanol.

Third, McPhail and Babcock have estimated elsewhere that US biofuels policies make corn markets more susceptible to price volatility by reducing the price elasticity of demand for corn and gasoline.³⁰ Thus, ethanol expansion has an additional indirect effect on prices not captured in our estimates, making corn prices more volatile in the presence of other supply or demand shocks.

In fact, complex systems scientists from the New England Complex Systems Institute have recently employed a very different methodology to estimate the impacts of both ethanol expansion and financial speculation on corn prices. Drawing on a previously published model that quantifies the contribution of those two factors to overall food price movement in the last six years, researchers scaled the model to corn price movements and the impact on importing countries' costs. For Mexico they estimate that from 2003-4 to 2010-11 US ethanol expansion cost Mexico about \$3.2 billion, while financial speculation added another \$1.4 billion to the country's seven-year corn import bill. They estimate that US ethanol expansion raised prices and import costs 27% for the entire period, consistent with the range of estimates in the literature. Financial speculation added another 13%, with the largest share coming in 2007-8 when, according to their modeling, financial speculation alone increased prices and import costs by 80%.³²

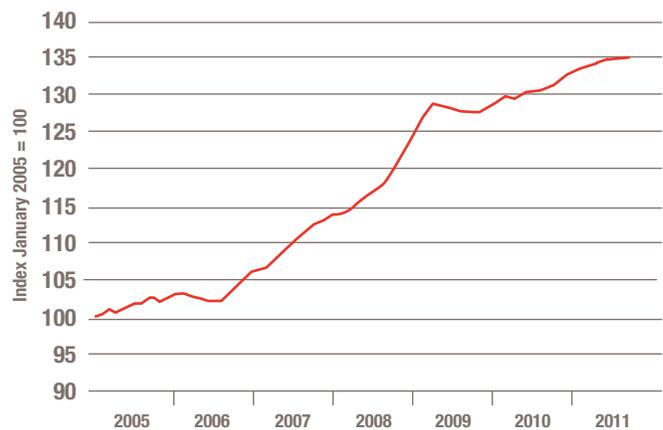
Food Price Implications

The most direct impact of higher corn prices is in higher tortilla prices. If ethanol expansion in recent years added 20% to the cost of corn, that would add about 14% to the cost of tortillas.³³ The average Mexican household spends 27% of its income on food; for poor families food can use up half their incomes.³⁴ According to some estimates, the recent food price increases effectively reduced poor Mexican household's food budgets by 18%,³⁵ so the food

security impacts, just through the corn-tortilla chain, are large.

Corn is also an important input in other foods, most notably meats and dairy products. Mexico's growing industrial livestock industry, particularly for pork and chicken, rely on (mostly imported) corn for feed. Rising feed costs have contributed to rising prices for all animal products. Meat and dairy prices in Mexico rose 35% from 2005 to June 2011 (the latest data available, see Figure 6).

FIGURE 6
Mexican Meat and Dairy Price Index
(2005-2011)



SOURCE: Banco de Mexico, Índice del precio al consumidor, meats and dairy, nominal prices.

Overall, Mexico's "basic food basket" saw increases of 53% from 2005-2012 (March), contributing to rising levels of poverty. This hits the poor, especially women and children, particularly hard. According to government estimates, five million children in Mexico suffer from hunger.³⁶

Unlike many import-dependent developing countries, Mexico still grows a lot of corn, so some members of society benefited from higher prices. Mexican corn farmers saw gains from higher prices and from ethanol's contribution to those prices. This reversed a long period of low prices. Elsewhere Wise estimated that from 1997-2005, when corn prices were generally low and when the United States exported corn on average at 19% below its costs of production, US "agricultural dumping" cost Mexican producers \$6.5 billion.

For import-dependent countries that no longer grow much of their own food, biofuel-induced price increases are simply a large net loss to society, straining government trade balances, using scarce hard currency, raising food prices for consumers, and driving up the cost of government safety net programs.

The policy goal, of course, is neither high nor low prices, but rather relatively stable prices that are remunerative for farmers and still affordable for consumers. US ethanol expansion has not contributed to achieving that goal, fueling significant increases in prices and contributing to greater price volatility.

Struggles with NAFTA, with GMOs, with migration. We will not give up.



Pedro José Torres Ochoa, state coordinator of the Peasant Democratic Front of Chihuahua (Frente Democrático Campesino de Chihuahua – FDCCh) In an interview in May 2012, Pedro José Torres Ochoa, spoke about how his livestock business has struggled with high costs of feed corn that is now largely imported from the United States. This is his description of the changes in his community since NAFTA.

I was born in the Agua Fria ejido (a form of collective farming) in Bachiniva. I come from a family of peasant farmers originally from this ejido, and we still live here. I joined the peasant movement in the mid-1980s, when I was 25 years old. We were struggling for better prices for corn and beans. In my community, we were also struggling to solve a land tenure problem.

We could tell that the North American Free Trade Agreement (NAFTA) was going to harm small-scale seasonal grain producers and now we can see that it did hurt them. It hurt everything that was small-scale: small-scale merchants, small scale industry, and even those operating at a larger scale, such as medium-sized irrigation farmers and other sectors like dairy products and apples.

With NAFTA completely opened up, we can see that the struggle has been lost. Still, we don't give up. Now we are fighting to protect our corn against the threat of planting and importing Genetically Modified Organisms (GMO).

In the mid-1980s, our ejido was doing very well producing local (criollo)

CONCLUSION: BIOFUELS EXPANSION CONTRIBUTES TO FOOD INSECURITY IN MEXICO

There is widespread agreement that biofuels expansion, with its direct diversion of food and feed crops and its indirect impact through competition for land and other food-producing resources, has been an important contributor to the rise in food prices over the last six years. Most researchers agree that the expansion of US corn ethanol has had particularly strong impacts. This has a deleterious impact on import-dependent developing countries. Here we have looked at one import-dependent country and one crop to gauge the extent of those impacts.

By any standard, \$1.5-3.2 billion — \$250-\$500 million per year — in added corn import costs for a country such as Mexico is significant. It represents 10-20 times the amount Mexico spends annually on its MasAgro support program for small maize and wheat farmers. Mexico spends about \$1.3 billion a year on its entire agricultural income support program, PROCAMPO.³⁷

Ethanol-related price increases have negative impacts on consumers, particularly food-insecure consumers who are not farming and so do not see any gain from higher corn prices. Corn accounts for roughly 60% of the final cost of tortillas, Mexico's staple, so a 20% increase in corn prices from ethanol, transmitted to the Mexican market for white corn contributes to food insecurity.

corn and beans, but as time passed, and trade was opened up, these crops have been almost completely abandoned because of the low prices and high yields produced by irrigation farming of hybrid corn. Competition from pinto beans from the United States has also influenced this situation. Now a lot of producers are focusing mainly on oats for fodder and livestock (calves for export) as a secondary activity, since we have extensive summer pastures. The situation has changed a lot over these 25 years. And the fact is that not farming corn and beans anymore is an assault on our food sovereignty and that of the entire country.

Now beans are being produced in just a few regions, where the soil is good for legumes. And criollo corn varieties are still grown in certain municipalities such as Gómez Farías, Madera, and Zaragoza.

Apart from changing the type of production, another consequence of the trade opening in my region, and in Chihuahua in general, is mass migration. There are ejidos, rural communities, where 50% of the residents are gone. You can see it in the censuses. Many schools have shut down and some young people have gotten involved in drug trafficking because there are no opportunities for them. All of this is contributing to the current insecurity.

I am a high school graduate and I work as a technician in the area of livestock. I have three daughters ages 25, 20, and 16, and a son who is 11. We are rural farmers. We do not intend to leave our community.

RECOMMENDATIONS

With the 2012 Los Cabos summit approaching, Mexico is both an excellent case study of how biofuels contributes to rising food prices — and it is in a key role, as chair of the G20, to lead the effort to put an end to the biofueling of hunger once and for all. The Mexican government, as the current chair of the G20, has identified food security and food price volatility among the key issues it plans to address at this year's summit. But it has yet to propose any action to address the role of biofuels in contributing to rising food prices. As this report shows, biofuels policies by the US are costing Mexico dearly just as similar policies by other G20 members are affecting the world. Mexico should use its position as chair to put biofuels policy on the table in Los Cabos.

To the G20:

G20 member states hold a special responsibility to take coordinated action on issues of food security: they possess the majority of global food reserves and resources, they host the largest commodity exchanges in the world and their agricultural policies play a dominant role in food price formation. ActionAid calls on the G20 leaders to:

■ **Urge member countries to eliminate targets, mandates and financial incentives that encourage the expansion of unsustainable industrial biofuels production.** This recommendation is consistent with the conclusions of the report of ten international organizations commissioned by the G20 in 2011.

- Member countries should ensure that all biofuels, whether domestically produced or imported, meet strict social and environmental sustainability criteria that ensures that their production and consumption does not compromise food, land and workers rights and that they result in lower net greenhouse gas emissions than fossil fuels when considering the full life-cycle of the agrofuel production process.

Gael in
Chiapas, Mexico



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■ **Commit to adopt regulations consistent with each other that strengthen markets' regulation and transparency in order to address food price volatility** and discourage traders from changing their base of operations in order to evade stricter rules. G20 countries should consider mechanisms to tame speculation such as:

- Regulating food commodity derivatives and imposing 'position' limits — the quantity, or proportion of the total market in any one commodity – controlled by any individual investor or group at a given time in all markets
- Limiting the volume of trades or size of investment by large institutional investors, especially "index funds" (pension funds, endowments, etc.).
- Standardising and guaranteeing all transactions by mutual agreement including "over the counter" (OTC) trading through their registration and supervision by market regulatory authorities.

■ **Urge member countries and donor nations to invest in small-scale producers as a means to decrease import-dependency and enhance food security.**

- At the global level, this investment should be through public sector windows like the Global Agriculture and Food Security Program (GAFSP).
- At the national level, these investments should prioritize small-scale producers, especially women, and agro-ecological models of production in order to help farmers both adapt to and mitigate the impact of climate change.

To the Government of Mexico:

In order to safeguard the right to food in Mexico, the Mexican government should:

- Demand of its principal trading partners that they adopt biofuels policies that do not increase the cost of basic staple foods. US corn ethanol policies have a direct impact on Mexican consumers both through imports and by raising the price of corn on international markets.
- Maintain Mexican biofuel policy to ban the use of corn to make ethanol, and ensure more broadly that land resources are not converted to fuel production. Mexico should also continue to support robust guidelines to ensure that any imported or domestically produced biofuels meet strict social and environmental sustainability criteria.
- Invest in small-scale agriculture, with an emphasis on agro-ecological models and women producers, in order to reduce import dependency, protect food security and promote economic development in local communities.
 - This investment must include the development of infrastructure, access to credit and extension services.
 - Access to land, water and energy is also critical to ensure productivity.
 - Support farmer-to-farmer technology and knowledge sharing in order to help blend the best traditional knowledge and innovation with new technologies to boost productivity while safeguarding natural resources and biodiversity.
- Build transparently governed public strategic buffer stocks of corn, procured from local producers in order to stabilize corn prices in times of volatility.

To the Government of the United States:

In order to calm food price volatility, and build a better balance between food and energy policies, the United States should:

- Reform the Renewable Fuels Standard to ensure that it does not continue to drive the expansion of corn ethanol or any other food-based fuel.
 - Ultimately, policy makers should remove volume or blending targets of food based fuels to ensure that biofuels policies do not continue to promote food and fuel competition for land and other resources.
 - At minimum, policy makers should support legislation that increases the flexibility of the biofuels mandate, lowering the artificial demand for food based fuels in times of tight supply.
- Put any efforts to expand the amount of ethanol blended in gasoline from E-10-E-15 on hold until an assessment is made on the impact of a new artificial demand for a food-based fuel on global and local food prices, land use and the environment.
- Work to implement the Dodd-Frank Act to curb excessive commodity speculation and fully fund the Commodities Futures Trading Commission in order to ensure the full implementation of the legislation.

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End Notes

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ACKNOWLEDGEMENTS

This report draws on the recent Tufts University working paper, “The Cost to Mexico of U.S. Corn Ethanol Expansion,” by Timothy A. Wise (<http://www.ase.tufts.edu/gdae/Pubs/wp/12-01WiseBiofuels.html>). He and his research assistant, Kate McMahon, consulted with ActionAid in the drafting of this report. This report was written by Tim Wise and Marie Brill with inputs from Neil Watkins and Soren Ambrose.

ActionAid is a partnership between people in poor and rich countries, dedicated to ending poverty and injustice. We work with people all over the world to fight hunger, seek justice and education for women, hold companies and governments accountable, and cope with emergencies in over 40 countries.

ActionAid USA
1420 K St, NW, Suite 900
Washington, DC 20005
Tel: +1 202 835 1240
inquiries@actionaid.org
www.actionaidusa.org

