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Explaining Fluctuations in DDG Prices

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Distiller's dried grains (DDG) are a co-product of dry-milled ethanol production. U.S. ethanol plants have the capacity to produce more than 15 billion gallons of ethanol and 45 million tons of DDG (Ag MRC). Approximately 17 pounds of DDG (10 percent moisture content) are produced from one bushel of corn. Of the 45 million tons of DDG produced, approximately 11.2 million tons are exported. Another way to gauge the use of DDG is to estimate the quantity of DDG substituted for corn and soybean meal. Estimated DDG substituted for corn and soybean meal for the 2016/17 marketing year are projected to be approximately 1.235 billion bushels of corn and 6.52 million tons of soybean meal (Ag MRC). More information pertaining to the substitution of DDG for corn and soybean meal in the U.S. can be found in Hoffman and Baker (2011).

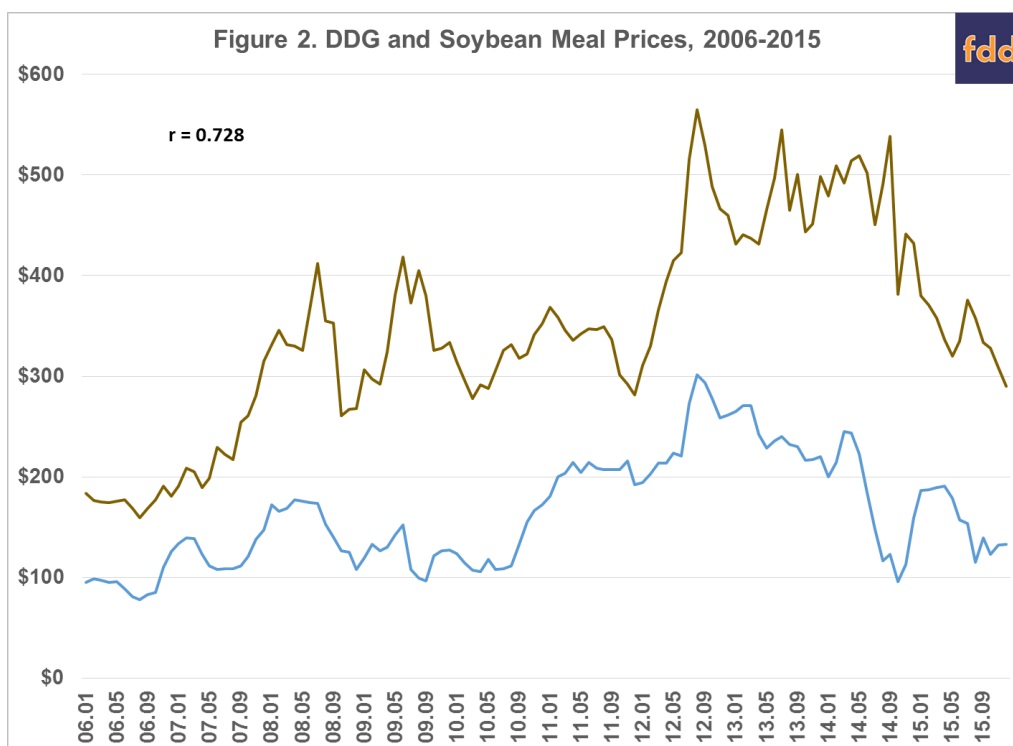
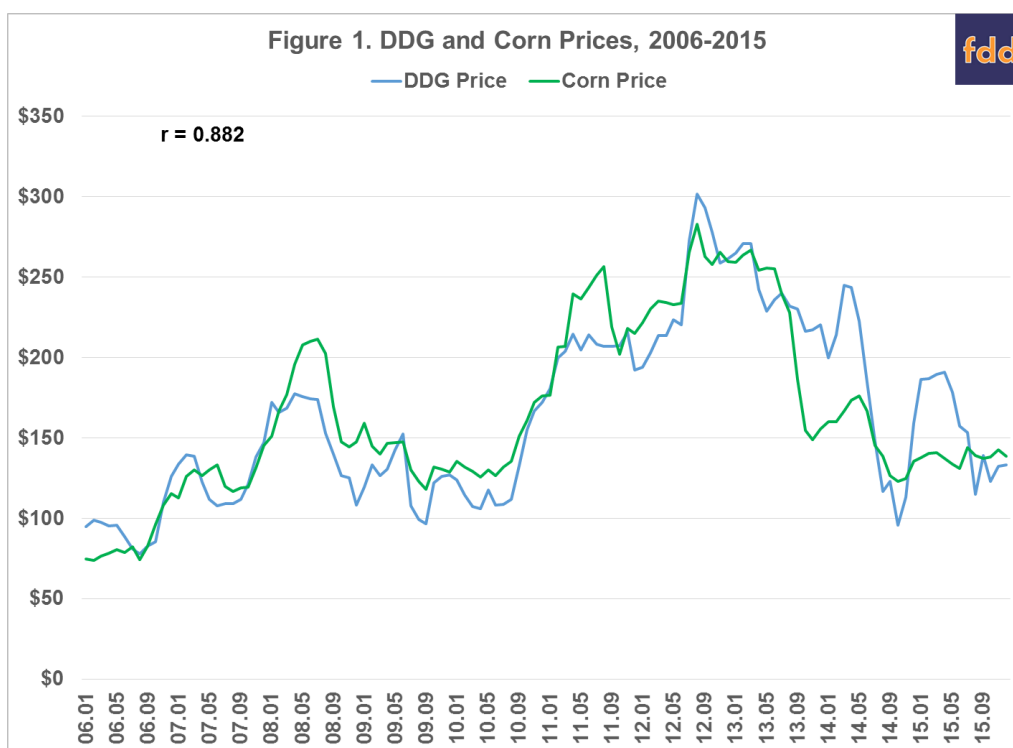
Given the substitutability of DDG for corn and soybean meal; we would expect DDG prices to be significantly related to these feedstuffs. To help explain fluctuations in DDG prices, this article examines the relationship between DDG prices, and corn and soybean meal prices. Price data used below were obtained from monthly issues of *Feed Outlook*, which reports DDG, corn, and soybean meal prices for central Illinois.

Variability of DDG Prices and Other Feedstuffs

Figure 1 depicts monthly DDG and corn prices from January 2006 to December 2015. The average DDG and corn prices over the ten-year period were \$164 per ton and \$165 per ton, respectively. These two price series are highly correlated ($r = 0.882$). DDG and corn prices tend to move in the same direction. However, there are times when the two prices diverge. For example, from January 2015 to June 2015, corn prices were from -\$26 to -\$54 per ton lower than DDG prices. In August of 2015, corn price was \$24 per ton higher than DDG prices.

Monthly DDG and soybean meal prices are illustrated in figure 2. Average DDG and soybean meal prices over the ten-year period were \$164 per ton and \$346 per ton, respectively. On average, soybean meal prices were 111 percent higher than DDG prices. These two price series are highly correlated ($r = 0.728$). However, the correlation is lower than that for DDG prices and corn prices. The range in the difference between soybean meal and DDG prices was 35 percent in November 2011 to 338 percent in September 2014.

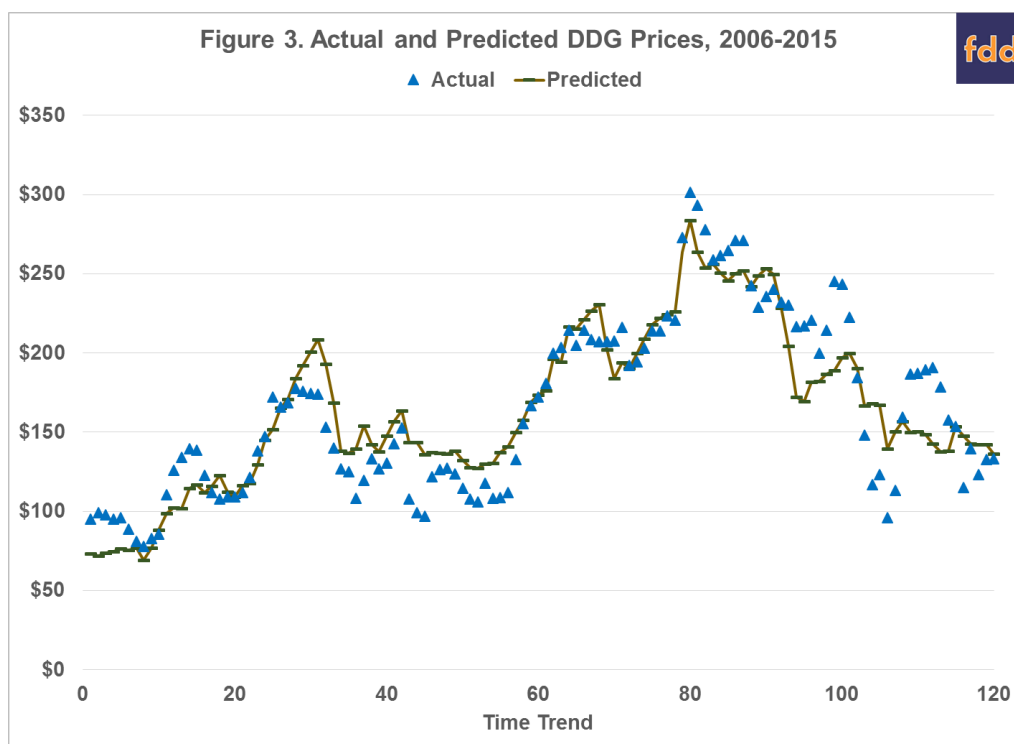
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Factors Impacting DDG Prices

From the information above, it is evident that DDG prices are sensitive to changes in corn and soybean meal prices. Regression analysis was used to examine the relationship between these variables. Results are as follows: each \$0.10 per bushel (\$3.57 per ton) increase in corn price results in a \$2.57 per ton increase in DDG prices, and each \$10 per ton increase in soybean meal prices results in a \$1.59 increase in DDG prices. Though both corn prices and soybean meal prices are significantly related to DDG prices, these two prices only explained approximately 83 percent of the variability in DDG prices.

Figure 3 presents the actual and predicted DDG prices. There are times when the predicted DDG prices are either substantially below or above actual DDG prices, revealing the difficulty associated with predicting DDG prices with just corn price and soybean price information.



Summary and Conclusions

DDGs are an important feedstuff in the U.S. DDG often substitute for both corn and soybean meal in livestock rations. Because DDG prices are not as readily available as corn and soybean meal prices, it can be difficult to gauge the impact of DDG prices on projected feed costs. This article examined fluctuations in DDG prices during the last ten years, and related movement in DDG prices to movements in corn and soybean meal prices. DDG prices were significantly correlated with corn prices and soybean meal prices.

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