

# Iowa Farm Outlook

Department of Economics  
Ames, Iowa

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## Hedging against Falling Prices using Live Cattle Futures

Producers often ask, “Which price risk management strategy is the best?” Not surprisingly, no one strategy works better than others all the time. Only price action between when you enter a strategy and when you sell cash cattle will tell what would have worked best each time.

Each pricing strategy has its own advantages and disadvantages, with varying degrees of risk and reward. The goal with any marketing plan should be to minimize risk by reducing losses and boosting the probability of a profit.

Twice I have administered surveys to feedlot operators asking about their use of price risk management tools for marketing fed cattle. A 2014 survey of Iowa feedlot operators found that 12.6% use forward contracts, 10.4% use futures, 4.5% use options and less than 1% use livestock risk protection (LRP) or livestock gross margin (LGM) insurance. A 2017 national survey of producers in the major cattle feeding states, including Iowa, found that 18.7% use forward contracts, 17.5% use futures, 7.4% use options and again a very small percentage use price or margin insurance. Some producers may use more than one strategy. Apparently many do not use any.

Surveys like these help identify trends and call attention to various price risk management choices. Going further and explaining the nuts-and-bolts surrounding how a particular strategy has worked can hopefully empower producers to consider and increasingly use price risk management tools available to them. For simplicity, let’s consider two strategies, the cash market versus a short futures hedge.

Some view the cash market as the default strategy of doing nothing. That’s not the case. Choosing the cash market is your best choice if the market goes up. On the flip side, if the market goes down, you stand the biggest risk, making cash sale the least desirable choice. If you strictly use the cash market, you don’t have any extra costs for broker fees or margin calls. Some argue that if you are buying and selling cattle regularly you have a natural hedge in place. You stand to get the “average” price. But if you can identify down-trending markets, other strategies may enhance profits.

### *Selling futures to hedge*

The concept of a short futures hedge is to sell a futures contract as a temporary substitute for a cash sale you’ll make later. You can hedge to protect either short term or long term sales.

The goal is to reduce the risk of falling prices. If futures and cash prices fall while your short hedge is in place, you’ll capture a futures gain to at least partially offset the lower cash price you receive. Conversely, if prices rise following initiation of the short hedge, you’ll incur a futures loss that will roughly offset the cash price increase.

When you initiate a futures hedge, you must deposit margin money with the broker. This is earnest money (good faith funds) that will be used to offset any losses in the futures account should the market keep rising in the case of a short hedge.

### *Use basis to find expected sale price*

Before you sell futures to hedge, you need to project what you expect the difference will be between the cash cattle price and futures price at the time you will buy back the futures contract and sell the cash cattle. That is the basis. Adding the basis to the current trading price of futures contract you would sell to hedge gives an *Expected Sale Price*. Errors in projecting what basis will be will result in *Actual Sale Price* being somewhat higher or lower than the *Expected Sale Price*. Being able to reliably forecast basis is the key to successful hedging.

The following example using 2019's actual cash and futures price action illustrates the mechanics of a short futures hedge.

Suppose back in March a producer planned to have a pen of steers that is equivalent to one futures contract (40,000 lbs or 400 cwt) ready for the cash market in August 2019. The producer projected a breakeven sale price of \$115/cwt for the steers. In March the producer was uncertain about cattle price prospects. He saw August live cattle futures at \$117.725/cwt. He expected the August basis (cash – futures) to be \$1.564/cwt based on the 2016-2018 average. The producer sold an August live cattle futures contract at \$117.725/cwt. Assume brokerage commission costs \$0.150/cwt. Brokerage fees can vary by firm and number of contracts traded. Based upon the basis forecast and brokerage commission, the August 2019 *Expected Sale Price* was \$119.139/cwt ( $\$117.725 + \$1.564$  expected basis – \$0.150 fees).

By August 2019, the futures price had fallen to \$102.850/cwt, and the cash price was \$109.820/cwt. The basis turned out to be \$6.970, which was higher than expected. The producer buys back the futures contract and realizes a futures gain of \$14.875/cwt ( $\$117.725 - \$102.850$ ). Then, the producer sells the cattle in the cash market at \$109.820/cwt. The *Actual Sale Price* is the cash price of \$109.820 plus the \$14.875 futures gain minus the \$0.15 brokerage commission, or \$124.545/cwt. The lower price in the cash market is offset by the gain realized in the futures market. The August breakeven price turned out to be \$116.826/cwt. So hedging turned a \$7.719/cwt profit or about \$100/head. Not hedging would have resulted in a \$7.006/cwt loss.

The *Actual Sale Price* was higher than the *Expected Sale Price* because the basis at the time the producer bought back the futures contract and sold the cash cattle was more favorable than projected.

This example serves to highlight the fact that, once the initial futures position has been established, the hedger is no longer exposed to the risk that futures prices will go down since the hedger has effectively “locked in” the futures price. However, hedgers are still exposed to basis risk since basis is not established until the cash market transaction takes place. This basis risk can be positive or negative.

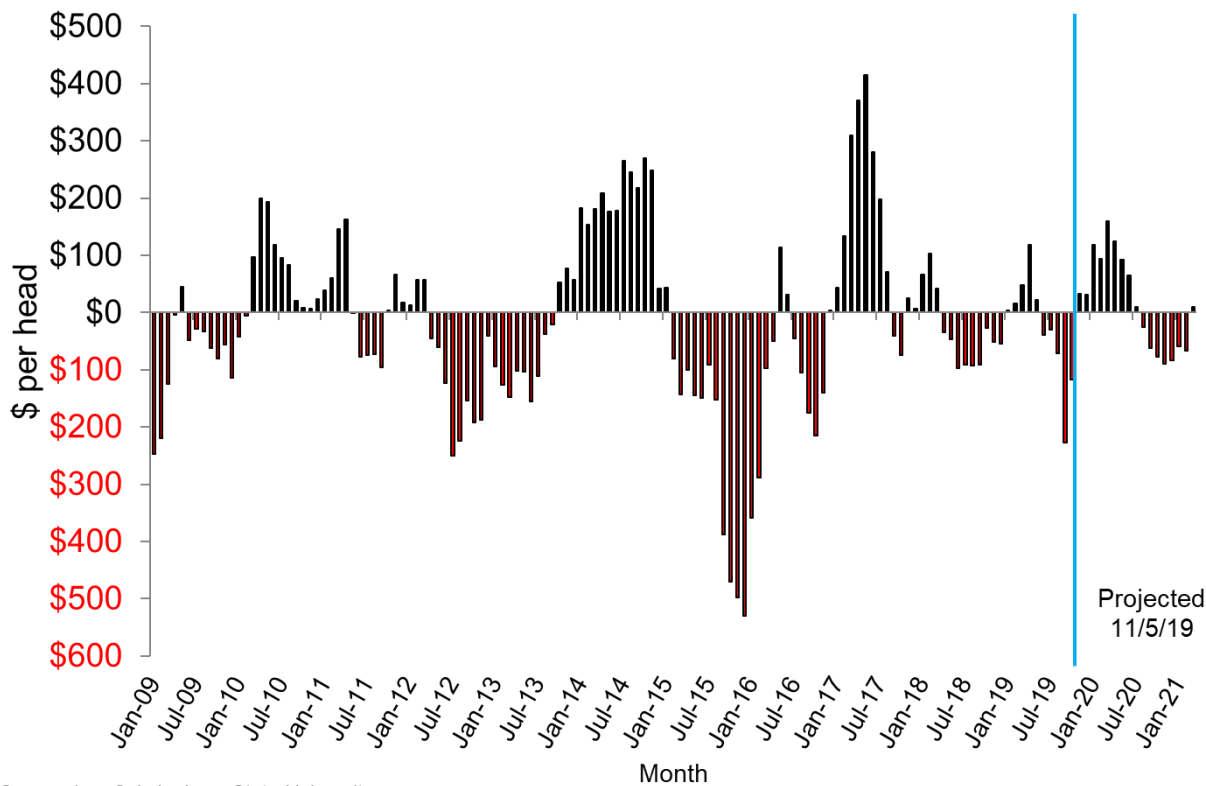
#### *Hedging opportunities exist*

Fed cattle prices seem to have found a bottom. Recent price gains offer favorable opportunities to hedge or put a floor on fed cattle prices.

On September 9<sup>th</sup> October 2019 live cattle futures closed at \$94.20/cwt. By October 31<sup>st</sup> that contract had risen \$17.475 to \$111.675/cwt. On November 5<sup>th</sup>, the December contract was trading at \$119.450, February at \$124.675, April at \$125.825, and June at \$117.950.

Futures prices are offering at or above breakeven margins for November 2019 through July 2020 closeouts according to the Iowa State University estimated yearling to finish cost and return series (Figure 1).

**Figure 1. Estimated Returns to Finishing Yearling Steers, Iowa**  
Historical and Projected with Basis Adjusted Futures



Source: Lee Schulz, Iowa State University

A course on livestock price risk management is available at the Iowa State University Extension and Outreach on line course website. The course focuses on the basic concepts and definitions related to price risk management. It introduces some risk management strategies that producers commonly use and discusses their relative strengths and weaknesses. The course covers forward contracts, futures, options and livestock insurance for both beef and swine producers.

<https://moodle.extension.iastate.edu/login/index.php>

The course is free but participants will need to create an account if they do not already have an account at the website above and then they will receive an email to confirm the account. After confirming the account users can go to the main course webpage— <https://moodle.extension.iastate.edu/>—and look for Agriculture and Natural Resources courses and select the Livestock Price and Market Risk Management course to begin. Once enrolled with an account users can return directly to the course by just entering their username and password.

*Lee Schulz*

## **Crop Usage for 2019 and Early Projections for 2020**

2019 continues to be a challenging year, in many senses of the phrase. Crop harvest progress remains significantly behind schedule, continuing the pattern in crop planting and development. Crop prices have stagnated, with conflicting signals buffeting the markets every few days. Crop supplies are still under question with the harvest delays. Yields and quality are concern points for merchandizers and users as they evaluate this year's crops. International demand and ethanol grind have faltered for a variety of reasons. And the weather pattern this harvest season has some eerie similarities to last year, which set up the flooding and saturated field issues last spring.

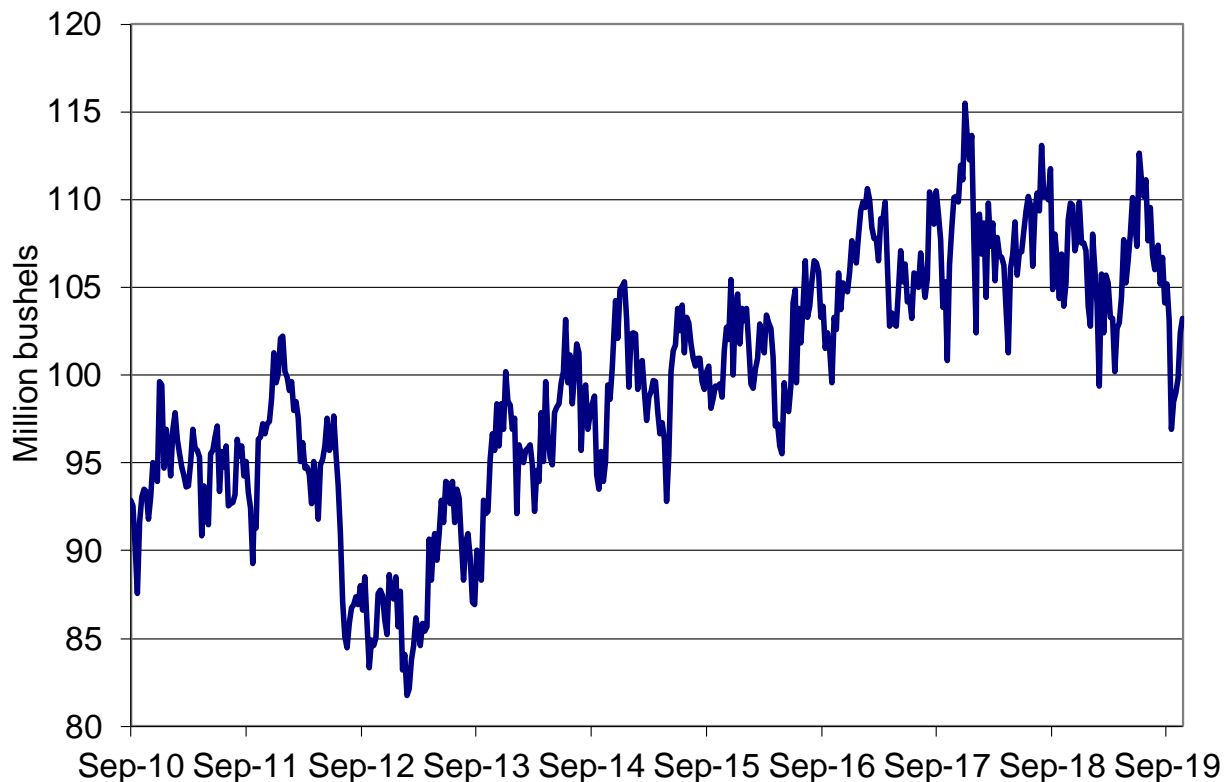
As with last year, the wet weather this autumn will create some additional flexibility in cropland as we look to planting next spring. The delays in harvest also translate in delays in fertilizer applications and tillage passes,

moves that usually signal which crop will be on the land next spring. With less field work performed in the fall, farmers will have more time to consider crop options and to incorporate other market factors into their acreage decisions. Crop usage over the winter will likely have more sway on crop plantings next spring than usual.

One area of usage that has attracted negative attention is ethanol. The ongoing argument over the Renewable Fuels Standard and the proliferation of small refinery exemptions has highlighted a larger issue for the corn and ethanol industries. Figure 1 shows the weekly flow of corn estimated to move through the nation's ethanol plants. That flow hit its high water mark in 2018 and has taken a step since then. The deeper decline in 2019 shows the shutdown of a few ethanol facilities and a slowdown at others. Some of that slowdown is related to plant maintenance as fall is the season many plant managers gear down production temporary for plant cleanup or refurbishment. The recent uptick in ethanol production is indicative of the plant maintenance storyline.

But overall, corn usage for ethanol is at best steady and actually likely declining a bit. The small refinery exemptions are part of the story, but there are other factors at play as well. And those factors may have longer-term effects than the exemptions. Transportation fuel use has been fairly stable over the past few years. While U.S. consumers are travelling more, they are using more fuel-efficient vehicles. With the E-10 market saturated, ethanol's growth depends on expanding blending percentages, which explains the drive for expansion of E-15. Combine that with a sizable reduction in ethanol exports, partially driven by trade disputes and partially by increased competition from sugarcane-based production, and you have a recipe for weaker ethanol production and corn usage.

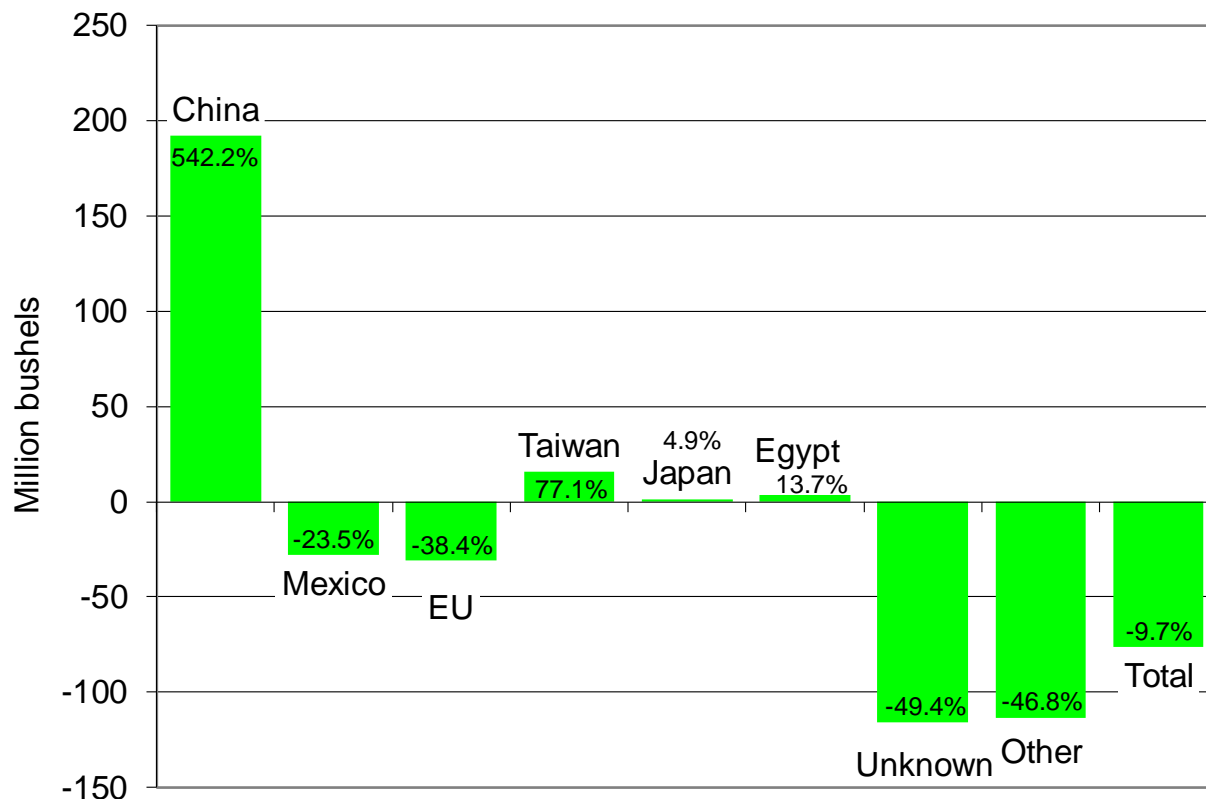
**Figure 1. Estimated weekly corn usage for ethanol.**



Another issue for the ethanol industry has been the challenge of finding profitable margins. Corn prices are higher than they were last year, but gasoline prices are lower. So input costs have risen, while ethanol prices couldn't move to compensate without losing competitive balance to gasoline. Whereas five to ten years ago energy prices were highly volatile, currently energy markets are much more range-bound as global supplies have surged with alternative production strategies, such as fracking. In the past, the energy price volatility provided ethanol prices room to move with input/corn price changes. Now, that ability is constrained.

Another area of concern on the usage is exports. The trade war with China receives the largest headlines, but it is the broader international picture that interests me. For the soybean market, China has resumed its position as the major export market. It is an encouraging sign that the trade talks have progressed and Chinese statements about increased purchases are occurring. But the negative side of the story is this, Chinese purchases are still well below levels pre-trade war. Combine that with significant reductions in soybean sales to several other countries, including Mexico and the European Union, and you still have an international market in decline. Current export sales are down nearly 10% from last year. Besides the trade disputes, other factors that are restricting soybean exports are the abundance of soybeans worldwide (the last few global soybean crops have been the largest on record) and the relative strength of the U.S. dollar (making our soybeans cost relatively more than soybeans from competitors).

**Figure 2. U.S. Soybean Export Sales Changes. Source: USDA-FAS.**

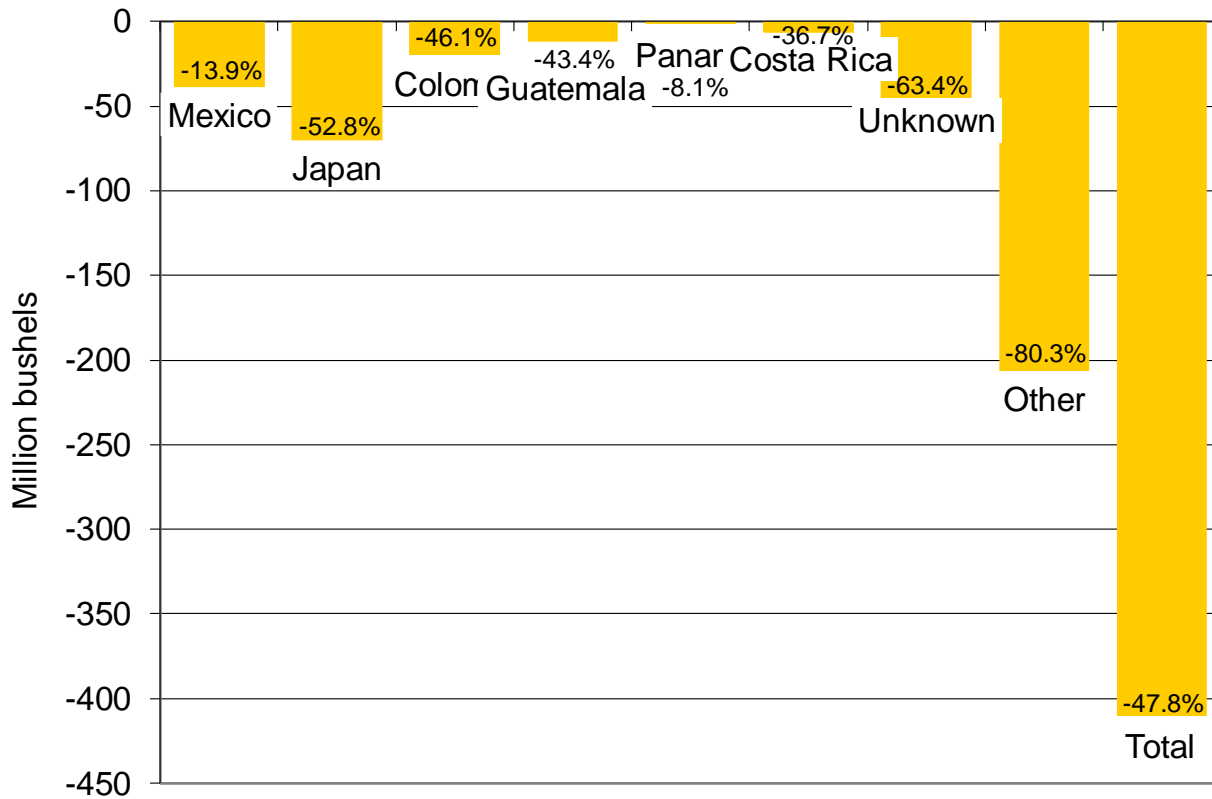


Those same export forces are hampering corn exports as well. Global corn (and overall feed) supplies are large. The dollar's strength has kicked in to limit U.S. corn's competitiveness in many markets. While there is no large trade dispute limiting exports, like with China in soybeans, there is an extensive broad-based reduction in U.S. corn demand around the world. Corn export sales are down nearly 50% from last year. Looking at the top 30 markets for U.S. corn last year, sales are down in 25 of them, including all of the top six markets (as Figure 3 shows).

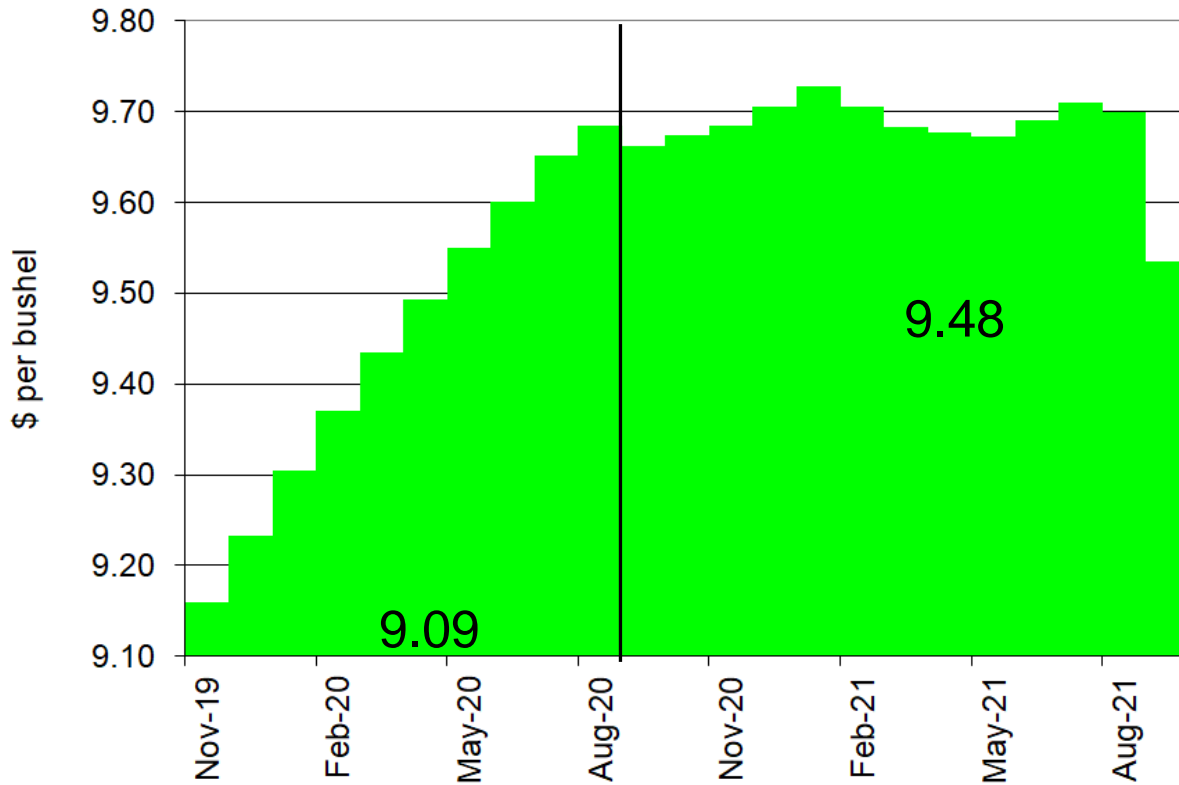
These usage declines have the potential to influence farmers' land decisions next spring. Looking forward to 2020, there is a lot of land in flux for spring planting. While the weather forecast for this winter shows a continuation of the soggy conditions we have dealt for most of 2019, farmers will be prepping for the return of, at least some of, nearly 20 million acres that were prevented from being planted. That translates into an acreage boost, even with declining crop usage. Some early guesses on acreage have already been released. The Food and Agricultural Policy Research Institute (FAPRI) estimated 2020 corn area at 91.9 million acres and 2020 soybean area at 85.5 million acres. So, increases for both crops, but soybeans is capturing the lion's share. A Farm Futures survey of farmers pegged 2020 corn area at 94.1 million acres, with soybeans at 83.6 million acres, giving corn a larger share of prevented planting acres. USDA will likely release its first preliminary projections for 2020 next month, as part of their long-run projection update. The major key to these projections will be the probabilities market analysts put on the likelihood of the "phase one" U.S.-China trade deal, the

higher the probability of a deal, the higher the soybean acreage estimate. But both crops will see increased area, whether the markets are ready for that or not.

**Figure 3. U.S. Corn Export Sales Changes. Source: USDA-FAS.**

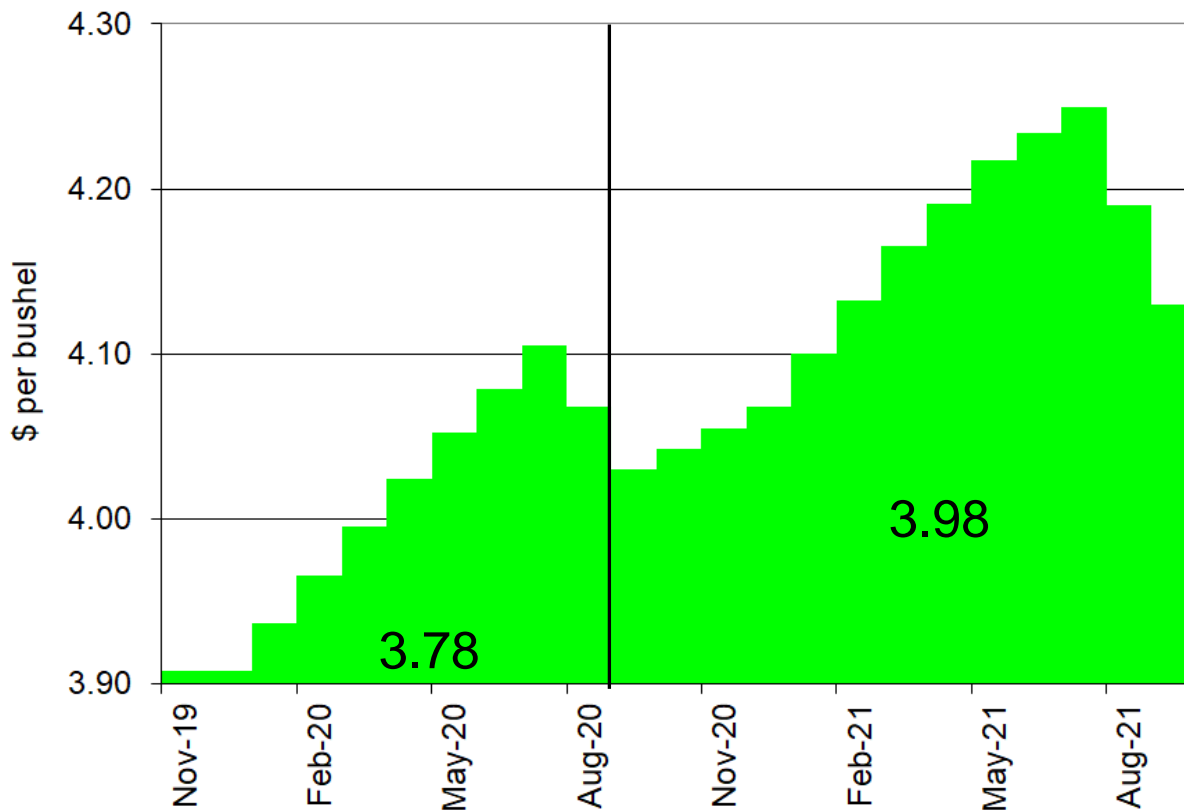


**Figure 4. Soybean Futures Prices. Source: CME Group, Oct. 30, 2019.**



Futures prices for the 2020 crops are providing some incentive for acreage growth. For soybeans, current futures point to a 2019 season-average cash price estimate around \$9.10 per bushel, roughly 10 cents above USDA's current estimate. But for 2020, futures push that season-average estimate to nearly \$9.50 per bushel. And while there is significant carry built into the 2019 season prices, the carry disappears for the 2020 crop. It has the look of a market that expects more area, but fears an even larger shift.

**Figure 5. Corn Futures Prices. Source: CME Group, Oct. 30, 2019.**



As with soybeans, corn futures prices are holding higher for the 2020 crop. Currently, futures indicate a 2019 season-average cash price estimate of \$3.78 per bushel, 2 cents below the current USDA estimate. For 2020, the estimate stands at nearly \$4.00 per bushel. Unlike soybeans, there is still a bit of carry for the 2020 crop. So, overall, despite the many issues plaguing agriculture, the futures markets are providing a slightly better outlook for next year's crops.

*Chad Hart*

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