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## YieldCast Corn Projections: Best Track Record In The Industry Through August Since 2010

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### Summary

YieldCast is a statistical model that incorporates objective crop, weather, and yield data to project the yield of the U.S. corn crop once per week from April into October. Our research shows that the YieldCast projection of U.S. corn yield has the best track record in the industry from April through August, which is exactly when yield uncertainty is the highest.

Since the inception of YieldCast in 2010, we compared monthly projections from YieldCast, monthly forecasts from approximately 35 market analysts, and monthly forecasts from the USDA to the final yield in the USDA *Crop Production Annual Summary*. Just prior to the release of the USDA August *Crop Production* report, and compared to the 35 analysts forecasts, YieldCast projections were #1, #2, or #3 closest to the final U.S. corn yield in four of seven years, averaged 44% closer to the final yield than the average of all market analysts, and was #1 closest to the final yield of the 10 analysts that made a forecast each year since 2010. More-so, YieldCast averaged closer to the final yield than the projection from the USDA in its August *Crop Production* report, indicating YieldCast was a more accurate predictor of U.S. corn yield than the USDA over 2010-2016 through August.

YieldCast projections, analysts forecasts, and USDA forecasts all improved in September and October, but the YieldCast advantage diminished as actual data became available and yield uncertainty diminished.

### About This Research

We collected all forecasts available in the market (primarily via Bloomberg and Reuters surveys) released just prior to USDA *Crop Production* forecasts in August, September, and October over 2010-2016 (15). 28 to 41 forecasts were made each year by market analysts, and each monthly forecast was compared to the final yield released by the USDA in the *Crop Production Annual Summary* to determine forecast errors. In addition, the monthly USDA *Crop Production* forecasts were compared to the final yield. The absolute value of the errors of YieldCast, the market analysts, and USDA were then compiled to determine forecast accuracy.

### August Accuracy Results

Just prior to the USDA *Crop Production* report in August, under a wide range of growing conditions, YieldCast forecasts were among the three most accurate (out of all the analysts) four of seven times, including: #1 in 2010, #2 in 2011, #1 in 2015, and #3 in 2016 (3). The average error of YieldCast over the seven-year period was +/- 3.4 bushels per acre (bpa), 44% better than the average market analyst error of +/- 4.9 bpa, and 12% better than the average USDA error of +/-3.8 bpa in the *Crop Production* reports (3, 4). In other words, on average, YieldCast was a more accurate predictor of U.S. corn yield over 2010-2016 than the USDA in its August *Crop Production* report.

### September and October Accuracy Results

Beyond August, YieldCast forecasts further improved and remained better than the average market analyst leading into the September and October reports, but the difference in yield forecast accuracy narrowed, especially as the USDA gathered better field-level information, which reduced the advantage of YieldCast.

The average error of YieldCast over the seven-year period leading into the September *Crop Production* report was +/- 3.3 bushels bpa, slightly better than the average market analyst error of +/- 3.5 bpa (though the average analyst remained less accurate than YieldCast one month prior), but less accurate than the USDA error of +/- 2.4 bpa (7-9). The average error of YieldCast in October was +/- 2.2 bpa, compared to the average market analyst error of +/- 2.4 bpa, and the USDA error of +/-1.7 bpa (11-13).

### Conclusion

The YieldCast projection of U.S. corn yield has the best track record in the industry from April through August, which is exactly when yield uncertainty is the highest.

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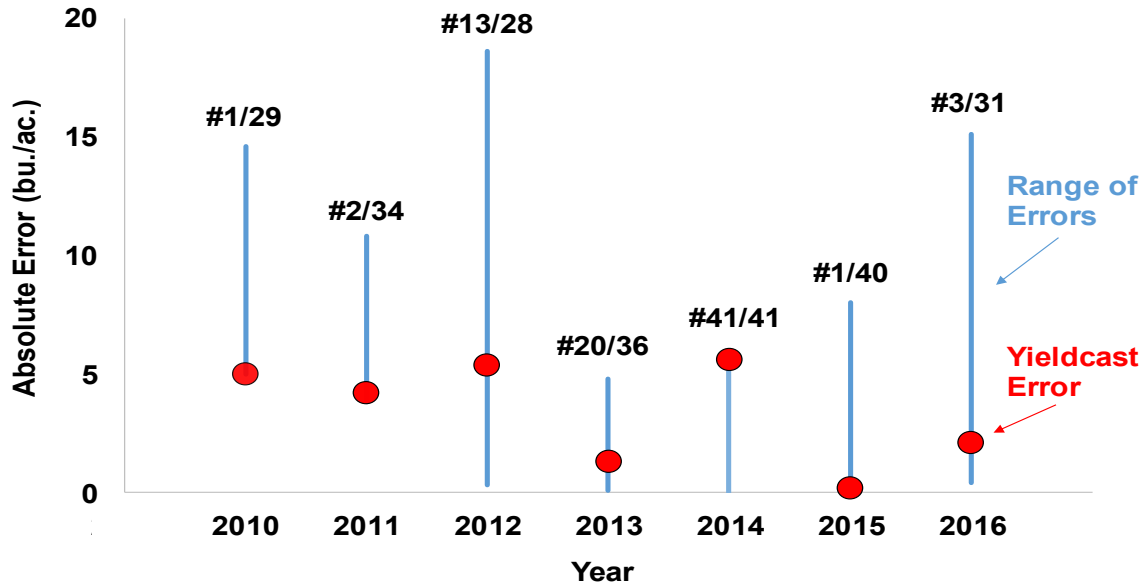
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Forecasts results just prior  
to the release of the USDA  
**August *Crop Production* report**  
over 2010-2016 follow  
on the next three pages

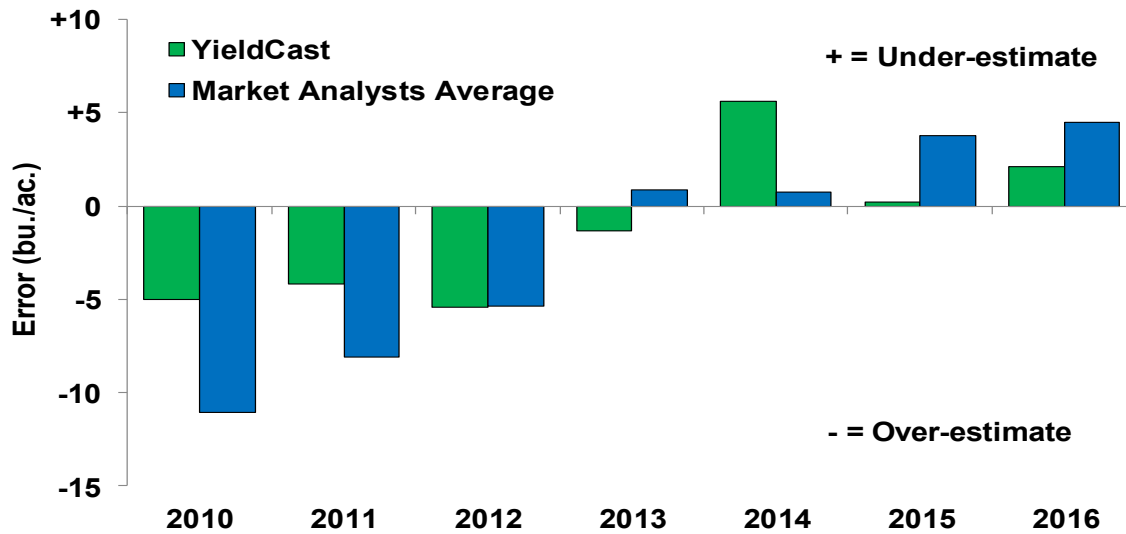
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**YieldCast and Market Analysts Range of Errors and Rank in Forecasting U.S. Average Corn Yield, August, 2010-2016**

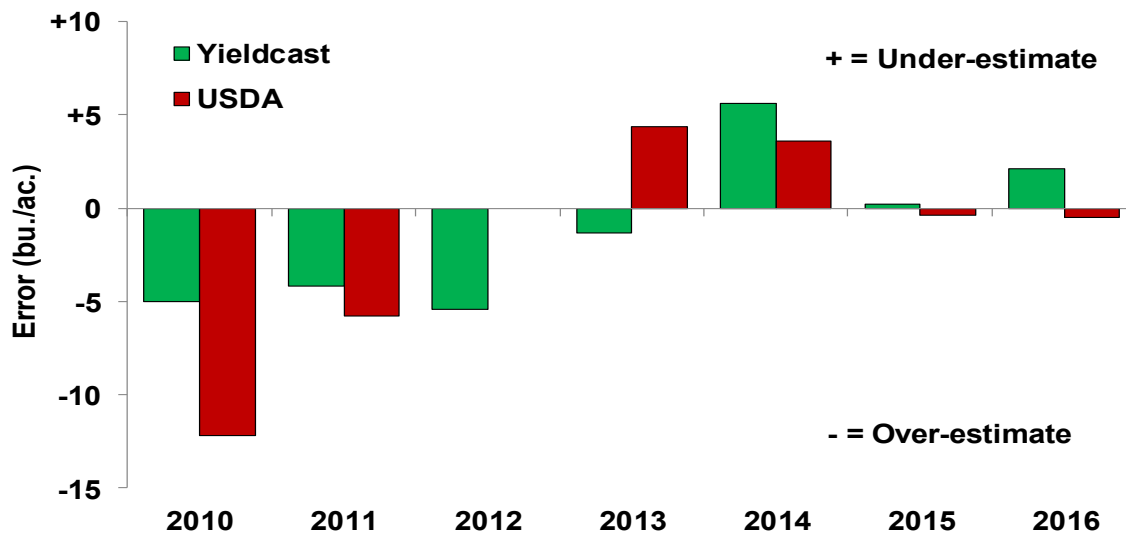


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**Errors in Forecasting U.S. Average Corn Yield, August, 2010-2016**



**Errors in Forecasting U.S. Average Corn Yield, August, 2010-2016**

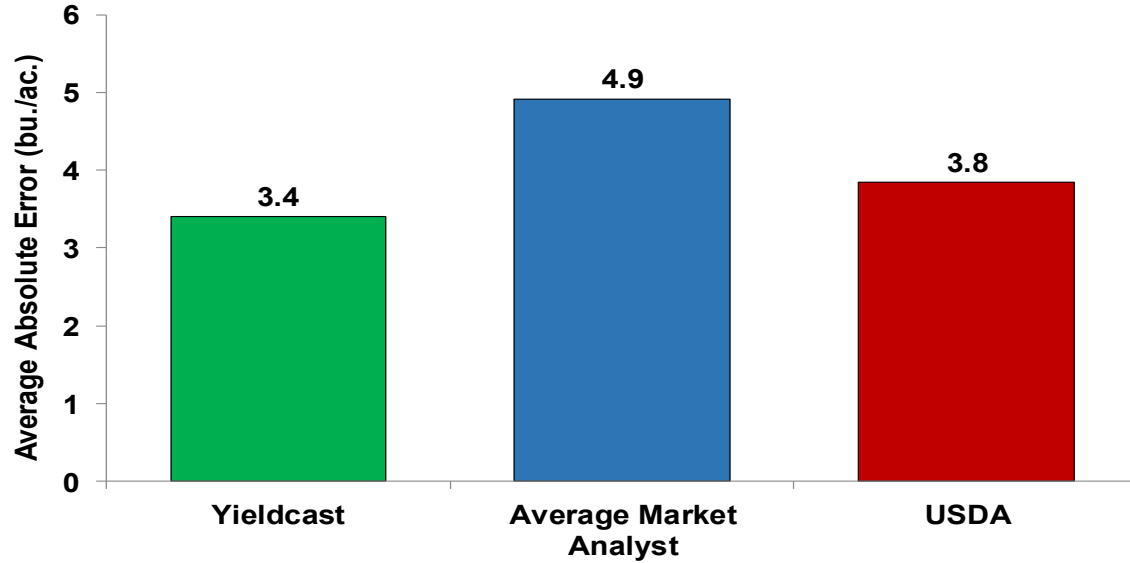


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### Average Absolute Errors in Forecasting U.S. Average Corn Yield, August, 2010-2016



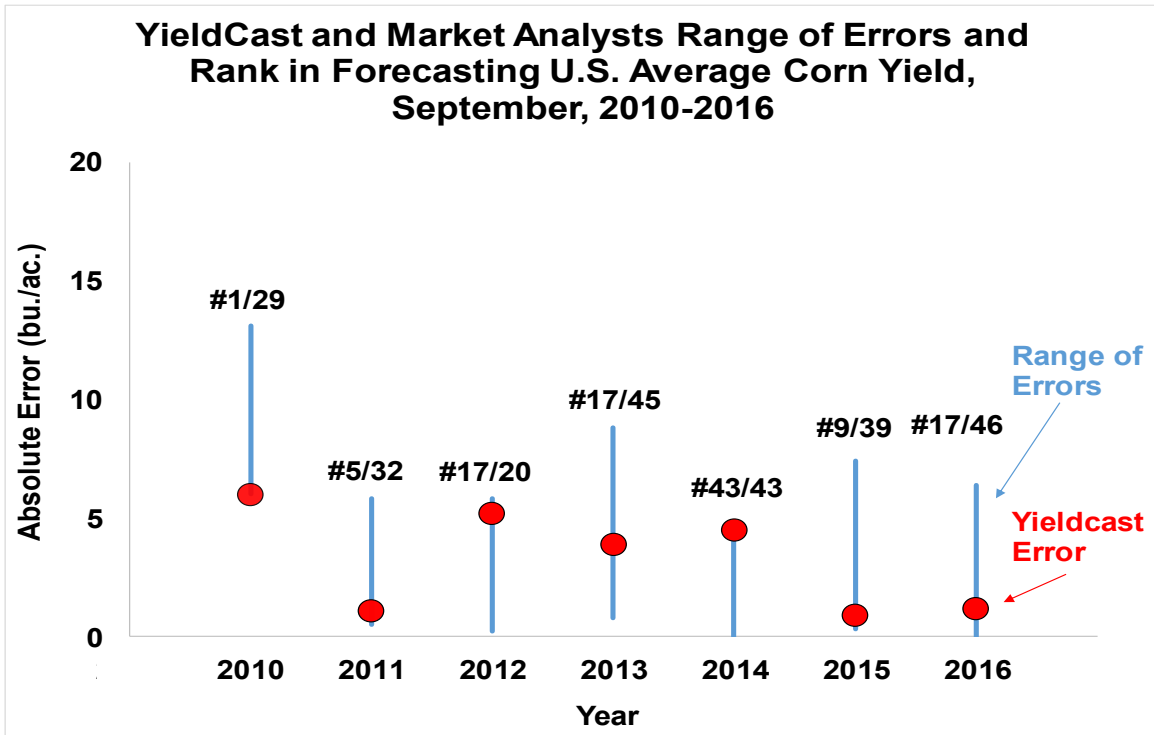
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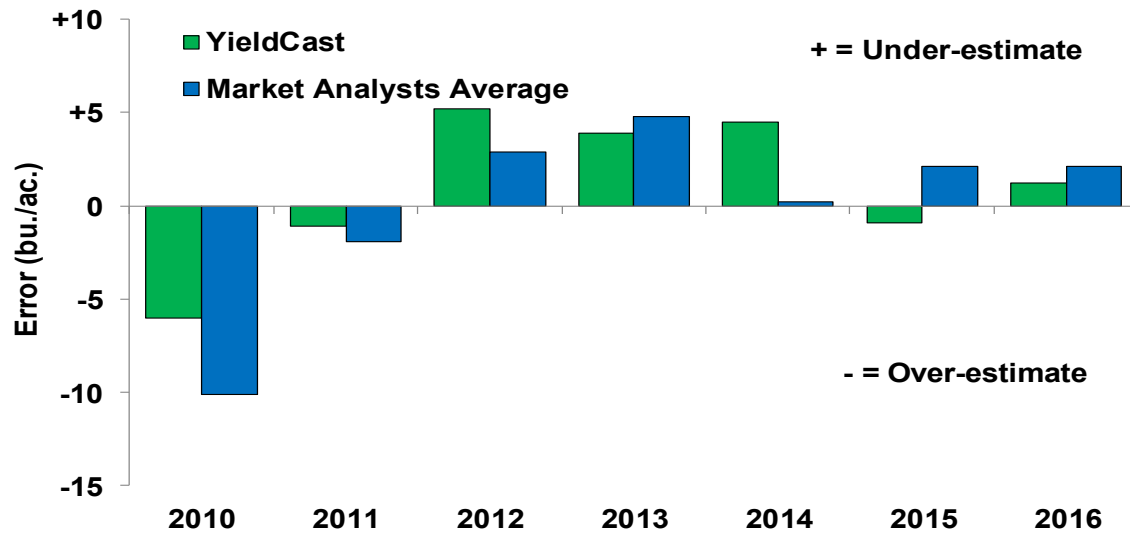
Forecasts results just prior  
to the release of the USDA  
**September *Crop Production* report**  
over 2010-2016 follow  
on the next three pages

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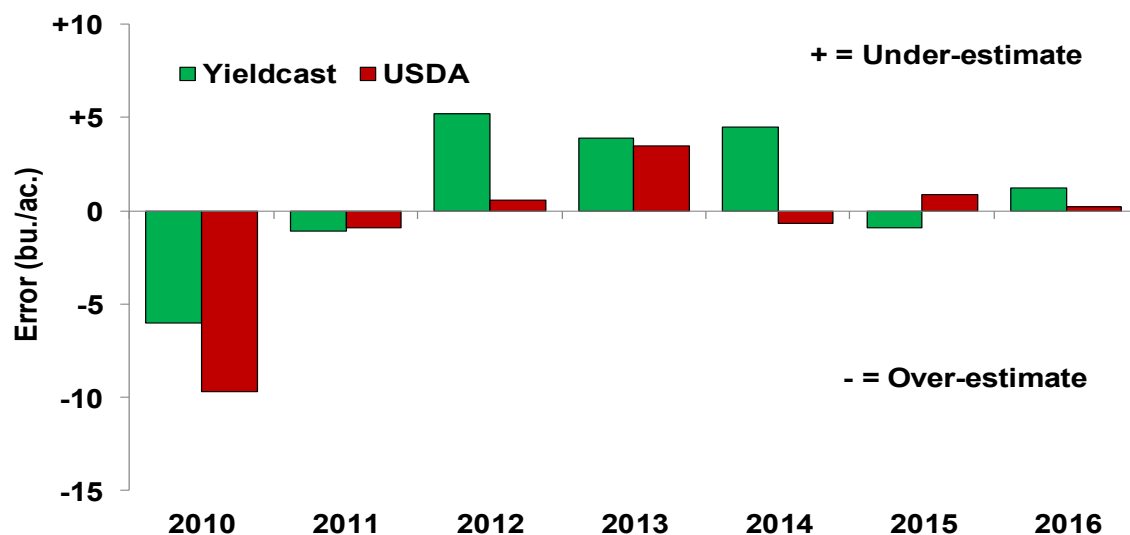


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**Errors in Forecasting U.S. Average Corn Yield, September, 2010-2016**



**Errors in Forecasting U.S. Average Corn Yield, September, 2010-2016**



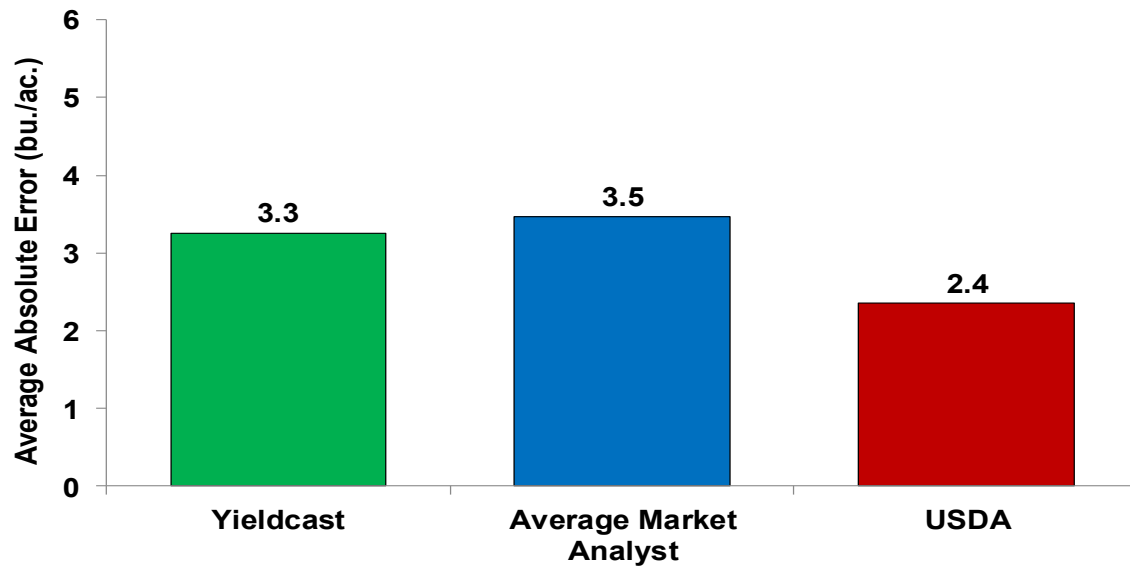


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### Average Absolute Errors in Forecasting U.S. Average Corn Yield, September, 2010-2016



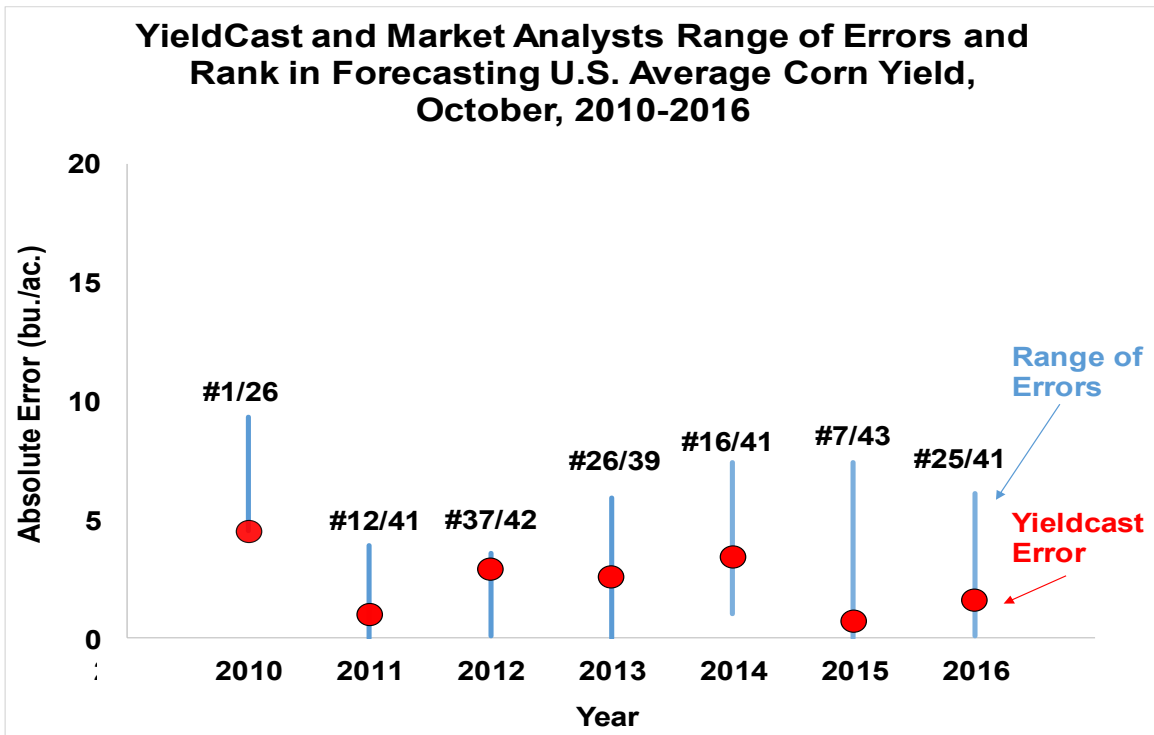
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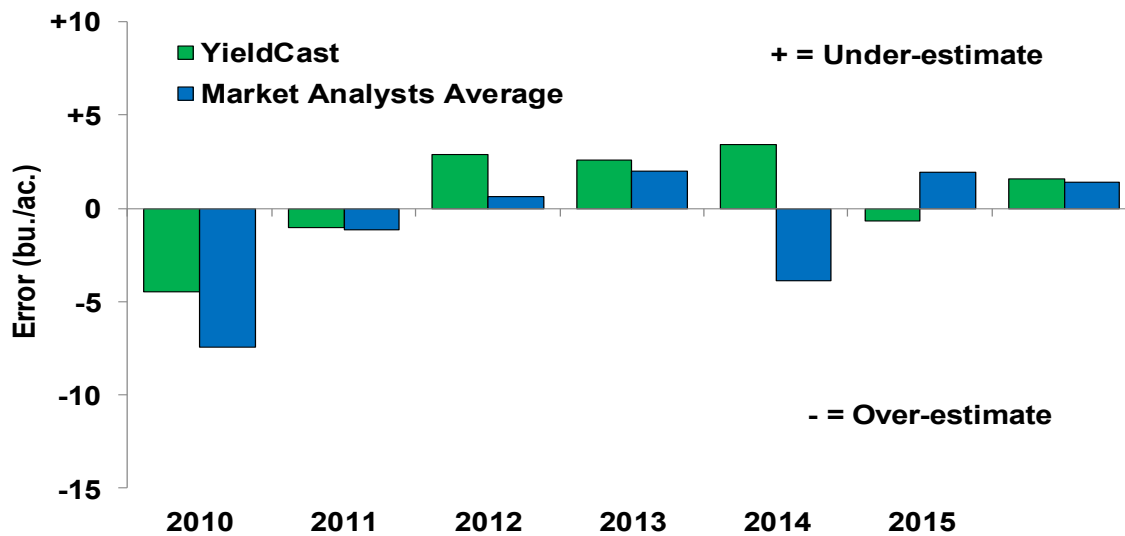
Forecasts results just prior  
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**October *Crop Production* report**  
over 2010-2016 follow  
on the next three pages

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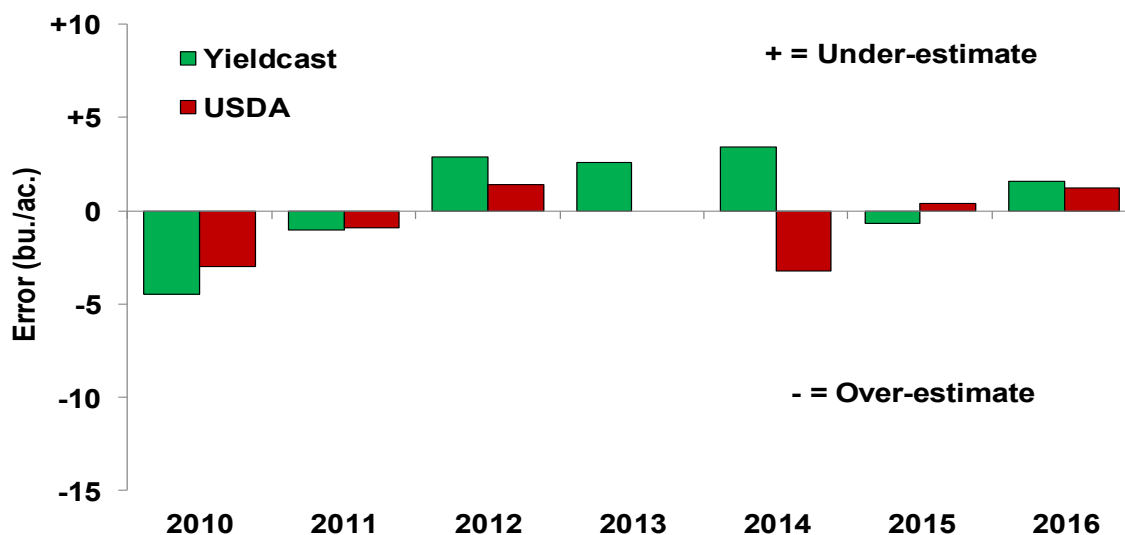


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**Errors in Forecasting U.S. Average Corn Yield, October, 2010-2016**



**Errors in Forecasting U.S. Average Corn Yield, October, 2010-2016**

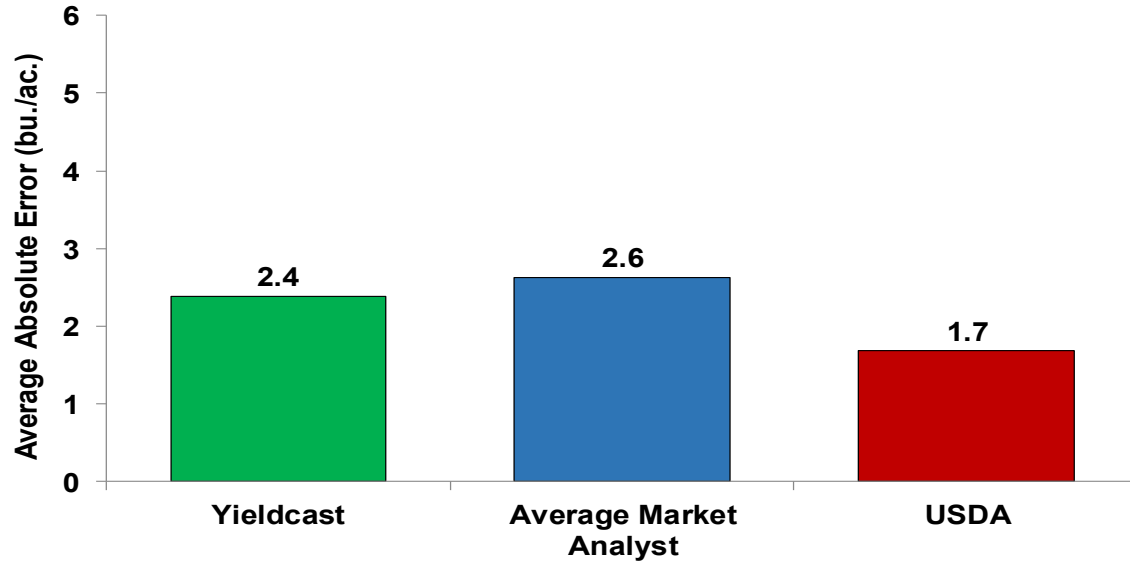


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### Average Absolute Errors in Forecasting U.S. Average Corn Yield, October, 2010-2016



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The data set used to compile results is on the following page (excluding each market analysts forecast because of licensing limitations)

## YieldCast Corn Projections: Best Track Record In The Industry Through August Since 2010

### Real-Time Forecasts and Errors for Yieldcast, Market Analysts, and the USDA for U.S. Average Corn and Soybean Yields, 2010-2016

	2010			2011			2012		
	Aug 1	Sep 1	Oct 1	Aug 1	Sep 1	Oct 1	Aug 1	Sep 1	Oct 1
Corn Yield Forecasts (bu./ac.):									
Yieldcast	157.8	158.8	157.3	151.4	148.3	148.2	128.8	118.2	120.5
Market Analysts (average)	163.8	162.9	160.2	155.3	149.1	148.3	128.8	120.5	122.8
USDA	165.0	162.5	155.8	153.0	148.1	148.1	123.4	122.8	122.0
Final (USDA January)	152.8	152.8	152.8	147.2	147.2	147.2	123.4	123.4	123.4
Corn Yield Forecast Errors (bu.ac.):									
Yieldcast	-5.0	-6.0	-4.5	-4.2	-1.1	-1.0	-5.4	+5.2	+2.9
Market Analysts (average)	-11.0	-10.1	-7.4	-8.1	-1.9	-1.1	-5.4	+2.9	+0.6
USDA	-12.2	-9.7	-3.0	-5.8	-0.9	-0.9	0.0	+0.6	+1.4

### Real-Time Forecasts and Errors for Yieldcast, Market Analysts, and the USDA for U.S. Average Corn and Soybean Yields, 2010-2016

	2013			2014			2015		
	Aug 1	Sep 1	Oct 1	Aug 1	Sep 1	Oct 1	Aug 1	Sep 1	Oct 1
Corn Yield Forecasts (bu./ac.):									
Yieldcast	160.1	154.9	156.2	165.4	166.5	167.6	168.2	169.3	169.1
Market Analysts (average)	157.9	154.0	156.8	170.2	170.8	174.9	164.6	166.3	166.5
USDA	154.4	155.3	NA	167.4	171.7	174.2	168.8	167.5	168.0
Final (USDA January)	158.8	158.8	158.8	171.0	171.0	171.0	168.4	168.4	168.4
Corn Yield Forecast Errors (bu.ac.):									
Yieldcast	-1.3	+3.9	+2.6	+5.6	+4.5	+3.4	+0.2	-0.9	-0.7
Market Analysts (average)	+0.9	+4.8	+2.0	+0.8	+0.2	-3.9	+3.8	+2.1	+1.9
USDA	+4.4	+3.5	NA	+3.6	-0.7	-3.2	-0.4	+0.9	+0.4

### Real-Time Forecasts and Errors for Yieldcast, Market Analysts, and the USDA for U.S. Average Corn and Soybean Yields, 2010-2016

	2016		
	Aug 1	Sep 1	Oct 1
Corn Yield Forecasts (bu./ac.):			
Yieldcast	172.5	173.4	173.0
Market Analysts (average)	170.1	172.5	173.2
USDA	175.1	174.4	173.4
Final (USDA January)	174.6	174.6	174.6
Corn Yield Forecast Errors (bu.ac.):			
Yieldcast	+2.1	+1.2	+1.6
Market Analysts (average)	+4.5	+2.1	+1.4
USDA	-0.5	+0.2	+1.2