RENEWABLE FUELS ASSOCIATION

THE IMPACT OF THE IDLING AND CLOSURE OF ETHANOL PRODUCTION FACILITIES ON LOCAL CORN PRICES

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Over the last year, four ethanol facilities have permanently closed and another 14 have temporarily idled production, largely as a result of the unprecedented number of exemptions from the Renewable Fuel Standard (RFS) that have been handed out to small refineries by the EPA. Facilities with roughly one billion gallons of combined annual capacity have been affected. Ethanol production is one of the primary uses of corn in the U.S., on par with the feeding of livestock and poultry. As such, the idling or closure of an ethanol facility has a direct impact not only on jobs at that plant but also on the local market for corn.

The largest facility reported to have been temporarily idled is the 119-million-gallon-per-year plant owned by Green Plains Inc. in Fairmont, Minnesota.[1] To provide an example of the impact that a facility going offline can have on a local corn market, cash prices at a grain elevator in Fairmont were examined.

The price of corn in the U.S. fluctuates continuously due to multiple factors, including supply-and-demand expectations, weather forecasts and the influence of outside markets. Therefore, it is necessary to analyze price changes in any specific location in comparison to broader market indicators.

In particular, futures traded on the CBOT serve as a national and global reference price for corn, given the position of the U.S. as the world's largest corn producer and the trading volume/liquidity of the contract. The difference between the cash price in a specific location and the futures price is referred to as the "basis."

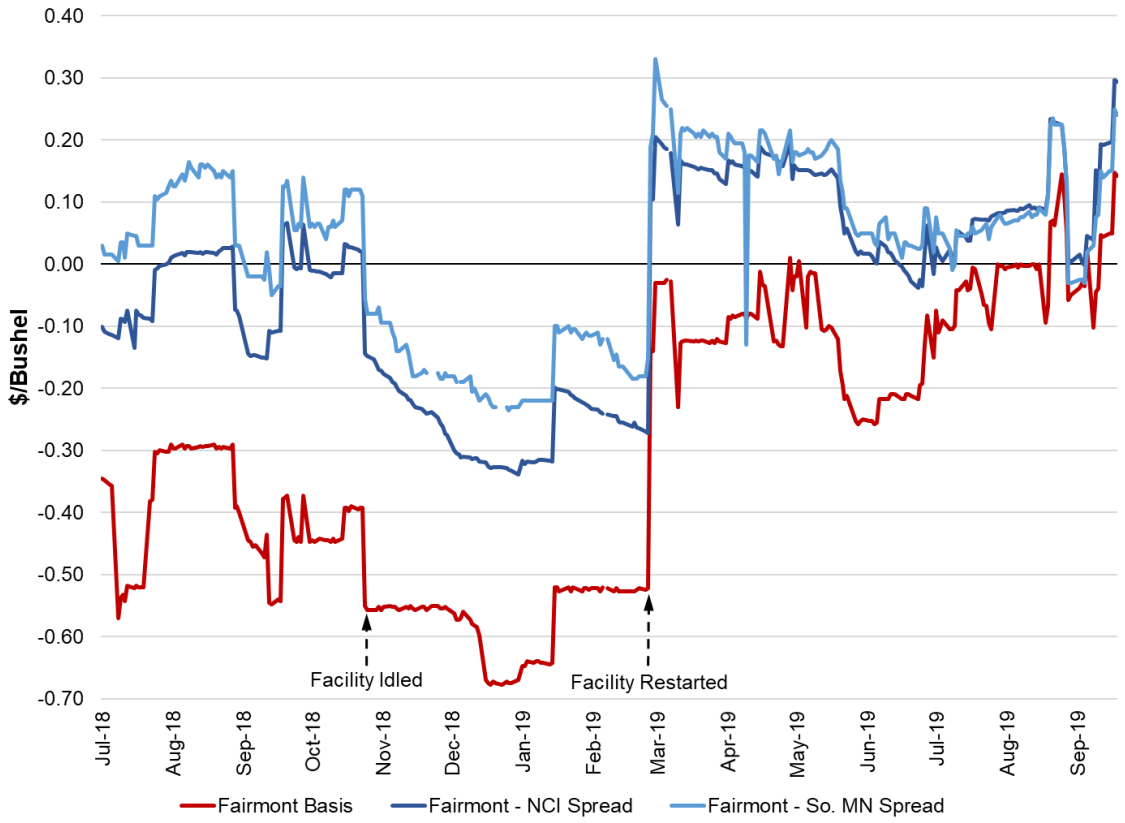
The Fairmont basis is shown in the chart below. As can be seen, the basis weakened immediately and significantly during the four months in late 2018 and early 2019 when the facility was idle. Compared to the average for the month before the plant shut down, the basis was 13 cents per bushel (bu) lower over the course of the following month and 15 cents/bu lower during the full period the plant was idle.

Still, utilizing the basis as a reference can have drawbacks. First, a cash price was used for Fairmont and compared to nearby (front-month) corn futures. This can result in sudden changes in the calculated basis when a futures contract expires. Additionally, futures prices can be reflective of conditions in the area where

[1] https://www.reuters.com/article/us-green-plains-ethanol-operations/green-plains-shuts-plant-faces-ethanol-downturn-idUSKCN1NK2ON

physical delivery takes place (generally along the Illinois Waterway), which is somewhat oriented toward the export market. Accordingly, it is useful to supplement the basis examination with a review of Fairmont prices relative to other cash market indicators.

Fairmont, Minn., Corn Basis and Cash Price Spreads (Jul. 2018-Sep. 2019)



Sources: DTN (Fairmont Price & NCI), CBOT (Futures Price), USDA-AMS (Southern Minn. Price), RFA (Analysis)

One useful indicator of U.S. cash prices is the National Corn Index (NCI) reported by DTN, which is based on bids at more than 3,000 reporting elevators and other locations. Looking at the spread between the Fairmont elevator price and the NCI provides another perspective on how local prices were affected by the idling of the ethanol plant.

The trajectory of the spread between the Fairmont elevator price and the NCI followed a pattern roughly similar to that observed for the basis, though the price differential is even larger. Compared to the month before the plant was apparently shut down, the Fairmont price weakened by 20 cents/bu relative to the NCI over the following month and by 26 cents/bu during the full period when the plant was idle.

Since the NCI is an average of prices across the Midwest and thus does not necessarily reflect regional dynamics, a comparison also was made to the average

southern Minnesota price reported by the USDA's Agricultural Marketing Service. The pattern for this price spread closely mirrors the spread to the NCI. Compared to the month before the plant was idled, the spread was 21 cents/bu wider over the course of the following month and 25 cents/bu wider during the four months when the plant was apparently shut down.

Thus, it can be concluded that the idling of the Fairmont facility caused corn prices received by local farmers to be approximately 20 cents/bu lower than they otherwise would have been. Given that cash prices averaged $3.16/bu during the four months when the plant was apparently idle, this translates to a reduction of 6% in the price of each bushel sold during that period.

On an annualized basis, it is estimated that the Fairmont facility processes approximately 42 million bushels of corn. Thus, a 20-cent/bu price reduction translates to an annualized loss of $8.4 million for the farmers who typically sell their corn to the ethanol plant. However, the impact goes far beyond just the amount of corn typically consumed by the ethanol plant; a drop in the basis applies to corn produced and sold for all uses (e.g., livestock and poultry feed) in the local area. The Fairmont facility sits in the middle of Martin County, but when operating the plant draws corn from adjacent counties in Minnesota and Iowa as well. The five Minnesota counties adjacent to Martin County produce roughly 140 million bushels of corn annually (when Martin County is included, the area's corn production is more than 170 million bushels), and the loss of a local market will negatively affect the price for all of this corn, regardless of its end use.

Although this case study only reflects the experience in one location, it is a useful reminder of the very real impacts that the closure of an ethanol plant—even temporarily—can have on the local agricultural economy.