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The Purdue Center for Commercial Agriculture Crop Basis Tool

Nathaniel M. Thompson
Pudue University

James R. Mintert
Purdue University

Christopher A. Hurt
Purdue University

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The Purdue Center for Commercial Agriculture Crop Basis Tool

Abstract

The Purdue Center for Commercial Agriculture Crop Basis Tool is an open-access web-based tool that provides members of the grain industry with access to weekly historical and contemporaneous corn and soybean basis data for local market regions in the eastern Corn Belt. Previously unavailable to most producers in the region, the information the Crop Basis Tool provides has the potential to greatly improve producers' marketing risk management decisions through improved basis forecasts. In addition, there are a myriad of opportunities for Extension personnel to incorporate the Crop Basis Tool in their marketing risk management education and outlook programming.

Keywords: basis data, eastern Corn Belt, grain marketing, website

Nathanael M. Thompson
Assistant Professor
Department of Agricultural Economics
thomp530@purdue.edu

James R. Mintert
Professor
Department of Agricultural Economics
Director
Purdue Center for Commercial Agriculture
jmintert@purdue.edu

Christopher A. Hurt
Professor
Department of Agricultural Economics
hurtc@purdue.edu

Purdue University
West Lafayette, Indiana

Introduction

Marketing risk management skills are a critical component of successful farm management given the importance of price expectations to marketing and management decisions. Previous research has shown that using futures market prices is an efficient, low-cost approach to forecasting national agricultural commodity prices (Schroeder, Parcel, Kastens, & Dhuyvetter, 1998). However, to effectively manage the risks to their operations, farm decision makers need local cash price forecasts as well. Kastens, Jones, and Schroeder (1998) concluded that combining current futures prices with basis forecasts, where *basis* is defined as local cash price minus futures price, is an effective approach to local cash price forecasting. Therefore, accurate basis forecasts are needed by producers and others seeking to create price expectations and evaluate marketing opportunities throughout the crop-marketing year (Thompson, Edwards, Mintert, & Hurt, in press). Research has shown that historical moving average forecasts generate accurate basis forecasts (Dhuyvetter & Kastens, 1998) and are attractive to producers and Extension professionals because of their ease of application. Nonetheless, developing moving average basis forecasts requires several years of historical basis data for the relevant local market region (Coelho, Mark, & Azzam, 2008).

Although most farm managers are familiar with the concept of basis as the relationship between local cash price and futures market price, relatively few know how to forecast basis and even fewer have access to the

historical basis data for their market region needed to generate accurate forecasts. Workshop surveys of over 250 producers in Illinois and Indiana indicated that 85% of producers did not have access to historical corn and soybean basis data needed to generate basis forecasts (Thompson, Mintert, & Hurt, 2018). The Purdue Center for Commercial Agriculture Crop Basis Tool fills this void. The Crop Basis Tool is an open-access web-based tool that provides grain industry participants with access to weekly historical and contemporaneous corn and soybean basis data for local market regions in the eastern Corn Belt. This tool is a valuable resource for producers and for Extension professionals offering marketing risk management education, such as that described in Kotsakou, Walters, Groskopf, Tigner, and Banerjee (2018), and outlook programming. The underlying data, functionality of the tool, and interpretation of output are described herein.

Data

Daily cash price data from approximately 2,000 grain elevators and processors in four states (Illinois, Indiana, Michigan, and Ohio) are collected from DTN, a company that collects and provides agricultural information. Cash price data are averaged for each U.S. Department of Agriculture crop reporting district in each state (U.S. Department of Agriculture National Agricultural Statistics Service, 2018), resulting in regional average cash price series. Wednesday cash and futures settlement prices are used in computing weekly basis data. The numbers of buyers vary by crop reporting district and week, depending on how many buyers report cash prices. To facilitate comparisons across crop-marketing years, a crop year is defined as having 48 weeks with 4 weeks per month. When a month has five Wednesdays, prices from the fourth and fifth Wednesdays are averaged and reported as the fourth week. Data are updated weekly, providing users the ability to continuously compare current basis to historical averages.

How the Tool Works

To view data, users make selections related to state, region, crop, futures contract, and crop year.

1. *State.* User selects Illinois, Indiana, Michigan, or Ohio.

2. *Region.* Upon selecting a county of interest, user is automatically directed to the regional average basis data for the corresponding U.S. Department of Agriculture crop reporting district.

3. *Crop.* User selects corn or soybeans.

4. *Futures contract.* User has the option of viewing basis data relative to either the nearby futures contract or a selected deferred futures contract month.

   a. Nearby basis is calculated by subtracting the nearby futures price (Wednesday settlement price) from the regional average cash price (Wednesday close), where *nearby* is defined as the futures contract closest to expiration, without going into the futures contract's delivery month (see Figure 1).

   b. Deferred basis is calculated by subtracting the futures price (Wednesday settlement price) for a selected contract month from the regional average cash price (Wednesday close) (see Figure 2).

Figure 1.

Example Nearby Corn Basis Chart for Central Indiana

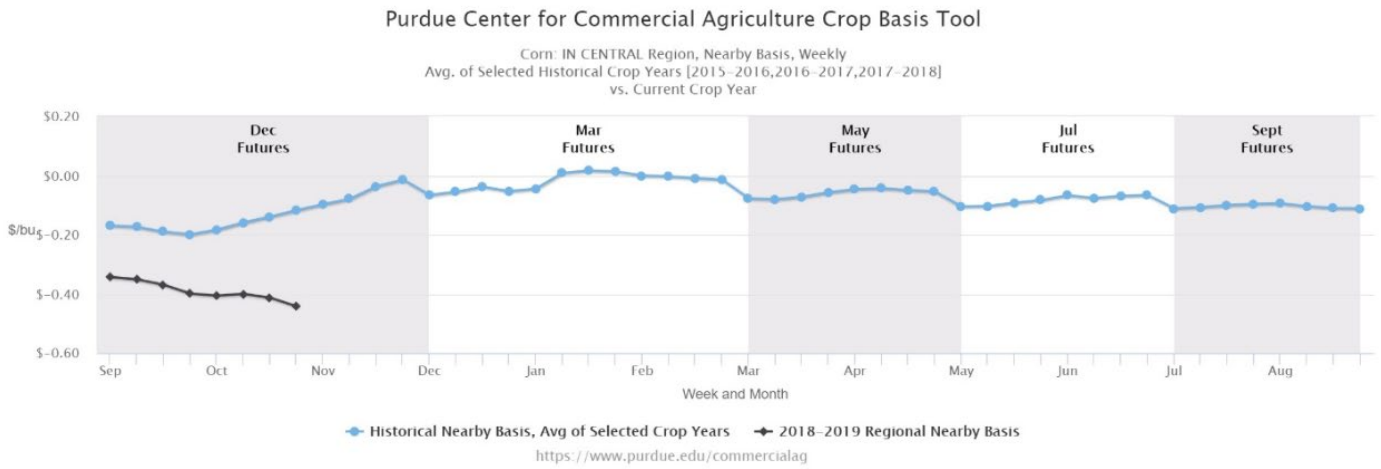
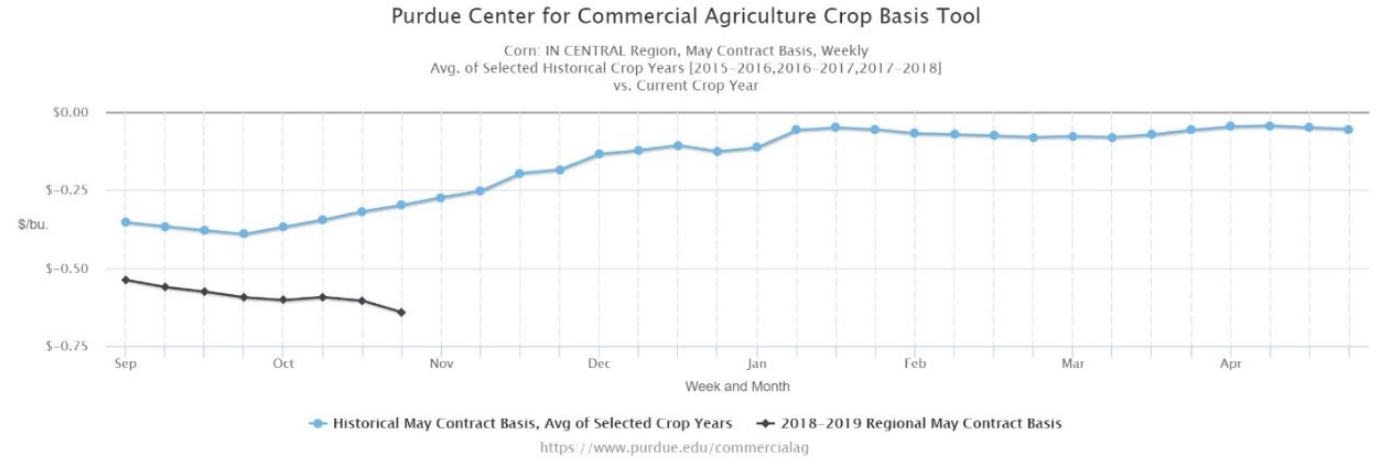


Figure 2.

Example Deferred Corn Basis Chart (May Futures) for Central Indiana



5. *Crop year(s).* Historical data from the 2004–2005 crop-marketing year to present (updated weekly) are available for viewing in the tool. User has the option of viewing individual year data or averages across multiple years.

   a. User can view a single crop-marketing year of interest by selecting that crop-marketing year from the Crop Year(s) drop down menu.

   b. User can view an average of multiple crop years by selecting the years of interest. For example, if someone using the tool during the 2018–2019 crop year wished to view the historical average basis for a region for the preceding 2 years, the user would select the 2017–2018 and 2016–2017 crop-marketing years. Opting to view an average of multiple crop years does not require the selection of consecutive years. For example, in selecting a series of years, a user could choose to omit the 2012–2013 crop-marketing year because of the exceptional basis patterns that resulted from the 2012 drought.

Interpreting Output

After making the desired selections, the user selects Submit to generate a chart. As indicated in the examples in Figures 1 and 2, the chart includes two lines. The blue line is the applicable historical basis data. The black line is the corresponding basis data for the current crop-marketing year updated weekly. By moving the cursor so that it hovers over applicable sections of the chart, the user can view a detailed data label for each week. In addition, the user can access the context menu in the upper right corner of the chart to export charts in a number of formats for use in presentations, publications, and social media.

Conclusion

The Purdue Center for Commercial Agriculture Crop Basis Tool is an open-access web-based tool that provides grain industry participants with access to weekly historical and contemporaneous corn and soybean basis data for local market regions in the eastern Corn Belt. This information is critical to developing preharvest price expectations and evaluating marketing opportunities, such as forward contract bids, hedging opportunities, and storage opportunities. Therefore, the information provided by the Crop Basis Tool has the potential to improve producers' marketing risk management decisions. Further, the tool is a valuable resource for Extension personnel offering marketing risk management education and outlook programming. The Crop Basis Tool can be accessed via the top menu bar on the Purdue Center for Commercial Agriculture's home page, www.purdue.edu/commercialag.

Acknowledgments

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