

Returns for Ohio Corn at Risk Management Association Projected Prices

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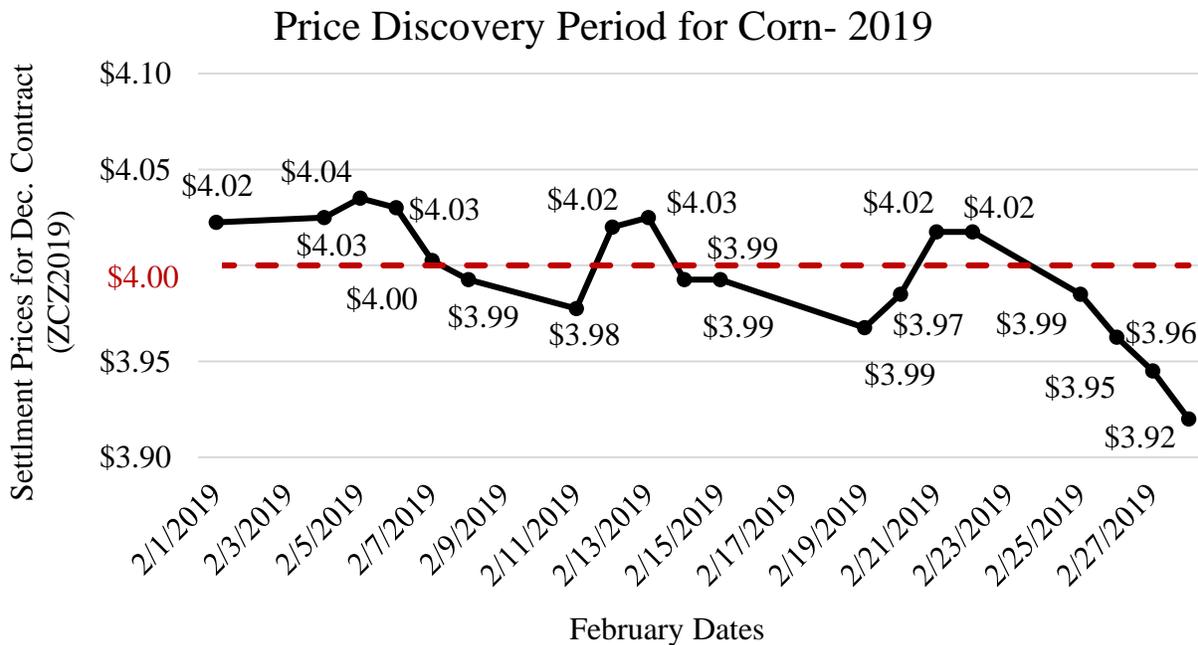
The Ohio State University

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The month of February represents the price discovery period for Projected Prices of corn, soybeans, and spring wheat. Barley and winter wheat in Ohio have price discovery periods August 15 through September 14. The Projected Prices represent the Risk Management Associations (RMA) baseline for establishing federally sponsored corn and soybean insurance products for 2019. The Projected Price for corn is the average of the February settlement prices for the December futures contract (ZCX2019). The subsequent Harvest Price is the average of the October settlement prices for the same December futures contract. The Projected Price and the Harvest Price are used to identify the guaranteed revenue for revenue based crop insurance products. However, neither price takes into account local cash basis.

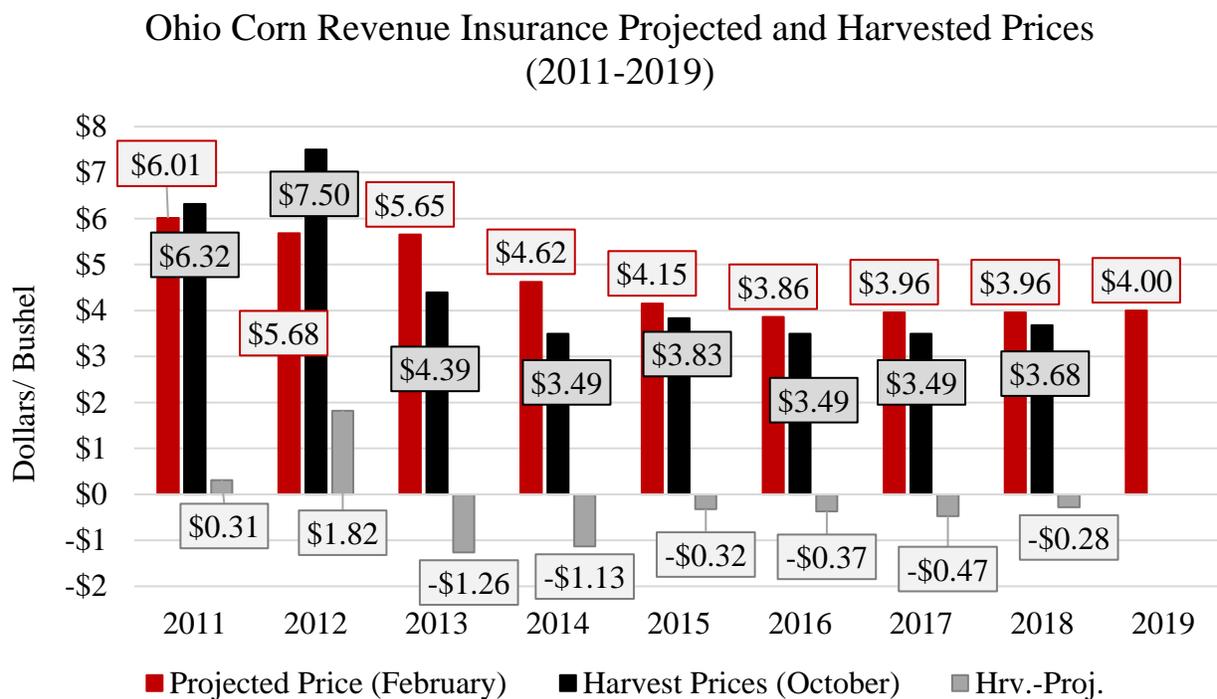
The February settlement prices for the December futures contract are represented in figure 1. The projected price established by RMA for 2019 corn revenue is \$4.00/bushel. This is up \$0.04/bushel from the 2018 and 2017 projected prices of \$3.96/bushel representing the increase in corn prices during the last few months of 2018 after a drop during the summer months. The December futures price maintained during the month of February before falling during the beginning of March. Price volatility is considered when setting premium levels for insurance products. A higher volatility increases the premium paid by the producer all else equal. Volatility rates are set by averaging the volatility of the most recent five trading days. Corn volatility has continued decreasing and since 2011 is at its lowest point of 0.15.

Figure 1: Discovery Period Prices for Corn



In October, RMA will calculate the 2019 Harvest Price to set guaranteed revenue for the year. Historical Projected and Harvest corn prices are represented in figure 2. The Projected Price for corn has been higher than the Harvest Price the last six years after two years of increases in 2011 and 2012. For the entire series 2011-2018, the Projected Price was above the Harvest Price by \$0.21/bushel. Looking at only the last six years of high production values across the country, the Projected Price exceeded the Harvest Price by \$0.64/bushel. In 2013, both prices finished at \$12.87/ bushel. The December Futures contract ZCX2019 is averaging below the Projected Price halfway through March. Several factors will determine the final Harvest Price for the December Futures contract between now and the discovery period in October.

Figure 2: Difference In Projected and Harvest Soybean Prices



Returns for Ohio Corn Producers based on 2019 Projected Prices

Through the Farm Office at The Ohio State University Extension, enterprise budgets can be found for 2019 corn and soybeans along with enterprise budgets from the previous years. These enterprise budgets break out all costs for production on low, medium and high yielding scenarios. These budgets can be found at farmoffice.osu.edu.

To calculate a cost of production for each crop reporting district in Ohio, the OSU enterprise budgets were used along with inputs from credible sources. Yield estimates for each crop reporting district came from the most current 5 years of National Agricultural Statistic Service (NASS) data.

Insurance policies are based on an Actual Production History (APH), which represents a maximum of 10 previous years of yield records for a particular field or enterprise. Since the 2012 crop year,

these yields have been adjusted to account for improved crop genetics and current practices. The Federal Crop Insurance Corporation Board approves a trend adjustment factor for corn and soybeans in each county. This factor is equal to the annual increase in yield, and is based on county average yields determined by NASS each year. For the calculations below, a corn trend adjustment factor of 1.6 bushels is multiplied to the difference in the current year to the base year and then added to the yield of the base year. As an example, consider a county that has a yield in 2013 of 164 bushels per acre. Using 2017 as the current year the adjustment would be $((2017-2013)*1.6) + 164$ for an adjusted yield of 170 bushels per acre. Seeding rates for cost estimates were taken from the 2018 eField Report published by The Ohio State University. The most profitable seeding rate based on a \$3.50/1000 seeds was used in these cost calculations. Cash rent estimates for each crop reporting district were reported by NASS in 2017.

Ohio producers have the option to select coverage levels from 50% of APH to 85% of APH. Using the Summary of Business operations from the RMA website, the most popular coverage level for Ohio corn producers is 80%. For this article, it is assumed that an 80% APH coverage level is selected for revenue insurance products. An 80% coverage level means that the projected price is **only** covered on 80% of bushels not the total number of bushels.

When considering all acres within the unit, the uninsured acres have no direct revenue insurance coverage. In this case, it would equal the remaining 20% based on the 80% coverage level. The 2018 Farm Bill signed into law on December 20, 2018 raised the marketing loan rates for covered commodities. These loan rates are often considered a price floor under commodity markets. In the case of corn, the marketing loan rate is \$2.20 per bushel. If the marketing loan rate is used as the price floor for the remain 20% bushels that are left uncovered then an adjustment can be made to cover all acres within a unit. The \$3.64 per bushel represents the complete coverage of all acres.

$$(0.80 \times \$4.00/ \text{bu.}) + (\$2.20 \times 0.20) = \$3.64 \text{ per bushel.}$$

Figures 3 and 4 illustrate the coverage of the RMA projected price at a coverage level of 80% and at a complete coverage level for all corn bushels compared to cost of production for Ohio corn producers in each crop reporting district. The \$4.00 Projected Price covers cost of production for almost all of Ohio's crop reporting districts. Four exceptions include Central, North Central, Northwest and West Central Ohio, where the majority of Ohio's corn is produced. Higher comparative cash rents and high seeding rate costs bring cost of production above the projected price in all regions. Southwest Ohio was able to compensate a portion its costs with higher yields than all the other districts. Their APH is likely the highest and therefore has the highest absolute value of covered bushels under a revenue policy.

Taking into account all bushels, using the marketing loan rate as a price floor, every district except the Southeast District has costs of production above the guaranteed price established with the RMA Projected Price. In the Southwest, cost of production remains below the Projected Price of all acres due to relatively low cash rented in relation to yields compared to the districts with costs of production above the Projected Price for all acres. The OSU eFields Report only reports corn seeding rates for a couple of districts so estimates based on soil type and yield were used to determine the rest. Southeast Ohio had the lowest cost of production, but also represented the smallest amount of covered acres according to the RMA Summary of Business. (Figure 5)

Figure 3: Cost of Production vs Projected Price

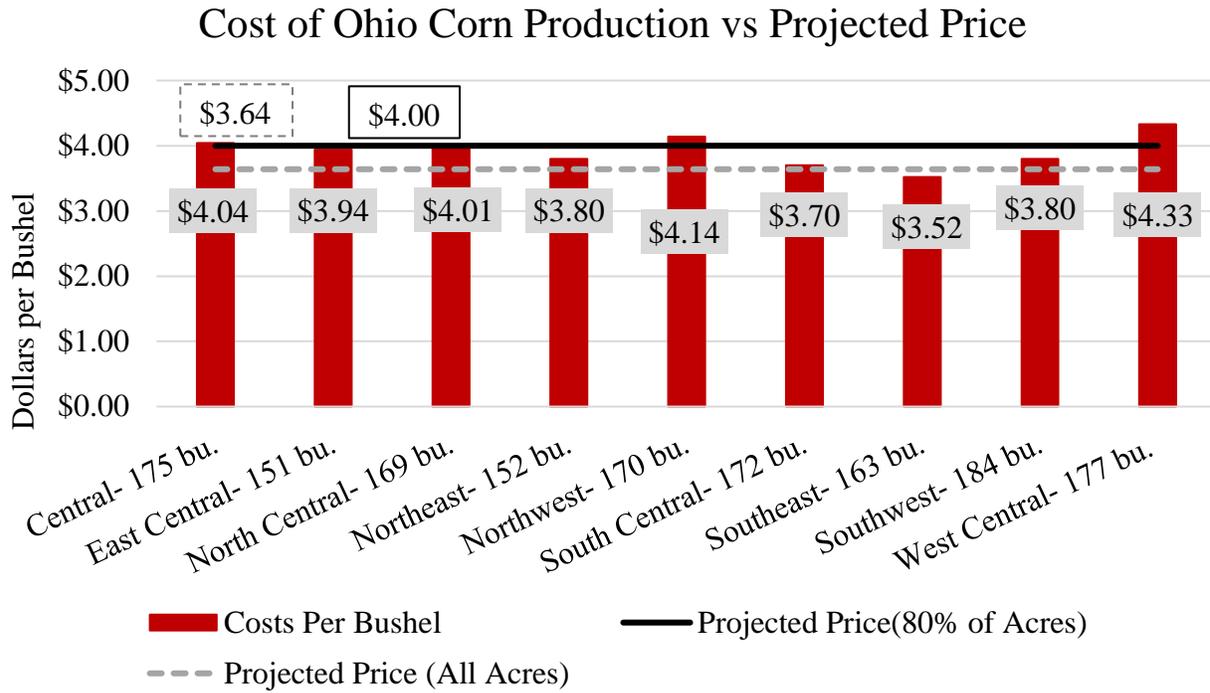


Figure 4: Net Returns of Ohio Corn vs RMA Projected Price

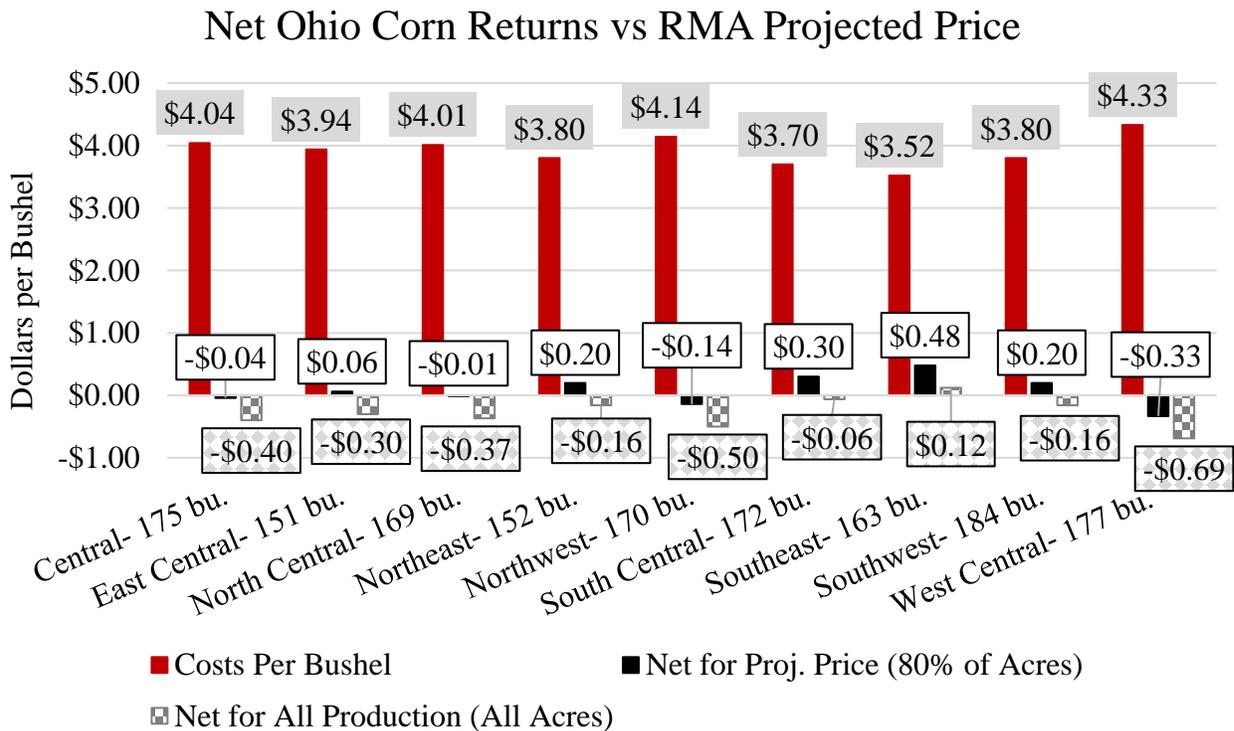
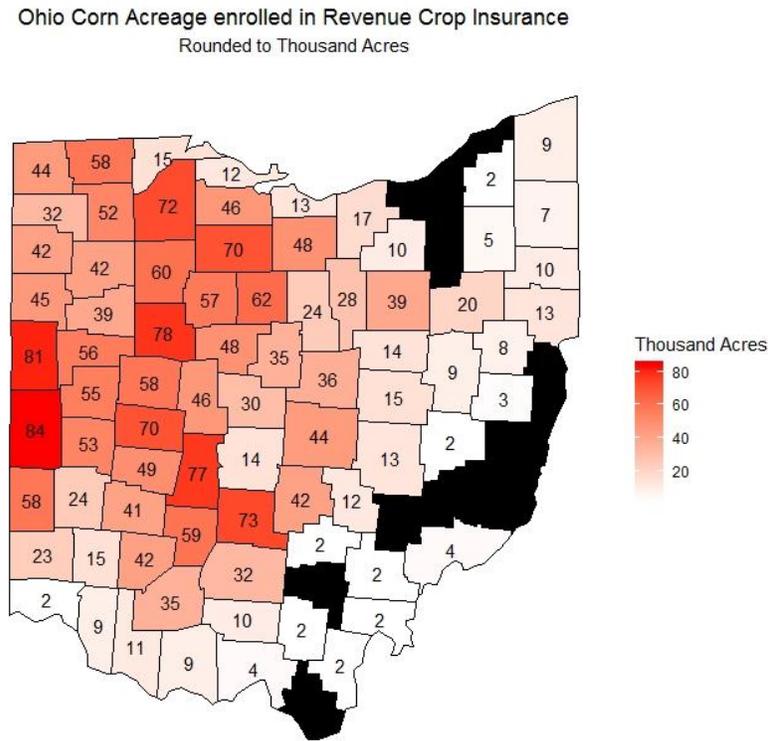


Figure 5: Covered Acres Enrolled in Revenue Insurance by County



Data Source: Risk Management Association

Summary

The Projected Price used in guarantees for revenue insurance and for premium costs for RMA federally subsidized insurance policies was finalized at the end of February. The \$4.00/ bushel Projected Price is \$0.04 above the Projected Prices of 2018 and 2019. Harvest Price will be discovered in the month of October and has historically been lower than the Projected Price of the corresponding year. The RMA Projected Price is used by Ohio corn producers to manage price risk, but it is not the only tool. The marketing loan rate set in the 2018 Farm Bill provides a price floor that is used to calculate insurance revenue guarantees. Four of Ohio’s 9 crop reporting districts showed higher costs of production compared to the \$4.00 Projected Price. However, 8 of the 9 districts showed higher costs of production than the “Complete” Coverage when adjusting for 80% revenue coverage. Southeast Ohio was the only crop reporting district to show gains compared to the Projected Price set by RMA for both covered bushels only and all bushels using the marketing loan rate of \$2.20 as a price floor. The districts of Central, North Central and Northwest are at best meeting their cost of production, while West Central has cost of production above the revenue guarantee. These districts represent the majority of corn revenue policies and corn production for the state as shown in Figure 5. Many producers reported higher than normal yields in 2018. If higher than historical average yields appear again in 2019, cost of production per bushel will be reduced below these calculations. In 2019, these programs are protecting the downside risk for producers as proponents argue they were designed to do. Districts having net returns above cost of production have low production and low insurance coverage. Thus, these insurance programs are providing a risk management tool for Ohio producers.

References

“CFAES 2018 eFields Report: Ohio State Digital Ag Program. The Ohio State University. Jan. 2019.

O’Brien, Daniel, and Greg Ibendahl. “2019 Kansas Soybean Returns at RMA Projected Soybean Prices.” *Ag Manager*, Kansas State University Research and Extension, 8 Mar. 2019.

“Ohio Cash Rent Estimates 2017.” United States Department of Agriculture-National Agricultural Statistics Service, 8 Sept. 2019.

“OSU Corn Enterprise Budgets.” *Farm Budgets*, Ohio State University Extension Farm Office, 5 Oct. 2018.

Plastin, Alejandro. “Trend-Adjusted Actual Production History (APH).” *Ag Decision Maker*, Iowa State University, Sept. 2014

Quick Stats, United State Department of Agriculture- National Agricultural Statistics Service, 17 Mar. 2019.

Summary of Business, USDA-Risk Management Agency Federal Crop Insurance Corporation, 18 Mar. 2019.