North Central Ohio Agronomy Report

Issue 9

INSIDE THIS ISSUE

Dear Ag Provider,

Commodity prices continue to increase, but so have the prices of crop inputs. Without debate, there is more risk to possible loss due to the large cash outlay required to plant the crop. As such, one way to mitigate risk and maximize profit is to be a prudent user of inputs. See the enclosed planning document that answers questions about basic agronomic inputs.

Best Regards,

Steve

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http://crawford.osu.edu
http://www.extension.iastate.edu/
http://web.extension.uiuc.edu/state/
http://www.ag.iastate.edu/

North Central Ohio Agronomy Report

Management of Commodity Inputs Will Impact Profitability in 2008 and Beyond

Fertilizer – Approximate cost as of February 1, 2008

NH_3 = 770/ton = .47lb/N (no tool bar)
28% = 370/ton = .66 lb/N (270/ton)
Urea = 560/ton = .61 lb/N
18-46-0 = 580/ton = .63 lb/ P2O5 (500/ton)
0-0-60 = 390/ton = .325 lb/K20 (270/ton)
11-52-0 = 586/ton = .56 lb/P2O5

1. When do you need phosphorus in your corn starter fertilizer?
   No till early planting and low soil test.

2. What element is most needed in the corn starter for soils above the P&K maintenance level?
   Nitrogen

3. Will the addition of Zn or S increase corn yield enough to cover costs? My OM is 2.0% and soil is clay?
   No

4. What does the critical soil test level mean to me if I have a P (Bray p.1) level of 35 lbs/a?
   Soil test build up will not result in increased yield for corn or soybeans.

5. Is broadcast application of phosphorus and potassium acceptable way to fertilize corn and/or soybean?
   Yes

6. Can I fertilize for 2 years (P&K)?
   Yes

7. Will cover crops planted after wheat (red clover, annual rye with manure) provide adequate nitrogen for my corn crops?
   Generally not.

8. Can I trust the new nitrogen recommendations – if so why?
   Yes
   Go to: http://agcrops.osu.edu and click on fertility

9. What have fertilizer prices done since September?
   Up 30% since September

North Central Ohio Agronomy Report

Seed

1. What soybean seeding rate should be used?
   a. Light colored soils with knolls or hills 200,000 or more depending upon soybean variety and maturity
   b. Medium textured with drainage 180,000
   c. Dark soil 160,000

2. What corn seeding rate should be used?
   a. 32,000 to 35,000 highly productive soils (175 bushels and up)
   b. 28,000 to 32,000 average soils (150- bushels)
   c. 24,000 to 28,000 poor soils (100 to 125 - bushels)

Select from best hybrids or varieties:

Soybeans:

yield, disease resistance and tolerance, maturity, essentially all soybean varieties are RR (only a few non RR marketed)

Corn:

yield, insect and disease resistance and tolerance, maturity, stalk quality and harvest moisture (dry-down). Herbicide resistance is generally not important in corn hybrid selection trait.

Do you need insecticide seed treatment on corn or soybeans? Maybe, depends on when and where you are planting.

Herbicides:

Generic herbicides work as well as their "named" counterparts when set up equally. Do you need the replant insurance offered in the various programs?

Crop Insurance:

What type and level? Will have one program entirely devoted to this subject.

Cash Rents:

What are current cash rents? How much should you pay? What sort of cash rent arrangement should you use? How will you manage rented land in the future?

What should you pay for farm ground? Will farm land continue to increase in value?

Equipment: Do you know your costs?

Go to: http://crawford.osu.edu and click on Enterprise Budgets to see how to calculate equipment costs.

North Central Ohio Agronomy Report

What's New with Crop Insurance in 2008

William Edwards, Extension Economist
Iowa State University Extension

Corn and soybean producers in the Midwest need to make decisions about crop insurance by March 15 each year. If they don't advise their agent to make any changes, coverage will be the same as last year. However, changing market conditions make it advisable to review policy specifications each year.

What's new?
Last year indemnity prices, available guarantees and premiums were all much higher than in 2006. That is not surprising, since all of these are based on expectations for harvest time prices as measured prior to March each year. Current corn and soybean market conditions make it likely that even higher levels will be reached in 2008.

Another new feature is a premium discount that is available to corn producers who plant a certain type of genetics, based on an expected decrease in yield risk.

Indemnity prices
Even if producers don't alter their percent protection level from year to year, the dollar value of their guarantee will change according to market prices. The price used to calculate the guarantee and determine the payment in case of a loss is called the "indemnity price." Where the indemnity price is set each year depends on market projections and the type of policy purchased.

Last year's revenue insurance (RA, CRC, GRIP) indemnity prices of $4.06 per bushel for corn and $8.09 per bushel for soybeans allowed many producers to lock in very attractive guarantees. Indemnity prices for 2008 will not be announced until March 1, but will likely be even higher than last year, especially for soybeans. Maximum indemnity prices for yield insurance (APH, GRP) have already been announced at $4.75 for corn and $11.50 for soybeans, an increase from the 2007 rates of $3.50 and $7.00, respectively.

The down side, of course, is that higher indemnity prices mean higher premiums. The average farmer premium for all corn policies in Iowa last year was $17.05 per acre, compared to just $9.62 per acre in 2006. The average soybean premium jumped from $7.03 to $8.27. And, despite the high value guarantees that were purchased in 2007, payouts for losses in Iowa were equal to only about 4 percent of the premiums that farmers paid in. Estimated crop insurance premiums for different counties can be found on the University of Illinois Farmdoc Web site, at: www.farmdoc.uiuc.edu/cropins/ , under Premium Calculator.

Type of policy
Iowa farmers have gradually been shifting their crop insurance away from yield insurance and toward revenue insurance over the last decade. Only about 15 percent of the insured acres in Iowa last year were covered with yield-based policies (APH and GRP). When indemnity prices are high by historical standards, revenue insurance makes even more sense, because the risk of declining prices is greater relative to the risk of low yields. This also makes group risk insurance protection (GRIP) somewhat more attractive than in low price years, since it offers exactly the same price risk protection as individual revenue insurance policies. GRIP's yield risk protection, however, is based on county level rather than farm level yields. Producers who like to forward price much of their production prior to harvest can use CRC, or RA insurance with the "harvest price option," to protect themselves against harvesting fewer bushels than they contract. As long as they don't commit more bushels than they have insured, they can rely on the insurance indemnity payment to cover the cost of any shortfall. This year they need to consider carefully the odds that prices at harvest will be higher than in February. If there is only a small chance that the market will be higher in October or November, it may not be necessary to spend the extra premium to buy CRC or RA with the harvest price option instead of basic RA.

Guarantees
Producers need to carefully consider how many dollars of guarantee they need to purchase in 2008. Crop input

prices are up sharply, as are cash rents. However, higher indemnity prices and proven yields may allow purchasing an adequate guarantee at a lower percent of coverage than in the past. For example, if a farmer had

a proven yield of 151 bushels per acre and wanted to purchase a guarantee of $460 last year, a 75 percent coverage level was in order (151 bu. x $4.06 x 75% = $460). Suppose the same farmer needs a guarantee of $520 to cover costs of production this year, but the proven yield has been adjusted upward to 153 bushels per acre and the February futures price averages $4.86. A coverage level of only 70 percent is adequate now (153 bu. x $4.86 x 70% = $520).

Producers should carefully calculate their own coverage needs before meeting with their crop insurance agent this year. Note that insurance guarantees are based on futures prices. Only lost bushels are paid at that rate, though, while bushels actually produced are sold at the local cash price. A conservative approach is to recalculate the insurance revenue guarantee using the February futures price minus the expected basis for October. This gives a more realistic estimate of the minimum gross revenue available.

With sharply higher guarantees available, some producers look at revenue insurance policies as another marketing tool rather than a risk protection tool. Locking in a high guarantee can be somewhat like purchasing a "revenue put option." The cost of this guarantee needs to be compared to other marketing options, though, such as forward contracts, hedges and normal put options.

Global Warming – the Science

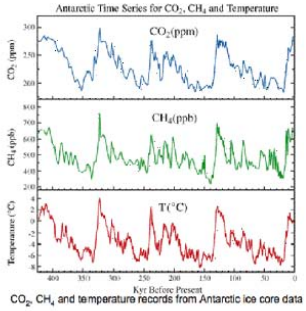
Eugene Takle, Professor of Atmospheric Science and Professor of Agricultural Meteorology
Don Hofstrand, Agriculture Specialist and Co-Director AgMRC
Iowa State University Extension

Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity.

The warming and cooling cycles

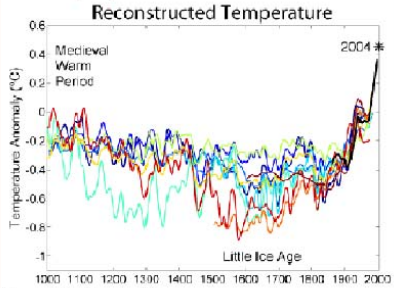
The earth has been going through periods of global warming and cooling for hundreds of thousands of years. With the use of "ice cores" of ancient ice layers, scientists have determined ancient temperature fluctuations in our atmosphere. The bottom line in Figure 1 shows temperature fluctuations over the most recent 430,000 years. Temperature during this period shows a rather regular cycle lasting about 100,000 years. The variation in temperature during a cycle is about 10 to 12 degree centigrade. Although the temperature line appears to move up and down abruptly, in reality the rate of change is very gradual over thousands of years due to the enormous time span covered by the chart.

Figure 1. Antarctic time series for CO_2, CH_4 and temperature variations over the last 430,000 years.



Source: Vimeux, F, K.M. Cuffey, and Jouzel, J., 2002, "New insights in Southern Hemisphere temperature changes from Vostok ice cores using deuterium excess correction", Earth and Planetary Science Letters, 203, 829-843.

Figure 2. Reconstructed temperature variations over the last 1,000 years.



Source: Global Warming Art, http://www.globalwarmingart.com/wiki/Image:1000_Year_Temperature_Comparison_png

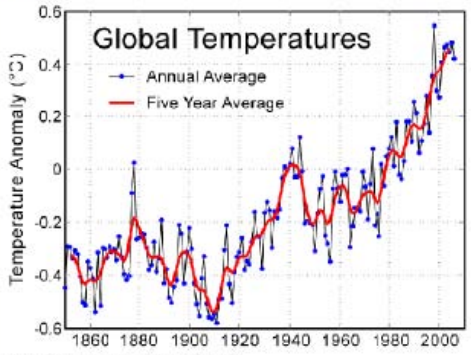
North Central Ohio Agronomy Report

During the last 15,000 years, we have been in a period of global warming with temperature rising. If we follow the traditional cycle, we would expect temperature to start a gradual decline over the next 70,000 to 80,000 years.

Two of the major greenhouse gases are carbon dioxide (CO2) and methane (CH4). Scientists have been able to track the historic concentration of these two greenhouse gases in our atmosphere. As shown in Figure 1, they track closely with the changes in temperature. The central question facing the science community is what will happen to temperature due to the recent and expected future increase is greenhouse gases.

Temperature variations over the last 1,000 years are shown in Figure 2. This figure shows a comparison of ten different published reconstructions of average temperature changes. A pattern emerges of very gradual cooling over the first 900 years followed by a period of rapid warming during the last 100 years.
Temperatures over just the last 150 years since 1850 are shown in Figure 3. The annual average temperature varied greatly from year to year. However, by using a five year moving average, a trend can be deciphered. The trend was relatively flat from 1850 to 1900. Then it increased significantly during the 20th Century (although it dipped briefly from 1900 to 1910 and 1940 to 1950).

Figure 3. Temperature variations over the last 150 years.



Source: Source: Global Warming Art, http://www.globalwarmingart.com/wiki/Image:Instrumental_Temperature_Record_png
Compiled by the Climatic Research Unit of the University of East Anglia and the Hadley Centre of the UK Meteorological Office.

Global climate models
The scientific community creates complex climate computer models in an attempt to predict future global temperature changes. The accuracy of a model can be verified by its ability to predict past global temperature changes. Figure 4 shows the accuracy of a model based on five known climate change factors. As can be seen, temperature estimates made by the model tracked quite closely with the actual temperature levels during the period of 1900 to 1990.

The five climate change factors contributing to departures from long-term global average temperatures are greenhouse gas concentration, solar intensity, ozone levels, volcanic activity and sulfate levels. Three of these factors are anthropogenic and two of them are naturally occurring.

Anthropogenic effects are those that are derived from human activities, as opposed to those occurring in natural environments without human influences.

The natural factors are:

1) **Solar** The absorption of solar energy heats up our planet's surface and atmosphere and makes life on Earth possible. Sunspots correlate to the changes in intensity of solar radiation reaching the earth. Sunspot activity goes through variations and cycles, so it has the ability to warm and cool the earth compared to the long-term average. As shown in Figure 4, solar activity has contributed to warming (tracks above the dashed line) over the last century. Future sunspot activity will influence the amount of solar radiation reaching the earth and will impact global warming.

2) **Volcanic** Volcanoes temporarily cool the earth. A decrease in volcanic activity during the first half of the century led to temperature increases, but more volcanoes during the last half contributed to cooling.

The anthropogenic factors are:

1**) Greenhouse gases** Solar energy heats up the earth's surface. But the energy does not stay bound up in the Earth's environment forever. Instead, as the earth warms, it emits thermal radiation (heat). This thermal radiation, which is largely in the form of long-wave infrared rays, eventually finds its way out into space, leaving the Earth and allowing it to cool. However, instead of passing into space, some of the infrared rays (heat) are absorbed by greenhouse gases and held in the atmosphere. Higher concentrations of greenhouse gases hold more heat in the atmosphere.

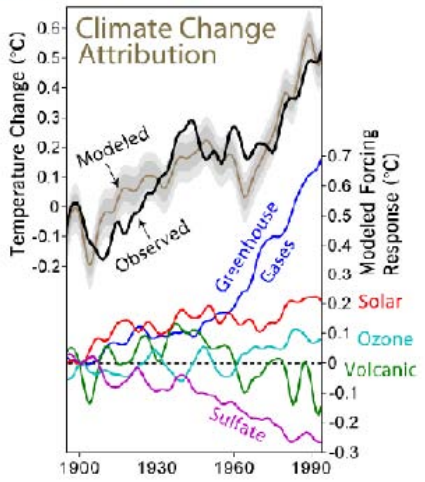
The major anthropogenic greenhouse gases are carbon dioxide, methane, nitrous oxide and chlorofluorocarbons. As shown in Figure 4, greenhouse gases in the atmosphere have increased substantially, especially since 1960.

2) **Ozone** Ozone is a gaseous atmospheric constituent. In the troposphere (layer of the atmosphere closest to earth), ozone is created primarily by human activity. In the stratosphere (atmospheric layer above the troposphere), ozone filters potentially damaging ultraviolet rays from reaching the Earth's surface. Ozone acts as a modest greenhouse gas, as shown in Figure 4, the contribution due to atmospheric ozone has changed modestly over the last century, with warming due to increase in tropospheric ozone partially offset by cooling due to loss of stratospheric ozone.

3) **Sulfate**
Sulfates occur as microscopic particles (aerosols). They increase the acidity of the atmosphere and form acid rain. They are known
to reduce the effects of global warming. Sulfate particles have the capacity to scatter light rays, effectively increasing the earth's albedo (surface reflectively). Also, the particles act as "cloud condensation nuclei." Essentially, these are particles around which cloud and rain droplets form. The abundance of these nuclei means that more and smaller water droplets form which diffuses light rays.

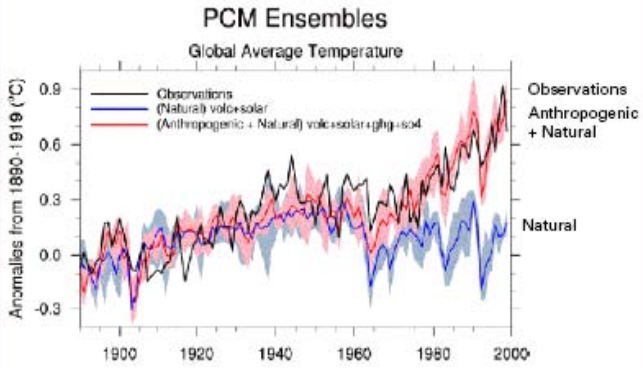
The model shown in Figure 5 also estimates global temperature. When both natural and anthropogenic factors are included in the model, the prediction is closely correlated with the actual observations. However, when just the natural factors (solar and volcanic activity) are included in the model, a discrepancy emerges. Although the natural factors are a good predictor of actual warming in the early part of the century, in about 1960 they start to diverge. By themselves the natural factors do not account for the rise in global temperatures since 1960. Only when they are combined with the anthropogenic factors of greenhouse gases and sulfate does the model predict relatively accurately the actual temperature levels. This leads us to believe that anthropogenic factors have a significant role in the recent increase in global temperature.

Figure 4. Natural and anthropogenic contributions to global warming.



Source: Global Warming Art. http://www.globalwarmingart.com/wiki/Image:Climate_Change_Attribution_png. Natural and anthropogenic contributions to global temperature change (Meehl et al., 2004). Observed values from Jones and Moberg 2001. Grey bands indicate 68% and 95% range derived from multiple simulations.

Figure 5. Global average temperatures (observed temperature versus predicted temperature)



Source: Jerry Meehl, National Center for Atmospheric Research

References

Intergovernmental Panel on Climate Change. 22 Jan 2008.

Introduction to Climate Change. United National Environmental Programme. 22 Jan 2008.

Global Warming Art. 22 Jan 2008.

The Outlook for Corn and Ethanol

Chad E. Hart, Scientist
Iowa State University

The federal government definitely joined in the spirit of cooperation this holiday season with the passage of the 2007 energy act and progress on the farm bill. These moves, along with developments in the energy and agricultural sectors, have improved the prospects for corn and ethanol over the next few years.

Table 1. Renewable fuel standard for conventional biofuels

Year	Billion Gallons
2008	9.0
2009	10.5
2010	12.0
2011	12.6
2012	13.2
2013	13.8
2014	14.4
2015	15.0

The 2007 energy act set out a higher renewable fuels standard (RFS) of 36 billion gallons of biofuels by 2022. For 2008, 9 billion gallons of biofuels are needed to meet the standard, and corn-based ethanol will fill the lion's share. Corn-based ethanol is considered a conventional biofuel in the act. Table 1 shows the RFS volumes for conventional biofuels. Other advanced biofuels, such as cellulosic ethanol and biomass-based biodiesel, are to fill the rest of the RFS. This act supersedes the 2005 energy act that established an RFS of 7.5 billion gallons of biofuels by 2012.

The pace of ethanol plant construction is on target to reach and possibly exceed the new RFS over the next few years. As of early January 2008, the Renewable Fuels Association was reporting current ethanol production capacity of 7.5 billion gallons.

North Central Ohio Agronomy Report

With 5.8 billion gallons more capacity under construction, U.S. ethanol production capacity will exceed 13 billion gallons within the next three years. The RFS provides stability for the continued growth of the ethanol industry.

The market for ethanol continues to evolve as well. Ethanol prices were mostly on a downswing throughout 2007, but the last quarter of the year saw ethanol prices rebound from $1.55 per gallon to prices over $2.00 per gallon. This upswing in prices was due to several factors, including infrastructure improvements for ethanol transportation and usage, expanding interest in using ethanol in underserved areas of the country (especially the Southeast), and higher overall energy prices.
Crude oil recently hit $100 per barrel, and the outlook for oil remains strong. Currently, crude oil futures prices are above $90 per barrel for all contracts through December 2009 and are above $88 per barrel for all contracts through December 2016. The markets are not anticipating any sizable drops in energy demand any time soon. Gasoline futures are over $2.50 per gallon near-term and are holding above $2.25 per gallon throughout 2009.

These higher prices are spurring additional interest in ethanol for discretionary blending. Current nearby ethanol futures are $2.30 per gallon, roughly 20¢ below that of gasoline. This price gap, along with the 51¢-per-gallon tax credit given to blenders, makes ethanol attractive to both fuel blenders and consumers. With ethanol futures beyond April 2008 hovering at around $2.00 per gallon, it looks as though ethanol will continue to be less expensive than gasoline for some time and will be able to penetrate additional markets over the next couple of years because of its pricing advantage.

The CARD ethanol gross margin graphs (available at www.card.iastate.edu/research/bio/tools/) show that margins have markedly improved over the last three months. While corn costs have risen, the surge in ethanol prices has more than covered the cost increases. Based on current futures prices, ethanol margins will back off slightly over the next two years but will remain above last fall's levels.

The continuing expansion of the ethanol industry is just one of several positive signs for the corn market. Corn usage for ethanol continues to grow and set records each year. Ethanol will become the second-largest use of U.S. corn this year, trailing only domestic livestock feeding. The growth in corn demand due to ethanol has been met with increased acreage devoted to corn and higher production. Over the past two years, the United States has raised two solid corn crops--10.5 billion bushels in 2006 and a record 13.2 billion bushels in 2007--yet corn prices have continued to rise. While ethanol has been a driving factor, corn exports have also helped the strong price outlook. The latest USDA projections put corn exports for the 2007/08 marketing year at 2.45 billion bushels. That would be a record for corn exports, exceeding the previous record of 2.4 billion bushels for 1979/80. Cumulative export sales for the current marketing year are nearly 65 percent that of the USDA projection, well ahead of the average pace over the last five years of being at roughly half of the export projection. Outstanding export sales also show a brisk corn export pace.

The main factor supporting export sales is the relative weakness of the U.S. dollar. Table 2 shows the relative change in the value of the dollar in comparison with other currencies. Over 2007, the value of the dollar fell against many world currencies. A falling dollar makes our exports look relatively more attractive to importers and often spurs export demand. The effect for corn is twofold. First, the dollar depreciated against the real and Yuan, the currencies of two of our major corn export competitors, Brazil and China. So U.S. corn is relatively less expensive than Brazilian or Chinese corn. Second, the dollar also depreciated against the currencies of corn importers, such as Japan, making U.S. corn relatively less expensive to import.

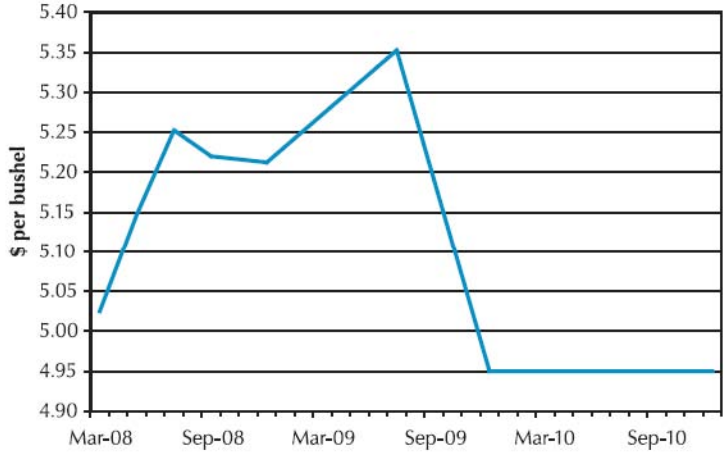


Figure 1. Corn futures prices (as of Jan. 16, 2008)

Table 2. Change in the value of the dollar (Jan. 1, 2007 – Jan. 1, 2008)

Currency	Percent Change
EU euro	-10
Australian dollar	-10
Brazilian real	-15
Canadian dollar	-16
Japanese yen	-6
Chinese yuan	-6

North Central Ohio Agronomy Report

The corn market has taken the ethanol and export projections into account over the next three years and is currently maintaining corn prices between $4.95 and $5.35 per bushel on corn futures all the way through December 2010. Figure 1 show the corn futures prices. The market is projecting stronger corn prices for the rest of the marketing year and continued strengthening in the 2008/09 marketing year. But corn prices are not the only crop prices that are strong this year; wheat and soybean prices are also high because of a variety of events. These crops will compete with corn for acreage and will likely pull some acreage away from corn. Early estimates point to 88 to 90 million acres of corn, down from last year's 93.6 million acres but still well above historical averages. Further price changes across the crop markets, higher fertilizer prices, weather, and possible input supply bottlenecks will continue to shape the planting outlook.

Overall, the picture looks bright for corn. Prices are high, production has been good, and demand attributed to ethanol and exports continues to grow. For the ethanol sector, 2008 looks to be another year of adjustment. Input prices (mainly corn) continue to be high, but energy --especially gasoline-prices are projected to stay higher. The passage of the 2007 energy act provides government support for additional ethanol production. The industry will continue to expand, but margins will likely remain relatively tight.

When Will the Bubble Burst?

Bruce A. Babcock, CARD Director
Professor of Economics
Iowa State University

High prices are their own worst enemy. Increased profit margins entice entrepreneurial investment, which results in increased production. Lower market prices inevitably follow. The magic hand of Adam Smith ensures that winners' gains and losers' losses will be temporary, as entrepreneurs correct market imbalances.

The temporary nature of high prices is well known to corn, soybean, and wheat farmers. Over the last 50 years there have been only two corn price increases that have been sustained for more than two years. The first was from 1973 to 1975 when a combination of short crops around the world and increased export demand dramatically increased prices. The second was from 1979 to 1984 when high corn prices were sustained by supply controls, government-defended floor prices, and drought. Farmers in the United States and around the world have always been able to out-produce the market and government policy.

Farmers have a strong incentive to continually adopt cost-reducing and yield-enhancing technologies.
Thus, even when prices are low, agricultural supply tends to increase, as farmers seek out the seemingly never-ending advances in seed technology, improved pest management, and more productive machinery. When prices are high, farmers have the added incentive to bring more land into production and to plant the crops that bring the greatest economic return.

Because farmers have traditionally produced ingredients that are turned into food, the demand for farm products reflects characteristics of that demand. World food demand depends primarily on population and income, both of which expand predictably and slowly. When production of food ingredients outstrips the growth in food demand for more than a year or two, prices inevitably decline. The resulting price declines can be large because food demand is quite insensitive to price. There really is only so much food any person can eat.

Nonstop increases in supply combined with slow and predictable demand growth have resulted in a seemingly inexorable long-run trend of falling inflation-adjusted agricultural prices intermixed with one or two years of high prices caused by unexpected supply disruptions. In agriculture, as with most other commodities, it has not been a question of if price bubbles will burst but only a matter of when.

North Central Ohio Agronomy Report

A New Era for Agriculture?

The last period of high prices was in 1995 when the season-average price of corn rose to $3.24 per bushel. At the height of concern that 1996 production would not be sufficient to meet demand, 1996 new-crop futures rose as high as $3.83 in July before beginning a five-year decline. It is noteworthy that Chicago Board of Trade corn prices did not indicate that such high prices were permanently with us. Futures prices for the 1997 crop never rose above $3.08 and futures prices for the 1998 crop never rose above $3.00 per bushel. It is clear that traders believed that the high prices in 1995 and 1996 were unsustainable in that a return to normal crop conditions would result in lower prices. A drop in demand caused by the late-1990s Asian financial crises caused prices to drop even further than traders thought likely.

The futures market is telling us a very different story today. Although we are coming off a record corn harvest, the 2008 new-crop corn harvest is more than $5.00 per bushel. The new-crop soybean futures price is more than $12.50 per bushel. In contrast to the 1995/96 high price period, the markets today are not indicating that these record prices are temporary. Farmers can sell their 2009 and 2010 crops for about the same price.

The impacts on agriculture would be staggering if these price levels were permanent. For example, current prices imply that land rents in Iowa and the rest of the Corn Belt should increase by a factor of about 2.8, even after accounting for the loss of government payments, the higher production costs associated with increased demand for inputs, and increased returns to management and machinery. As land rents go, so too do land prices. Iowa State University's annual land price survey showed that in 2005 the average acre of farmland in Iowa was valued at $2,914. That year is a useful benchmark for land values because crop prices had not yet increased. Multiplying the 2005 land value by 2.8 suggests that $5.00 corn and $12.00 soybeans could support average land values in excess of $8,000 per acre.

Crop prices at these levels dramatically increase the cost of raising hogs, finishing cattle, and producing milk and eggs. These costs will have to be passed on to consumers through higher retail prices for meat, eggs, and dairy products to keep livestock producers in business. Competition for land between specialty crops, oilseeds, and food and feed grains will also increase the prices of other products such as hops, malting barley, beans, and vegetables. Consequently, we should expect to see increased food prices over the next year or two as these cost increases are passed on to consumers.

But how much faith should we put in the Chicago Board of Trade as a long-run indicator of price levels, particularly when all the world's farmers face an unprecedented incentive to increase production? How can we reconcile what the markets are telling us with the iron rule of market economics that the cure for high prices is high prices?

Impact of the New Energy Bill

On December 6, 2007, the U.S. House of Representatives passed its version of the new energy bill that was later combined with a Senate version of the bill and signed by President Bush on December 19. Early December is an important time for commodity prices because the House indicated for the first time that it would include an expanded renewable fuels standard for corn ethanol and a new mandate for bio-diesel. On December 1, the price of December 2009 corn was $4.15 per bushel. By January 14, this price had increased to over $5.00 per bushel. The price of November 2009 soybeans increased from $9.51 to $12.40 per bushel over the same period. An examination of the short-and long-run impacts of the new corn ethanol mandate can help reconcile the laws of economics with what is happening on the Chicago Board of Trade.

Corn ethanol use is mandated to grow from 9 billion gallons this year to 13.2 billion gallons in 2012 and to 15 billion gallons in 2015. Accounting for the distillers grain that replaces the corn that is used to produce ethanol, and the expected growth in average yields, this level of production will require 16.2, 23.2, and 25.5 million acres of corn, respectively, to be devoted solely to ethanol production. The required level of corn production will occur, but only if farmers are compensated through high prices.

How Quickly and How Far Can Prices Drop?

Congress adopted new corn ethanol and bio-diesel mandates during a time when world supplies of corn, wheat, and oilseeds are tight. Thus, the markets quickly responded by signaling the world's farmers to increase production. How quickly production can ramp up internationally will determine when commodity prices start retreating. The key countries and regions to watch are the United States, Brazil, Argentina, the European Union, Ukraine, and Russia.

North Central Ohio Agronomy Report

The 2008 supply picture in South America indicates at most a small increase in production. U.S. production capacity can be quickly increased only by good growing conditions or a significant drop in acreage enrolled in the Conservation Reserve Program. The ability of Ukraine and Russia to expand production quickly is questionable given how far their agricultural sectors have fallen. And any expansion of E.U. acreage will likely be devoted to meeting their own biofuels mandates. An anticipated slow ramp-up in production combined with the need to meet new demand from biofuels mandates is why Board of Trade prices are so high for the next three crop years.

Over time, however, yield increases, infrastructure investments, and expansion of crop acreage will all work to increase world supplies; the profit signals are just too high for these price levels to be sustainable over the long term. Even so, the demand expansion from U.S. and other countries' biofuels mandates is so large that it is likely that meeting food and fuel demand will require higher-cost production practices and cultivation of lower-yielding acreage. In economic terms, this expansion of demand will push world agriculture up its long-run supply curve, which means that future price levels will be permanently higher.

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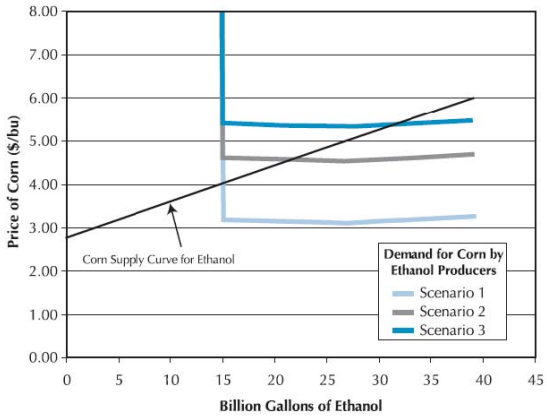
A simple supply and demand analysis of three possible future scenarios provides insight into how low we can expect corn prices to fall. In the figure, demand for corn to produce 15 billion gallons of ethanol is insensitive to the price of corn because of the mandate. For quantities in excess of 15 billion gallons, the analysis assumes that ethanol production does not affect the price of gasoline.



What Will the Price of Corn Be After the New Mandate Is Met?

Three Scenarios for Price Projections

1. Elimination of the $0.51-per-gallon subsidy given to wholesale buyers of ethanol, wholesale price of gasoline at $2.50, and ethanol valued at its energy value
2. Continuation of the $0.51 subsidy, $2.50 gasoline, and ethanol valued at its energy value
3. No ethanol subsidy, $2.50 gasoline, and ethanol valued on a par with gasoline value

The critical difference between these scenarios is the price of ethanol at production levels in excess of 15 billion gallons. In the first scenario, the additional ethanol will have to compete with gasoline without subsidy, which implies an ethanol price of $1.67 per gallon. This translates into an ability to pay for corn at about $3.12 per bushel. The second scenario adds a $0.51-per-gallon subsidy, which makes the ethanol price equal to $2.18 per gallon, and an ability to pay for corn equal to $4.52. The third scenario assumes that automobile manufacturers and blenders optimize fuel pumps and car engines so that fuel mileage does not decrease with ethanol, which implies an ethanol price of $2.50 per gallon and an ability to pay for corn equal to $5.33.

When ethanol producers' ability to pay for corn (indicated by the demand curves in the chart) in excess of the

mandate is less than the price of corn needed by U.S. corn farmers to supply the required corn to meet the mandate (indicated by where the supply curve in the chart intersects 15 billion gallons), then the mandate will bind and the supply price of corn will be $4.00 per bushel. This is what occurs in scenario 1. If some combination of market demand or additional subsidy to ethanol drives ethanol producers' ability to pay for corn to above $4.00 at 15 billion gallons, then the mandate will not bind, the long-run price of corn will be greater than $4.00 per bushel, and corn ethanol production will exceed 15 billion gallons. This occurs in scenarios 2 and 3 when corn supply meets corn demand at 21.5 and 31.5 billion gallons, respectively. The long-run corn price is determined solely by ethanol producers' ability to pay for corn in these two scenarios.

Cautionary Notes

Economists loathe making predictions about where future prices are headed because they are so often wrong. The long-run predictions of corn prices given here are predicated on a number of key assumptions. The first is that current government bio-fuel mandates will be maintained despite opposition from an array of groups. The bio-diesel mandates will increase the price of oilseeds, thus increasing competition for corn land, which results in the $4.00 price of corn at 15 billion gallons of ethanol. If the bio-diesel mandates are relaxed (but the ethanol mandate is maintained), the long-run corn price will be lower. The second key assumption is that corn yields will continue to grow as they have in the past. If seed companies increase the rate of yield growth, then the corn supply curve will shift to the right in the graph. This shift will lower the long-run corn price if the ethanol mandate binds. However, if the mandate does not bind, then the shift simply means that the corn ethanol sector will grow even larger, leaving the long-run price of corn unchanged. Third, if the futures markets are completely wrong and crude oil prices drop significantly, then $2.50 gasoline will just be a bad memory. However, because of the corn ethanol mandate, the price of corn will be determined by the mandate, as in scenario 1.

If You Have Made Your Cropping Plans, It Is Time to Book Your Profits

Stu Ellis, The farm gate Editor
University of Illinois Extension

Are you planting more corn or more soybeans than last year? Are you planting equal amounts? Are you changing your cropping patterns at all? The market is certainly bidding for your acres, based on a variety of fundamental forces that are pushing and pulling on Cornbelt crops.

Cash corn is at the $5 mark at some locations. March soybean futures are nudging the $14 mark, which Purdue marketing Specialist Chris Hurt says is overpowering the corn market. In his latest newsletter for soybeans, Hurt says expected returns per acre are nearly $30 higher for soybeans than corn on average Midwestern soils. Subsequently, he's expecting the USDA's Prospective Plantings Report at the end of March to show excessive soybean acreage planned for 2008. If so, that would be bearish for the bean market, and would make farmers who forward contracted beans prior to March 31 look pretty smart.

Some of the fundamentals to be watched in the soybean market include exports, which are running ahead of last year and the old crop carryout which is down to only 19 days of supply. Reports about the South American soybean crop will soon be confirmed, along with reports of adverse weather that may hurt the crop size.

Sellers of soybeans have usually had good opportunities in the March to May window, and Chris Hurt recommends moving to 40% of old crop beans sold by that time, moving up to the 80% level before the end of May. For the new crop, Hurt suggests being 30-40% sold by June. While Hurt has suggested that soybean prices may reach $15, he urges farmers to utilize crop insurance to protect that revenue opportunity, despite higher premium costs.

As noted previously, Purdue's hurt believes corn prices are too low, relative to soybeans and he believes corn acreage will drop 5% from last year if it does not increase 20¢ to 30¢ per bushel. But right now, he's betting the March 31 plantings report will predict corn acreage to be far too low, according to his latest corn marketing newsletter.

The export market remains positive for corn despite the current prices. While the livestock producer has financial stress, there are few signs of a cutback in production. And Hurt says the carryover into the 2008 marketing year will be tight and will keep prices high.

To take advantage of those prices, Hurt wants farmers to consider using the February to May period for reaching the 80% sold level, and having 30% to 40% of the new crop forward contracted by planting time. He's concerned about the potential for warmer and dryer weather this growing season. Given that fact, Hurt is pushing farmers to consider revenue style crop insurance to protect pricing opportunities, despite premium costs.

Supporting Chris Hurt's concerns about having sufficient supplies of the right type of grain is Missouri marketing specialist Melvin Brees. In his latest marketing newsletter Brees says the market is trying to reconcile the needs of processors in 2009 with acreage and yield yet to be determined in 2008. And that debate over acreage will impact every corn and soybean producer in the Cornbelt. Brees also points to the March 31 Prospective Plantings Report as an indicator of how well the market has convinced farmers of how much acreage to devote to corn and soybeans. But the success will not be known until the report is released.

A year ago, the market had to flip-flop between the intentions report and planting time, or an insufficient amount of corn would have been produced in 2007. The market adjusted after the report, and Brees says 93.6 million acres of corn were planted with nearly the entire amount expected to be consumed in the current marketing year. He says corn cannot afford to give up many acres to beans in 2008, even though soybean use will exceed production in the current year and more soybeans will be needed in 2009.

In the middle of the corn and soybean acreage battle is the wheat market, which has the smallest supplies in 60 years. But less wheat was planted than the marketing expected, so prices remain high, which Brees says should entice spring wheat producers.

Worldwide, grain stocks are low as economies grow and increasing populations demand more and better food. That dynamic, combined with the low value of the US dollar, has fostered exports to levels that will reduce US stocks to low levels. And Brees says that will signal continued strong prices.

Summary:
Tight world supplies of grain, which result in increasing US export business, have caused domestic stocks to decline as well. The US market is bidding prices higher, buying acres for corn and soybeans in particular, but also for spring wheat. Consequently, prices will remain strong until the Planting Intentions report, which may indicate excessive acreage of one crop and insufficient supplies of another. The timing of the report, estimates of Brazilian soybean production, and the annual spring bounce in the markets will combine to provide farmers good marketing opportunities in the next few months.

Five Positive Trends in Farm Economics

North Central Ohio Agronomy Report

Dr. David M. Kohl, Professor Emeritus,
Agricultural and Applied Economics
Virginia Tech

Excerpt from his latest speaking program on December 2007, Waldo, Ohio:
Megaforces of Agriculture – "In Age of Turbulence"

- Volatility will create opportunity.
- Consumers and technology will drive business models.
- Return on Assets (ROA) of top producers is above 10 percent
- Evaluation of the new manager
- Good managers
  - Manage the manageable
  - Manage around the unmanageable

Views from the Road

Dr. David M. Kohl, Professor Emeritus,
Agricultural and Applied Economics
Virginia Tech

Excerpt from his latest speaking program on December 2007, Waldo, Ohio:
Megaforces of Agriculture – "In Age of Turbulence"

- 150 bushel/acre corn grown with 3" of rainfall
- Research & development at one major input supplier increased from 4% revenue to 10% revenue
- Corn yields will double in the next 20 years
- Soybeans will increase by 17% in yield in the next two years
- Rabobank sponsors 40 youth involved in production Ag
- Land values of $10,000/acre by 2010 in Iowa
- One-half of new ag lenders in schools are from outside of agriculture