

Food FAQ

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Abstract

Global production of corn is the highest of all the food grains, and the US produces and exports more corn than any other nation [1]. Corn is eaten fresh on the cob, ground into corn meal, processed into corn syrup, and squeezed into corn oil, all of which are used in myriad food products. Corn is also the primary feed for livestock producers growing poultry, pork, and beef. Starting in 2006, government subsidies and mandates have led from a small percentage to over 45% of the 2011 US corn crop being used in producing ethanol for motor vehicle gasoline [2]. The use of food commodities as investment vehicles grew dramatically after the 2007 global financial collapse and has altered the global food markets. The severe drought throughout the American midwest in 2012 triggered record corn prices, increasing global hunger and making it critical to reassess how our food is traded and consumed.

Here we address some key Frequently Asked Questions about the conversion of corn to ethanol and the role of speculators in commodities markets. Please also see our papers demonstrating the link between high food prices and riots [3], and showing that prior to the US drought, ethanol and speculators were the two main causes of food price increases [4].

Ethanol

1) Isn't the corn used for ethanol different from the kind people eat?

Ethanol is made from field corn; what is usually eaten as corn on the cob is sweet corn, which is different. However, people use field corn widely for other kinds of food. Field corn is ground into cornmeal, used as a staple food or in making tortillas, chips, cereal, muffins, and other products; it is made into high fructose corn syrup and used as a sweetener; or it can be processed into corn oil used both on its own and in a wide array of food products [5, 6].

2) Aren't by-products from ethanol production fed to animals? So won't livestock farmers still get feed for their animals?

The part of the corn that becomes feed is called distillers grains and accounts for a maximum of 31% of the corn made into ethanol [7]. Last year, the actual number was only 23% [1].

3) Why should wheat or soybean prices go up if corn is used for ethanol?

As corn prices rise, people and food processors switch to cheaper grains for some of their food, increasing the demand for other grains. Also, when farmers choose to grow corn, less of other crops can be planted, including wheat and soy, decreasing their supply.

4) How much food goes into a gallon of gasoline?

One gallon of regular pump gas, about 1/10 of which is ethanol, contains enough corn energy to feed a person for more than a day (assuming a 2100 kcal/day diet). The amount of ethanol in a 16 gallon tank of gas contains enough corn energy to feed over 23 people for a day, one person for over three weeks, or a family of four for more than five days. With the total amount of ethanol produced daily in the US, 570 million people could be fed [8].

5) I've heard that ethanol has reduced the price of gas as much as \$0.89/gal in 2010 and \$1.09/gal in 2011. Isn't that a lot of savings?

Ethanol has less energy than gasoline, so mixing it with gasoline is essentially watering down the gas [9]. Ethanol is somewhat cheaper than gas, so the price per gallon is lower, but it reduces gas mileage so you must buy more gallons. You end up paying more for every mile you drive with an ethanol blend than with pure gasoline. US government subsidies for ethanol production have totaled over \$20 billion [10]. If making ethanol were really cheaper, there would be no need for subsidies or a government mandate.

Speculation [4]

6) Any futures contract requires both a buyer and a seller, so the numbers of buyers and sellers must be equal. How can they affect prices?

This is true of any sale: whenever something is bought and sold there must be a buyer and a seller. The market price changes because people change the prices at which they are willing to buy and sell. When more people are willing to buy than to sell, market price rises until the numbers are equal. Similarly, if more people are willing to sell than to buy, market price falls until the numbers are equal. This is true of every market, including futures markets.

7) How do speculators affect spot prices if they never take delivery of the commodity?

As in an auction, all the people who bid affect the final price even though only one actually purchases the item. If speculators did not affect prices, they could be eliminated without consequence. However, futures markets were created so speculators could help smooth prices, reducing volatility; the problem is that when there are too many speculators they generate bubbles and crashes.

8) Isn't the price of grain set by the amount of grain that exists, i.e. supply and demand? If prices were out of equilibrium, wouldn't the price rapidly return to equilibrium?

Prices for grain are actually set by reference to the futures price. The reason for this is that we do not know what the future supply and demand will be. This means that the futures price can differ from that set by supply and demand because of the long delay between when prices are set and when delivery is taken, typically 6-12 months later. People notice the imbalance only after this time delay, when news about inventories becomes available.

9) Don't speculators improve the function of markets by adding liquidity and reducing risk?

Financial speculators can improve market function, which is why futures markets exist. Speculators reduce volatility by buying when the price is low (lack of buyers) and selling when the price is high (lack of sellers). However, there can be too much of a good thing. When speculators account for a large portion of the trading, they create bubbles and crashes unrelated to supply and demand.

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