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Dear Ag Industry Associate,

With the season finally turning over to spring, it is pretty safe to say that most everyone is ready to put the memory of this winter behind us. Fortunately, we have seen new “green shoots” for profitability in the dairy and hog industries with improving margins of late. The latest Margin Watch reports discuss the impact of USDA's Quarterly Hogs & Pigs report on forward profit margins along with how dairy producers are also able to capture favorable forward margins all the way into the first quarter of 2016.

In addition to this month's regular Margin Watch columns, our featured article focuses on another seasonal topic as we move into spring. In “Margin Management and Seasonality Revisited,” we discuss implied volatility and how this relates to an option's premium. The implied volatility of an option is an important component to its price and something a producer should consider when evaluating flexible strategy alternatives. Looking at the December Corn market specifically, we explore the current level of implied volatility from a historical and seasonal context. Being more informed on this important dimension of option pricing can help you make better margin management decisions when executing strategies to protect your forward revenue and input costs.

Sincerely,

Chip Whalen
Managing Editor
V.P. Of Education & Research

Managing Editor, Chip Whalen is the Vice President of Education and Research for CIH, a leader in Margin Management. He teaches margin seminars throughout the country and can be reached at cwhalen@cihedging.com

Upcoming Margin Seminars

Margin Management for Lenders
Chicago, Illinois

April 22-23, 2015
(866) 299-9333

Crop Margin Management
Chicago, Illinois

July 8-9, 2015
(866) 299-9333

Dairy Margin Management
Chicago, Illinois

Aug 5-6, 2015
(866) 299-9333

Margin Management and Seasonality Revisited

Last year around this time, we wrote an article on margin management and seasonality. While snow on the ground in Chicago and a wind chill in the teens this morning doesn't sound very much like spring, that season did in fact start last week and thoughts are quickly moving past winter as we begin the second quarter on April 1. In our article last year, we focused on the fact that agricultural commodities exhibit seasonal tendencies around production cycles which impact profit margins across different crop and livestock industries. This year, I would like to refine that discussion a little more to focus on seasonality as it relates to margin strategies and specifically option pricing. Our previous article mentioned that as we move into the spring through the summer months, there is increased uncertainty surrounding feed crops such as corn and soybeans due to weather considerations. We observed that this typically would be a time of year when a producer may prefer to have a more flexible position to protect their risk. Given that prices could potentially move a large degree in either direction depending on how conditions develop, a flexible strategy would allow a producer the peace of mind knowing that their risk was protected while at the same time preserving opportunity for better margins to be realized.

This is where I would like to refine the discussion further as not all flexible strategies are the same. A big part of an option's premium has to do with what is called implied volatility, and this is something that a producer should evaluate in the decision making process when considering strategy alternatives. Implied volatility has to do with the market's consensus of how volatile the underlying market is perceived to be. During a period where the underlying market has been quiet and the price range has been relatively small, implied volatility on that market's options tends to be low. Conversely, if the market has been more choppy or fluctuated over a wider price range, the implied volatility of the options is typically high. As a general note, higher implied volatility will increase the time value portion of an option's premium and thus make it more expensive. Likewise, lower implied volatility will reduce the time value portion of the option's premium and therefore make it cheaper.

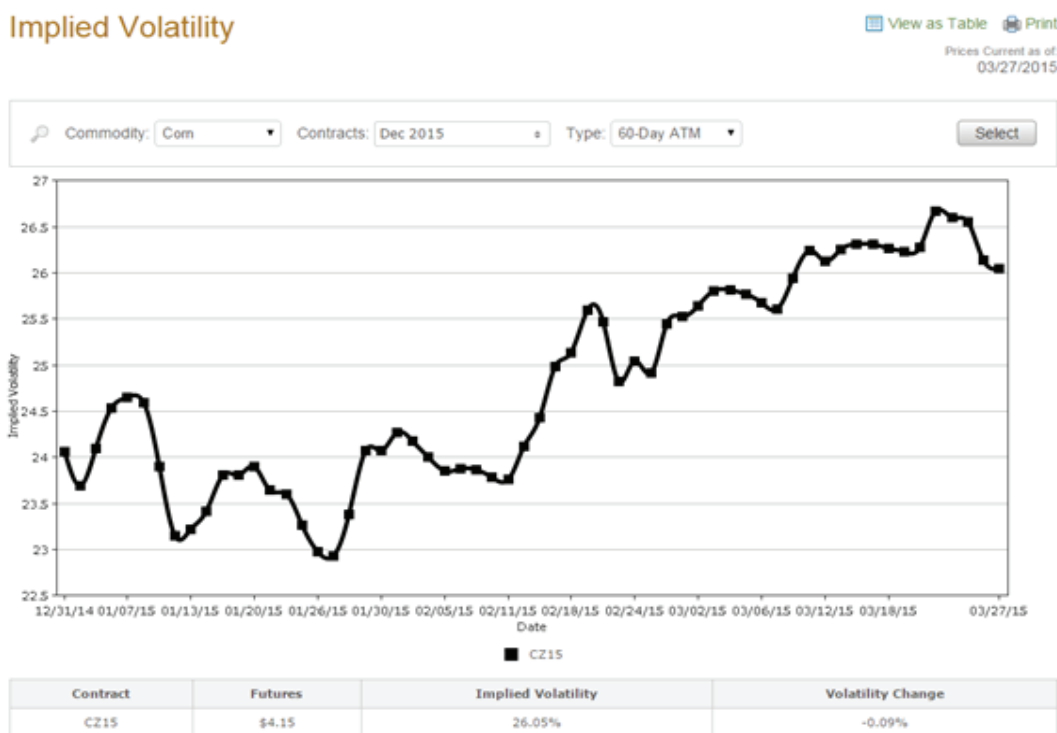
Traders look at implied volatility as an objective measure of an option's cost. Because the premium of an option is influenced by many factors including how much time remains to expiration, the price level at which the commodity is trading at, intrinsic value, interest rates, etc., implied volatility is a means of putting the nominal premium of an option into a context where it can be compared. Taking corn as an example, the December futures contract is currently trading at a price of about \$4.10/bushel. The market has been relatively quiet over the past several months, with a price range of approximately 50 cents between \$3.90 on the low end and \$4.40 on the high end. After making a low of around \$3.65 last fall on October 1st, the market has recovered but struggled to build on that strength, leading to sideways trade. With a large crop last fall and growing stocks, the upside has been limited. At the same time, uncertainty over new-crop acreage and weather for the upcoming season has provided support.

The implied volatility of December Corn options is currently trading around 26%. This is measured by taking the average implied volatility of both the at-the-money put and call, currently at the 410 strike price. The implied volatility of an option's premium is part of the dynamic price discovery process of the futures market, and this value is fluctuating on a daily basis. We can measure the change in implied volatility and plot it on a graph to see whether it has been rising or falling over time. The chart below displays the past 60 days of history for implied volatility of at-the-money December Corn options. What you will notice is that the implied volatility has been rising from a low of around 23% back in late January to the 26% where it exists today.

Beyond a recent period of time, implied volatility can also be measured in a longer-term context across different marketing years to see how the current level compares to past years. Over the past 10 years, December implied volatility has ranged from a low of around 16% to a high near 76% during 2008, although generally it has ranged between 20%-40%. A current implied volatility of around 26% is therefore basically mid-range with what we have historically observed. Another feature of implied volatility is that it displays seasonal tendencies, meaning that there are certain times of the year when it tends to increase and other times of year when it tends to decrease. For December Corn, we are moving into a time of year

Margin Management and Seasonality Revisited

Continued from previous page.



when implied volatility seasonally increases going into summer. This makes sense given that the greatest period of uncertainty for the crop is still in front of us. The implied volatility of December Corn options tends to peak around late July and then decline heading into the fall. This also makes sense as it occurs right after pollination of the crop when more is known about production potential and final acreage has been determined by USDA.

In addition to measuring implied volatility from a historical and seasonal context, it is also important to understand volatility skews. While we have been discussing the implied volatility of at-the-money options, the fact is that each strike price trades at its own unique implied volatility. This basically means that besides a general consensus of how volatile an underlying market may be as we go through time, there is also a dimension to the price discovery dynamic that factors in a likely direction to that volatility. As an example, strike prices above the current market price may be trading at higher implied volatilities than strike prices below the market which would suggest an upward bias or skew. Similarly, strike prices below the market may be trading at higher implied volatilities suggesting a downward bias to price. Below is a chart of the volatility skew for December Corn. You will notice that there is an upside skew, with the implied volatility at the \$4.70 strike price trading at 28% while the implied volatility of the \$3.60 strike price is trading at around 24%. It makes sense that there may be more fear of upside price risk at this juncture given concerns over spring weather which may potentially reduce the acreage base along with uncertain conditions over the summer that could negatively impact yield.

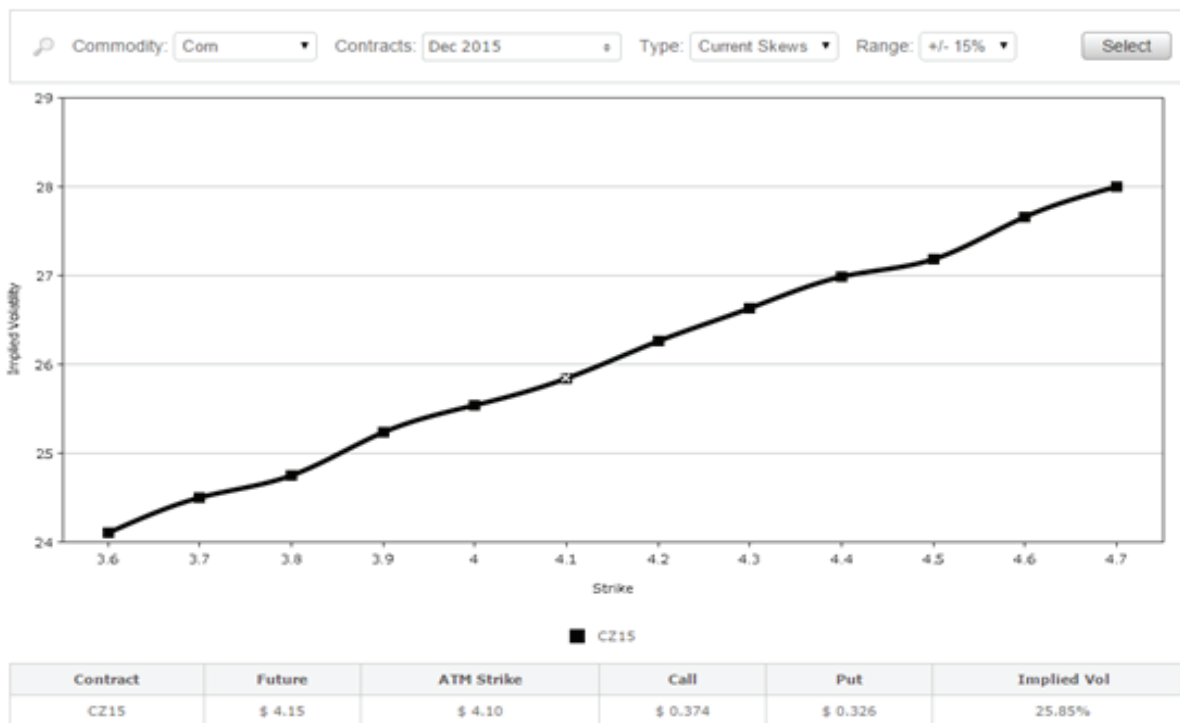
Margin Management and Seasonality Revisited

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Implied Volatility

[View as Table](#) [Print](#)

Prices Current as of
03/27/2015

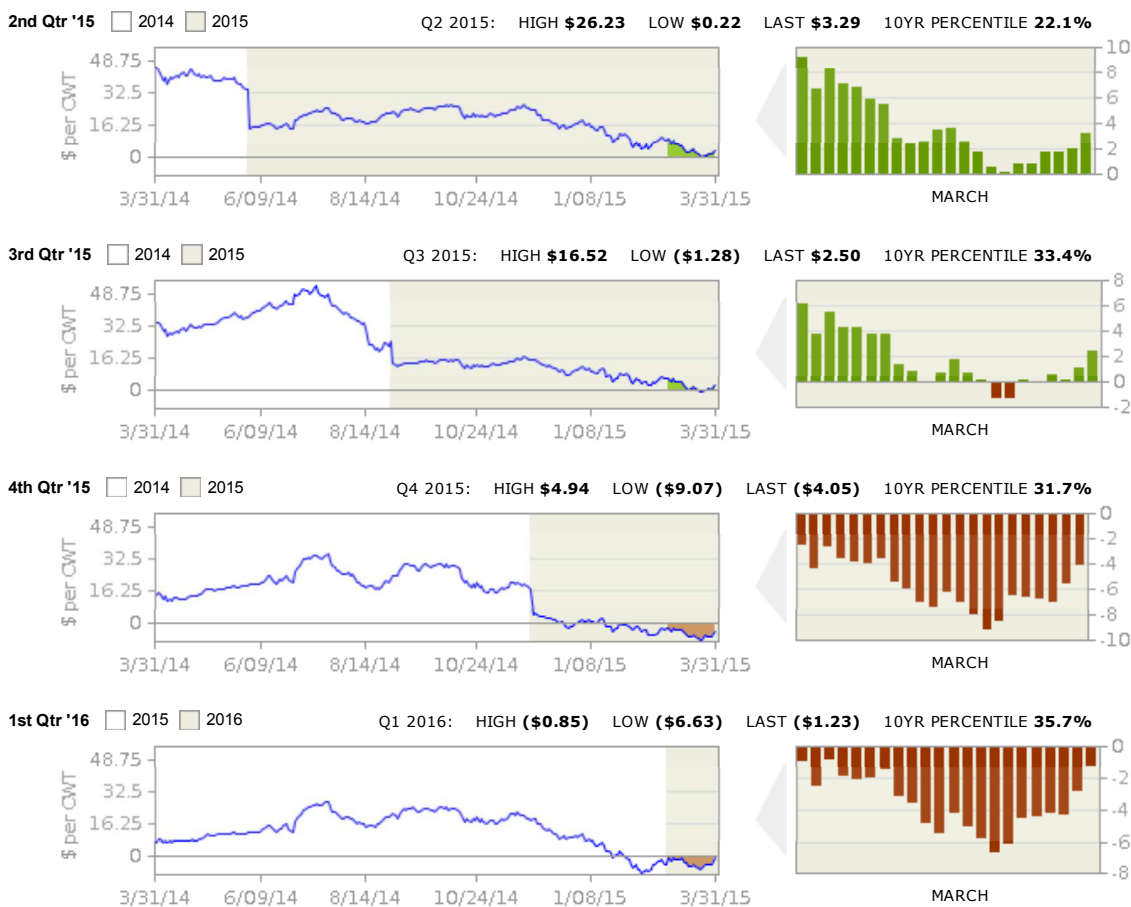


Putting it all together, it is possible to make a more informed decision on managing corn prices as it relates to an overall profit margin. With an average level of implied volatility from a historical standpoint and an upside skew, it may make sense to simply own an option outright in order to manage the risk of rising or falling corn prices as we head through the spring and summer months. How to offset this cost over time will then become a matter of how volatility changes over the next few months. Perhaps it would make sense at some point to limit the upside by either capping our protection to higher prices as a user of corn, or taking on the obligation of a sale as a corn producer. In a similar way, it might also make sense to limit the downside by taking on a purchase obligation as an end user, or limiting our range of protection to lower prices as a corn producer. Monitoring implied volatility can be a powerful guide to managing positions more effectively in a comprehensive margin management plan.

Hog Margin Watch: March



Margins were mixed since the middle of the month, weakening slightly in spot Q2 but improving in deferred quarters as a result of generally higher hog prices against a backdrop of steady feed costs. Hog finishing margins still remain depressed from a historical perspective, existing around the bottom quartile of the previous 10 years and projected at a loss for the fall and winter periods of Q4 and Q1. Deferred hog futures have recovered following what was construed as a bullish USDA Quarterly Hogs and Pigs report. USDA reported all hogs and pigs as of March 1st at 65.934 million head, up 7.22% from a year ago and slightly above the average trade guess of a 6.35% increase from 2014. The bullish surprise in the data was June-August farrowing intentions being reported down 2.1% from last year when the market was expecting a 2.7% increase which helped to support deferred futures contracts. Meanwhile, USDA's latest Cold Storage report showed that pork inventories at the end of February totaled 686.1 million pounds, up 89.8 million or 15.1% from January's level. The figure also represented a new 10-year high for February storage. USDA also released their Prospective Plantings and Quarterly Stocks reports which were considered bearish for corn. USDA projected 2015 corn planted area at 89.2 million acres versus the average trade guess of 88.7 million and the range of estimates between 87 and 89.7 million. March 1 corn stocks were pegged at 7.745 billion bushels which were 117 million above the average trade estimate of 7.628 billion, and implied lower Dec-Feb domestic disappearance than the market was anticipating. Our clients continue to focus mainly on making strategic adjustments to existing positions, with recent adjustments to add flexibility back to hog strategies proving timely.



The Hog Margin calculation assumes that 73 lbs of soybean meal and 4.87 bushels of corn are required to produce 100 lean hog lbs. Additional assumed costs include \$40 per cwt for other feed and non-feed expenses.

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Dairy margins improved slightly since the middle of March as milk prices have advanced while feed costs held relatively steady over the past two weeks. Margins are now back at or above the 80th percentile of the previous 10 years, offering dairies an opportunity to protect strong historical returns through the rest of the year into 2016. Milk has generally been moving higher despite what would otherwise be construed as negative news. U.S. milk production in February totaled 16.17 billion pounds, up 1.7% from a year ago and 1.4% above January on a daily average basis. USDA's monthly Cold Storage report showed a build in butter and cheese stocks from both January and year ago levels. Cheese stocks totaled 1.06 billion pounds, up 1.8% from January and 5.3% above a year ago. Butter stocks totaled 178.2 billion pounds, up 19.7% from January and 3.7% higher than 2014. Also, the last two Global Dairy Trade (GDT) auctions showed a sharp decline in the price index, dropping 8.8% for Event 136 and down 10.8% for the most recent Event 137. Meanwhile, USDA released their Prospective Plantings and Quarterly Grain Stocks reports, both of which were considered bearish for corn. Corn planted area was estimated at 89.2 million acres versus the average trade guess of 88.7 million and the range of estimates between 87 and 89.7 million acres. March 1 corn stocks were pegged at 7.745 billion bushels, 117 million above the average trade guess as Dec-Feb disappearance was less than anticipated. This implies old-crop ending stocks will likely increase in the April WASDE report. Our clients continue scaling into new coverage in deferred periods in response to the improving margin outlook, and have also benefited from recent adjustments to existing positions – particularly strengthening milk hedges.



The Dairy Margin calculation assumes, using a feed price correlation model, that for a typical dairy 62.4 lbs of corn (or equivalent) and 7.34 lbs of meal (or equivalent) are required to produce 100 lbs of milk (includes dry cows, excludes heifers not yet fresh). Additional assumed costs include \$0.90/cwt for other, non-correlating feeds, \$2.65/cwt for corn and meal basis, and \$7.00/cwt for non-feed expenses. Milk basis is \$0.75/cwt and non-milk revenue is \$1.00/cwt.

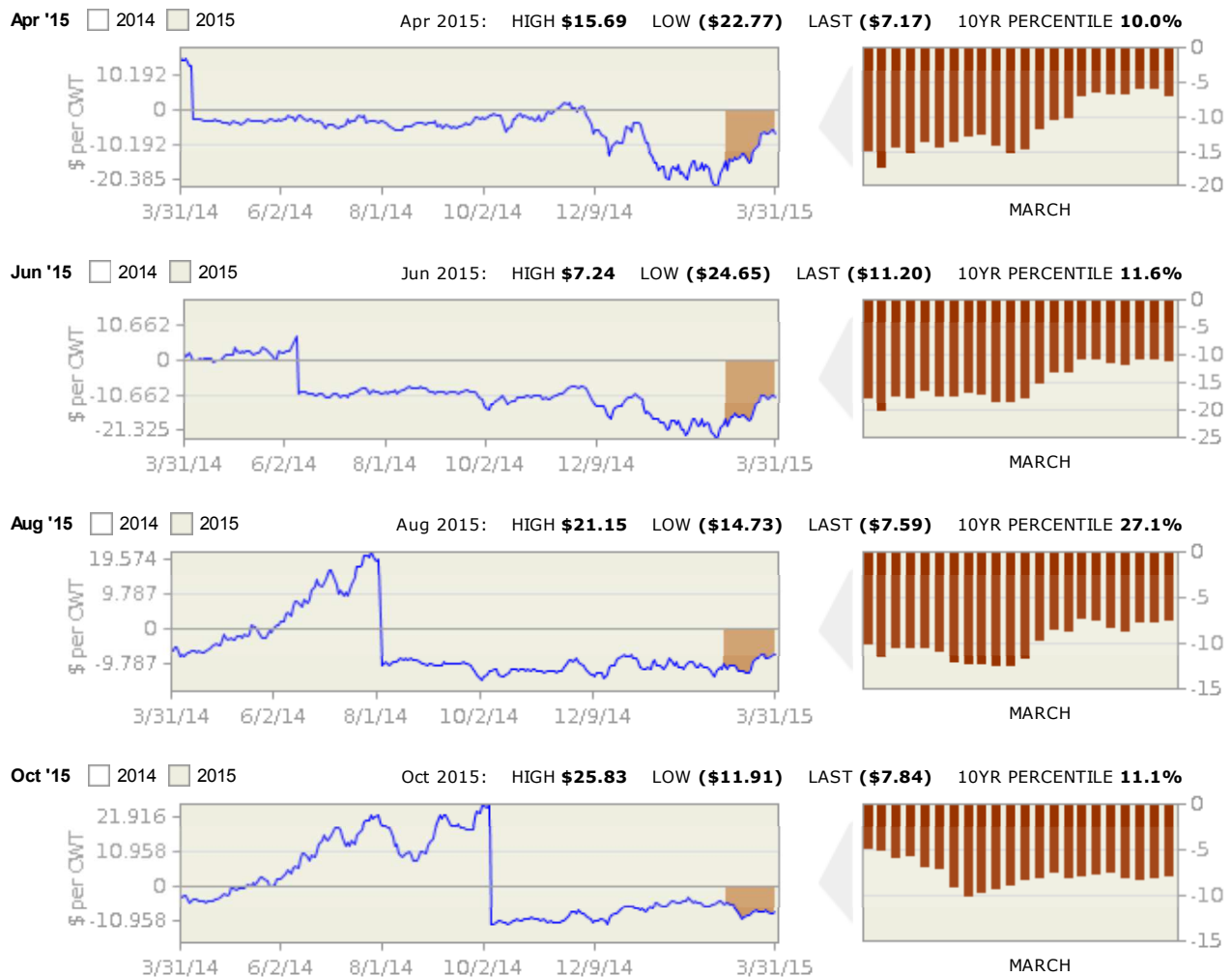
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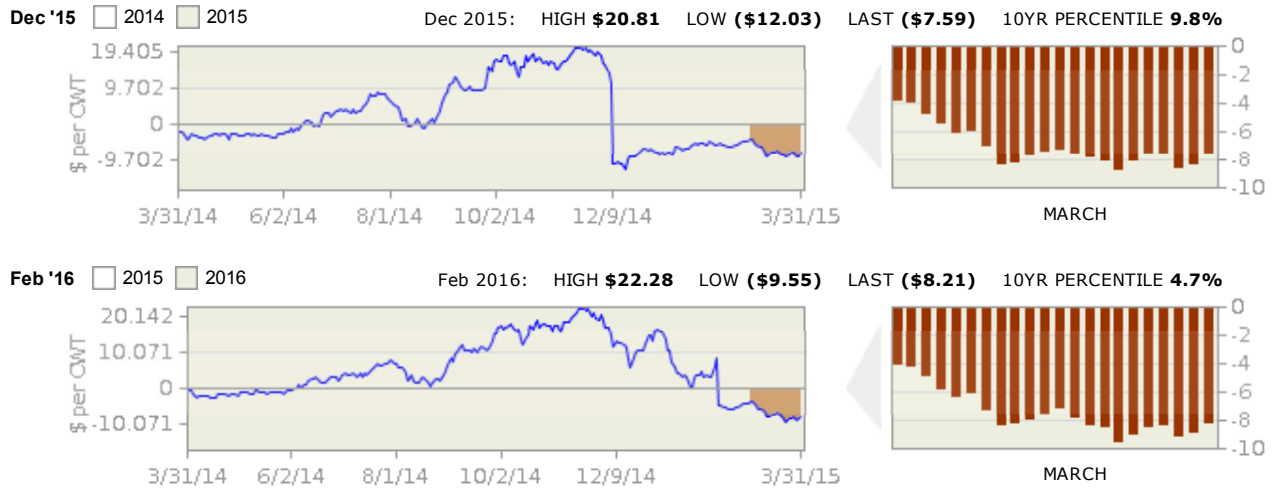
Beef Margin Watch: March



Beef margins were generally stronger since the middle of the month with the exception of far deferred marketing periods where they were flat to weaker. The second half of March was characterized by higher cattle prices against a backdrop of steady feed costs with corn trading sideways. Beef cattle finishing margins remain deeply negative though through the first quarter of 2016 and exist at historically low percentiles that are essentially in the bottom decile of the previous 10 years. USDA's latest monthly Cattle on Feed report was considered neutral to the market. Total cattle on feed as of March 1 in feedlots with 1,000 head or more was reported at 10.658 million head, down 0.5% from 2014 but very close to the average of analysts' estimates anticipating a 0.4% reduction from last year. February placements were down 8.1% from a year ago when the market was expecting a 7% reduction, which may have helped to support summer contracts. Meanwhile, beef cold storage inventories at the end of February totaled 492.1 million pounds, up 20.2% from 2014 and also 10.1% higher than the five-year average with boneless beef stocks contributing to the big jump in total beef inventories. USDA also released their Prospective Plantings and Quarterly Grain stocks reports, both of which were considered bearish for corn. Corn planted area was estimated at 89.2 million acres versus the average trade guess of 88.7 million and the range of estimates between 87 and 89.7 million acres. March 1 corn stocks were pegged at 7.745 billion bushels, 117 million above the average trade guess as Dec-Feb disappearance was less than anticipated. This implies old-crop ending stocks will likely increase in the April WASDE report. Our clients have recently benefited from adding flexibility to cattle hedges while waiting for opportunities to establish new margin protection for upcoming placements.

Live Cattle Marketing Periods:





The Beef Margin calculation uses Feeder Cattle futures to price inbound animals and assumes each will consume 55 bushels of corn and cost approximately \$250 per head (for other feed and non-feed expenses) to gain 550 pounds and reach a market weight of 1,250 pounds.

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Corn margins were mainly higher through the last two weeks of March only to give up all the gains on the final day. NASS reported corn stocks in all positions to be 7.745 billion bushels, up 737 million bushels from last March. The figure came in above the average pre-report expectation, but within the range of analysts' estimates. Based on average quarterly usage rates over the last five and ten years, the current stocks imply that this year's demand is running roughly 150 million bushels behind the current USDA expectation. The USDA will account for the slowdown in the upcoming WASDE report, likely lowering the feed and residual demand category. With the exception of Michigan, Minnesota and Ohio, commercials in the 'off farm' category hold more supplies than this point last year. At the same time, producers in the 'on farm' category generally have supplies above year-ago levels. The combination could pressure basis values as the market works through excess supplies. NASS also reported the results of their annual Prospective Plantings Survey, indicating that U.S. farmers intend to plant 89.199 million acres to corn this spring. The figure is down 1.4 million acres from last year's seedings, but was above analysts' expectations of 88.684 million acres. While farmers still have to plant the crop, the revelation of larger supplies than expected and slightly greater planted area will give a buffer to any adverse weather conditions this spring and into pollination this summer. With limited opportunity to protect attractive forward margins, our consultants are working with clients to help make strategic adjustments to existing protection strategies. Producers continue to favor flexible strategies that would protect all lower prices while still preserving the opportunity to benefit should prices rise.



The estimated yield for the 2015 crop is 180 bushels per acre and the non-land operating cost is \$612 per acre. Land cost for 2015 is estimated at \$243 per acre¹. Basis for the 2015 crop is estimated at \$0.08 per bushel.



The estimated yield for the 2016 crop is 174 bushels per acre and the estimated operating cost is \$615 per acre. Land cost for 2016 is estimated at \$238 per acre¹. Basis for the 2016 crop is estimated at \$-0.18 per bushel.

¹ The Corn Margin Watch yield, land and non-land operating cost values are based upon central Illinois low productivity farmland crop estimates in the "Historic Corn, Soybean, Wheat, and Double-crop Soybeans" report published by the Department of Agricultural and Consumer Economics at the University of Illinois.

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2015 Educational Program Schedule



Margin Management for Ag Lenders
Apr 22-23

Commodity Price Management
May 13-14

Crop Margin Management
Jul 8-9

Hog Margin Management
Jul 22-23

Dairy Margin Management
Aug 5-6

Margin Management for Ag Lenders
Oct 21-22

Beef Margin Management
Nov 11-12

Dairy Margin Managment
Nov 18-19

Hog Margin Management
Dec 9-10

Crop Margin Management
Dec 16-17

Trading futures and options carry the risk of loss. All dates subject to change. Please check cihedging.com/education for more information and the latest additions to the schedule.

Soybean margins have improved over the last two weeks albeit only modestly. NASS reported soybean stocks in all positions to be 1.334 billion bushels, up 340 million bushel from last March. The figure came in below the average pre-report expectation but within the range of analysts' estimates. Based on average quarterly usage rates over the last five years, the current stocks imply that this year's demand is running roughly 195 million bushels ahead of the current USDA expectation. Indicated disappearance over the first half of the marketing year comes in at 2.73 billion bushels, 222 million bushels greater than last year's record demand pace. The export sales and shipment pace have remained well ahead of the USDA expectation and helps explain part of the advanced demand pace. The crush pace has been on par with the USDA forecast through the first half of the marketing year as reported by NOPA. NASS also reported the results of their annual Prospective Plantings Survey, indicating that U.S. farmers intend to plant 84.635 million acres to soybeans this spring. The figure is up 934,000 acres from last year's seedings, but was below analysts' expectations of 85.872 million acres. Some market participants have discussed the potential of actual planted acres attaining a higher total by the end of planting. Spring weather will ultimately determine what farms plant this year. With limited opportunity to protect attractive forward margins, our consultants are working with clients to evaluate current protection strategies and make adjustments while weighing the costs and benefits. Some of our clients that previously decreased the delta of hedges to capitalize on the lower market continue to consider similar adjustments to a greater percentage of coverage that would benefit should the market continue higher while maintaining protection to all lower prices.



The estimated yield for the 2015 crop is 52 bushels per acre and the non-land operating cost is \$364 per acre. Land cost for 2015 is estimated at \$243 per acre¹. Basis for the 2015 crop is estimated at \$-0.07 per bushel.



The estimated yield for the 2016 crop is 52 bushels per acre and the estimated operating cost is \$365 per acre. Land cost for 2016 is estimated at \$238 per acre¹. Basis for the 2016 crop is estimated at \$-0.22 per bushel.

¹ The Soybeans Margin Watch yield, land and non-land operating cost values are based upon central Illinois low productivity farmland crop estimates in the "Historic Corn, Soybean, Wheat, and Double-crop Soybeans" report published by the Department of Agricultural and Consumer Economics at the University of Illinois.

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Wheat margins have been sideways-to-higher since the middle of March. NASS reported wheat stocks in all positions to be 1.124 billion bushels, up 67 million bushels from last March. The figure came in below pre-report expectations but within the range of analysts' estimates. Indicated disappearance for the third quarter was 405 million bushels, down 3% from last year. The demand for the final quarter of the marketing year has averaged 22% of annual demand and if realized would put ending stocks just below the current USDA forecast. Significant headwinds exist for exporters as the U.S. dollar remains strong despite the recent correction. NASS also reported the results of their annual Prospective Plantings Survey, indicating that U.S. farmers intend to plant 12.97 million acres of spring wheat with all wheat acres totaling 55.4 million. The total acreage figure represents a drop of 3% from last year's seedings. Market participants have switched focus to spring weather as crop conditions begin reporting. While areas of Texas, Oklahoma, Colorado and Illinois are showing better conditions than last year, areas in Kansas, Nebraska and South Dakota are showing signs of poor crop conditions. It is this time of year that the marketplace can pass judgement on any winterkill damage that may have occurred through the bitter cold temps a few months back. Our consultants continue working with clients to protect these forward margins with flexible strategies on existing coverage that will allow for potential margin improvement over time. Some of our clients that previously decreased the delta of hedges to capitalize on the lower market continue to consider similar adjustments to a greater percentage of coverage that would benefit should the market continue higher while maintaining protection to all lower prices.



The estimated yield for the 2015 crop is 67 bushels per acre and the non-land operating cost is \$366 per acre. Land cost for 2015 is estimated at \$163 per acre¹. Basis for the 2015 crop is estimated at \$0 per bushel.



The estimated yield for the 2016 crop is 72 bushels per acre and the estimated operating cost is \$328 per acre. Land cost for 2016 is estimated at \$158 per acre¹. Basis for the 2016 crop is estimated at \$-0.06 per bushel.

¹ The Wheat Margin Watch yield, land and non-land operating cost values are based upon central Illinois low productivity farmland crop estimates in the "Historic Corn, Soybean, Wheat, and Double-crop Soybeans" report published by the Department of Agricultural and Consumer Economics at the University of Illinois.

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