

## Impact of Corn and Soybean Prices on Swine Finishing Feed Cost

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The recent volatility in the corn and soybean markets has increased the uncertainty related to expected swine finishing feed cost. Since planting there have been wide swings in corn and soybean meal prices. For example, the December corn futures contract price ranged from \$3.50 to \$4.50 from early May to early July, and was approximately \$3.70 in mid-July. Similarly, the December soybean meal futures contract ranged from \$330 to \$420 during the same time period, and was approximately \$380 in mid-July. This article documents the impact of corn and soybean meal prices on feed cost indices for a swine finishing enterprise. It is important to note that the swine finishing enterprise assumes the finishing of an early-weaned pig. The ration for this enterprise consists of corn, soybean meal, dry distillers' grain, and supplements. Corn prices represent averages for Indiana as reported by USDA-NASS. Soybean meal and distillers' grain prices are obtained from *Feed Outlook*, published monthly by USDA-ERS. Information from *Agricultural Prices*, a monthly USDA-NASS publication, was used to compute supplement prices. Future prices for corn and soybean meal are used to project feed indices through 2017. Feed cost indices are reported on a closeout month rather than a placement month basis.

### Corn and Soybean Meal Prices

Figures 1 and 2 report monthly corn and soybean meal prices from January 2000 to May 2016. A distinction is made for prices before and after 2007. The period starting in 2007 is often thought to be a new price regime. Corn price averaged \$2.18 per bushel from 2000 to 2006, and \$4.83 per bushel from 2007 to the current month. Soybean meal price averaged \$187

per ton from 2000 to 2006, and \$362 per ton from 2007 to the current month. Corn price was above \$4.83 from March 2008 to August 2008, from December 2010 to September 2013, and in April and May of 2014. Since June 2014, corn price has been below \$4.83 per bushel. Soybean meal price was above \$362 per ton in June and July of 2008, from May 2009 to September 2009, in January 2011, from March 2012 to February 2015, in July 2015, and in May 2016. This illustrates how common it has been since 2007 for corn and soybean meal prices to spike. The recent drop in soybean prices is likely to drive soybean meal prices below the average since 2007 for the rest of 2016.

### Swine Finishing Enterprise

Figure 3 illustrates monthly swine finishing feed cost indices for the January 2000 to May 2016 period. The latest full year of indices, 2015, has an index of 100 so all indices outside of this year are expressed in relative terms. As with corn and soybean meal prices, a distinction is made between the before and after 2007 periods. The average index for the 2000 to 2006 period was 54 while the average index for the period beginning in 2007 was 110. The index for May 2016 was 95, so current feed costs are 5 percent below the average for 2015.

Annual swine finishing feed cost indices are presented in figure 4. The projections for 2016 and 2017 (red bars) used corn and soybean meal futures prices in mid-July. The projected feed cost indices for 2016 and 2017 are 97 and 97, respectively.

### Sensitivity Analysis for Swine Feed Cost

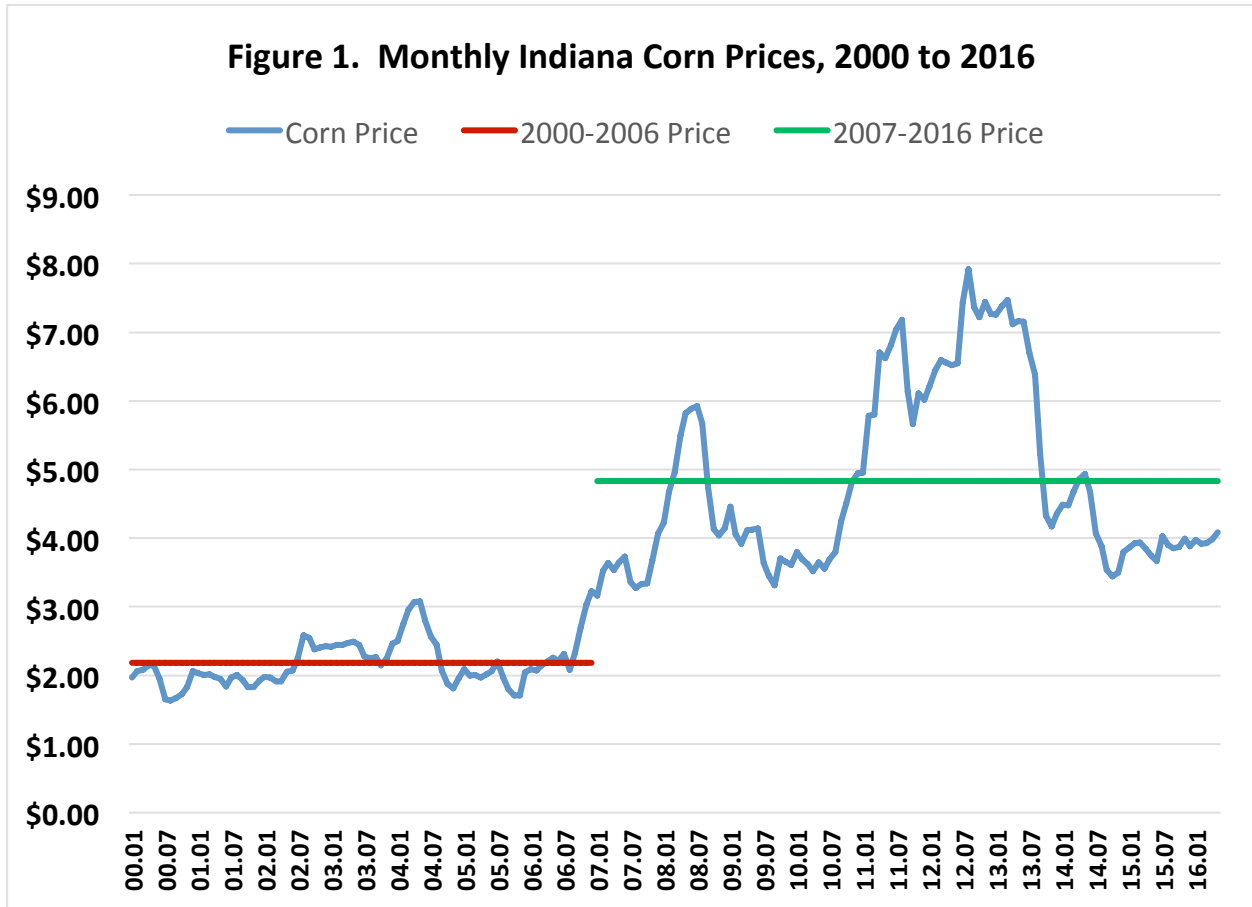
Feed costs are very sensitive to changes in corn and soybean meal prices. Regression analysis was used to examine the relationship between hog finishing costs, and corn and soybean meal prices. Results are as follows: each 0.10 increase in corn prices increases feed cost per cwt by \$0.47, and each \$10 increase in soybean meal prices increases feed cost per cwt. by \$0.33.

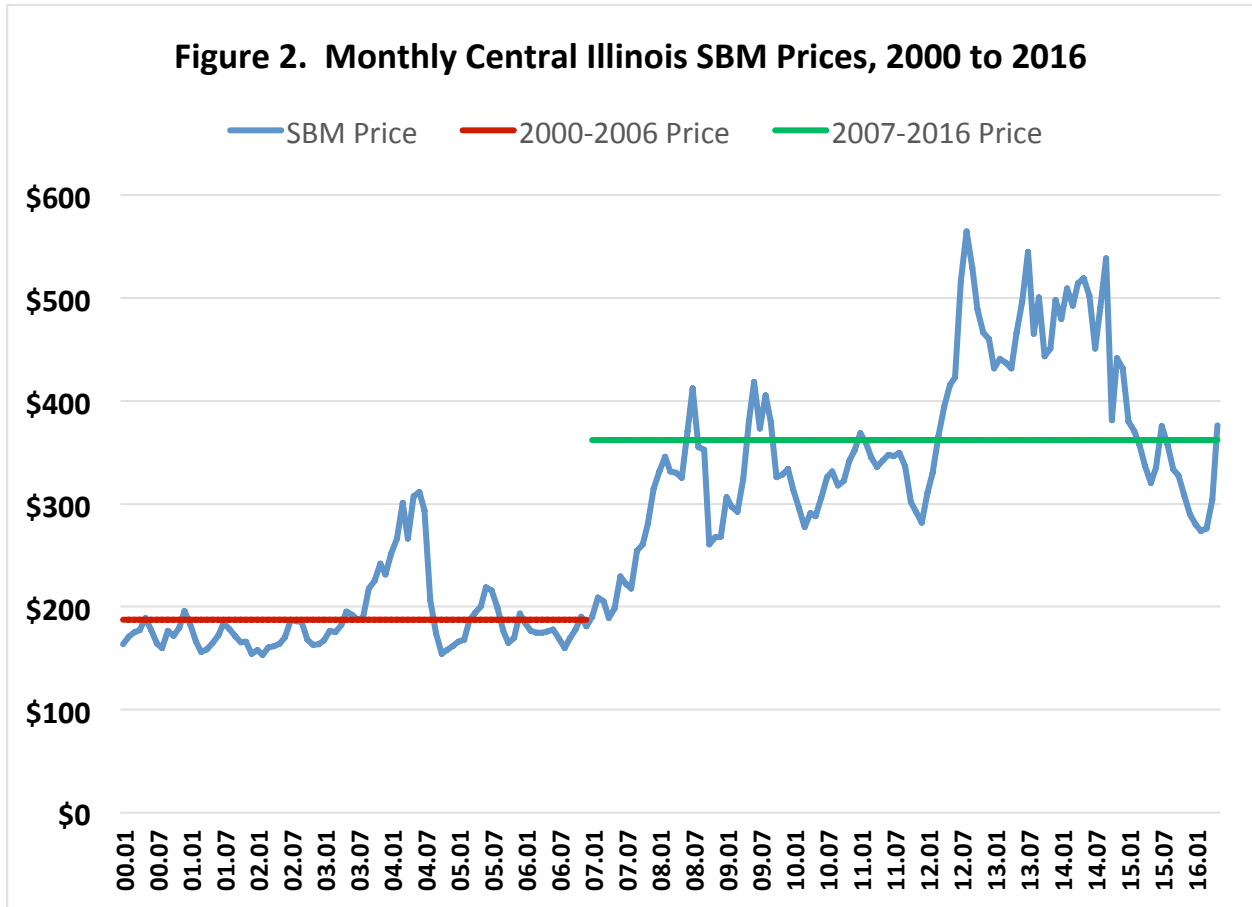
Feed cost per cwt. in May was \$31.57. Using expected corn and soybean meal prices, feed cost per cwt. is expected to range from \$31.50 to \$33.50 for the rest of 2016.

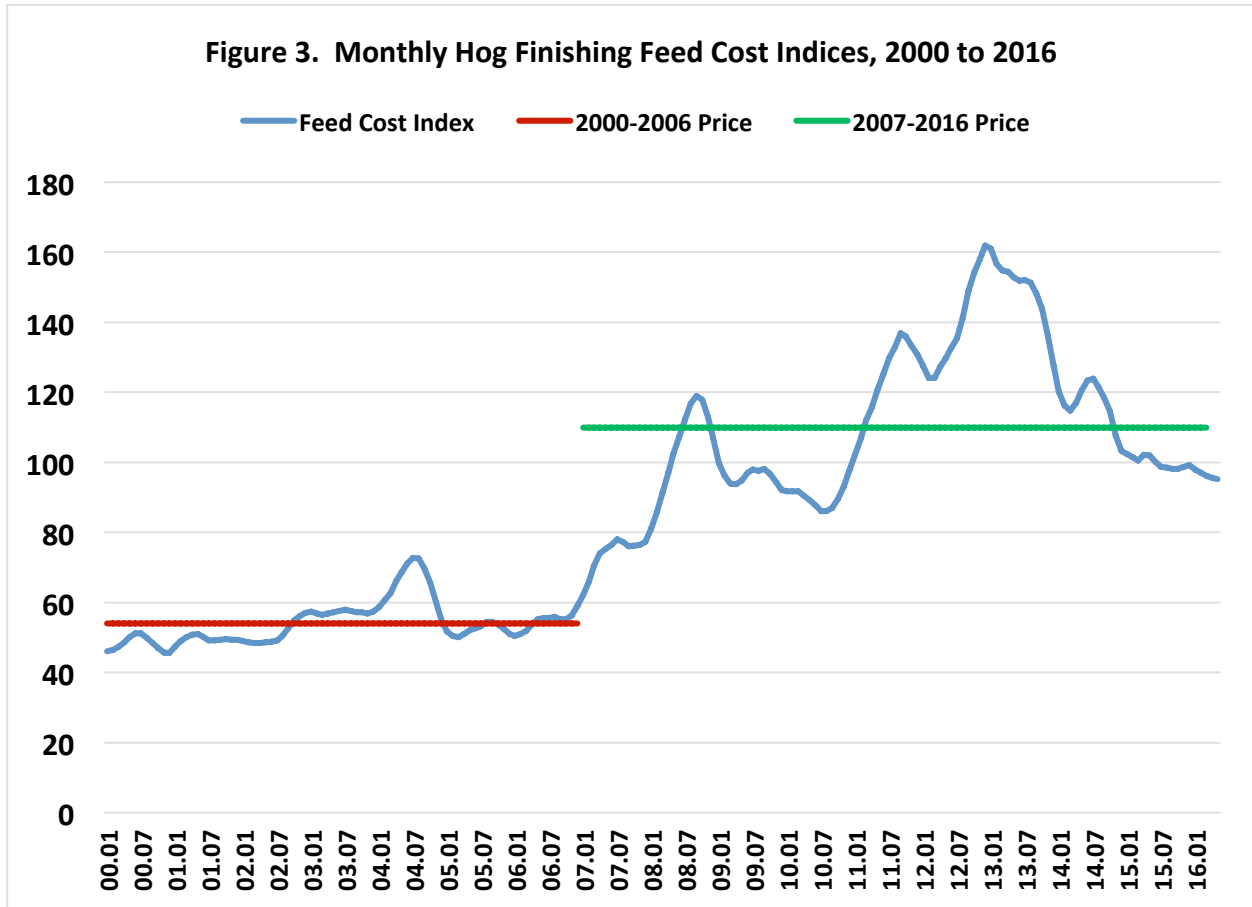
Table 1 presents feed cost per cwt. for corn prices ranging from \$3.50 to \$4.50 per bushel, and soybean meal prices ranging from \$300 to \$400 per ton. At the upper range of the prices experienced during the early May to early July, feed cost per cwt. would be approximately \$36.25. In contrast, at the lower range of prices during this period, feed cost per cwt. would be approximately \$29.00.

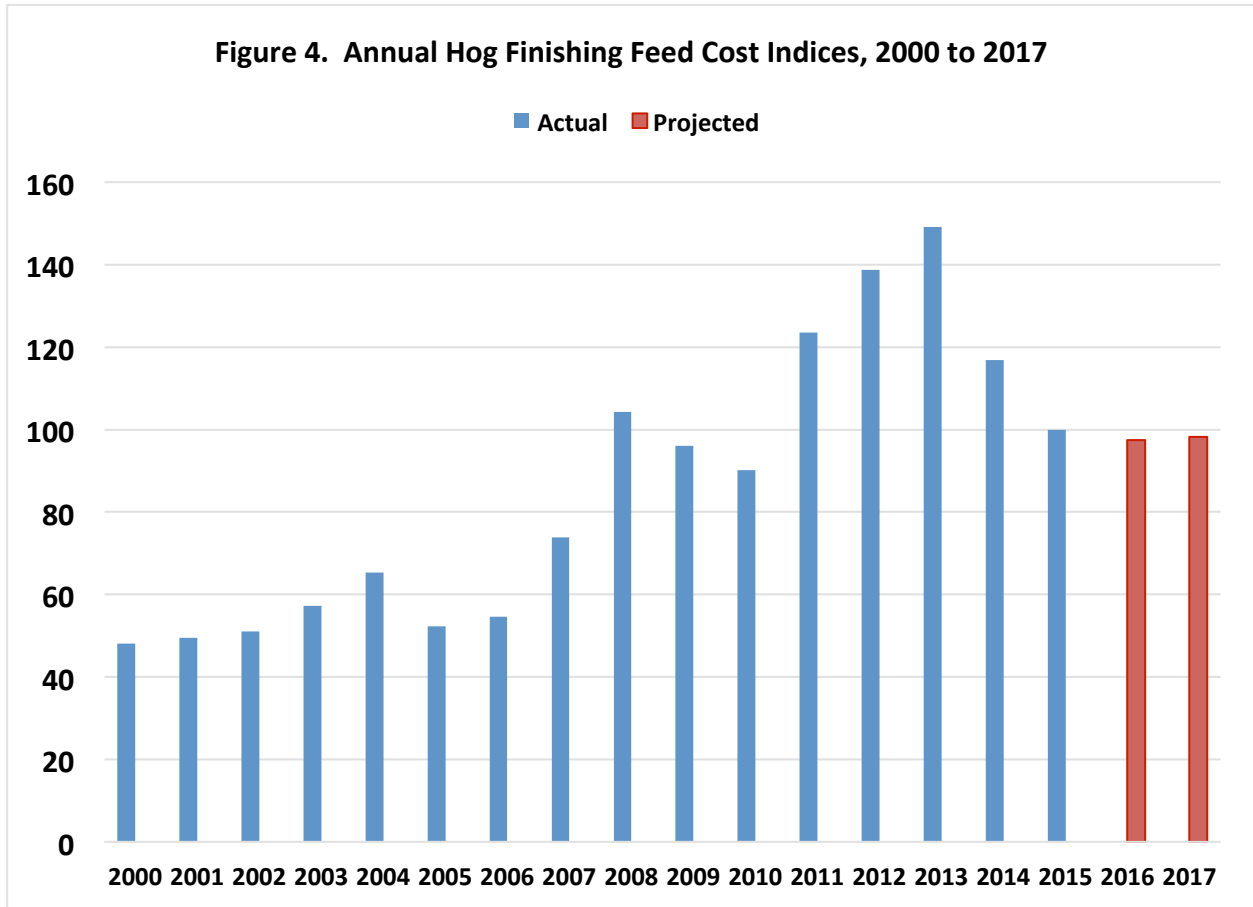
### Conclusions

This article discussed recent trends in feed costs for a swine finishing enterprise. Feed costs have dropped dramatically since the first quarter of 2014. Feed cost is expected to be slightly below 2015 levels in 2016 and 2017. However, given the recent volatility of corn and soybean meal prices, it is important to gauge the impact of changes in these prices on feed cost. Each \$0.10 per bushel change in corn price, changes feed cost by \$0.47 per cwt. Similarly, each \$10 per ton change in soybean meal price, changes feed cost by \$0.33 per cwt.









**Table 1. Sensitivity of Swine Finishing Feed Cost to Changes in Corn and Soybean Prices.**

		Soybean Meal Price				
		300	325	350	375	400
Corn Price	3.50	28.18	29.01	29.84	30.67	31.50
	3.75	29.35	30.18	31.01	31.84	32.67
	4.00	30.52	31.35	32.18	33.01	33.84
	4.25	31.70	32.52	33.35	34.18	35.01
	4.50	32.87	33.69	34.52	35.35	36.18