IOWA STATE UNIVERSITY
Extension and Outreach

Iowa Farm Outlook

Department of Economics
January 2017 Ames, Iowa Econ. Info. 2081

Pork industry shaping itself for the future

The talk of 2016 was heavy hog supplies relative to available processing capacity. While this was the main theme, the subplots are what the markets continued to adjust to in the search of the right price.

Resurgent pork demand from China and Hong Kong in the early parts of 2016 helped support hog prices. The thought—if demand was strong enough, such large production could be absorbed. By mid-year prices were eroding and the market was pricing sharp discounts for year end, as exports failed to improve fast enough.

Then came the late-year rally in hog prices. Producers aggressively marketed hogs. The market stayed current. The pork cutout outperformed year ago levels despite notably more pork available. Retail features and foodservice offerings were plentiful and robust export volumes helped clean up the market.

Large supply to continue

From producer surveys, USDA pegged the December 1, 2016 breeding herd inventory, at 6.090 million head, up 1.5% from last year (table 1). This is the largest December breeding herd since 2007 and the largest quarterly breeding herd since June 2008.

Table 1. USDA Quarterly Hogs and Pigs Report Summary

	United States				Iowa		
	2015	2016	2016 as % of '15		2015	2016	2016 as % of '15
Dec 1 inventory *							
All hogs and pigs	68,919	71,500	103.7		20,900	22,400	107.2
Kept for breeding	6,002	6,090	101.5		1,030	1,030	100.0
Market	62,917	65,410	104.0		19,870	21,370	107.5
Under 50 lbs	20,008	20,882	104.4		5,220	5,700	109.2
50-119 lbs	17,262	18,037	104.5		6,280	6,610	105.3
120-179 lbs	13,370	13,911	104.0		4,660	5,080	109.0
180 lbs and over	12,276	12,580	102.5		3,710	3,980	107.3
Sows farrowing **							
Jun - Aug	3,017	3,025	100.3		510	500	98.0
Sep – Nov	2,929	3,043	103.9		530	560	105.7
Dec - Feb [1,2]	2,927	2,968	101.4		500	520	104.0
Mar - May [3]	2,896	2,997	103.5		500	520	104.0
Sep - Nov pigs per litter	10.53	10.63	100.9		11.00	10.90	99.1
Sep - Nov pig crop *	30,848	32,333	104.8		5,830	6,104	104.7

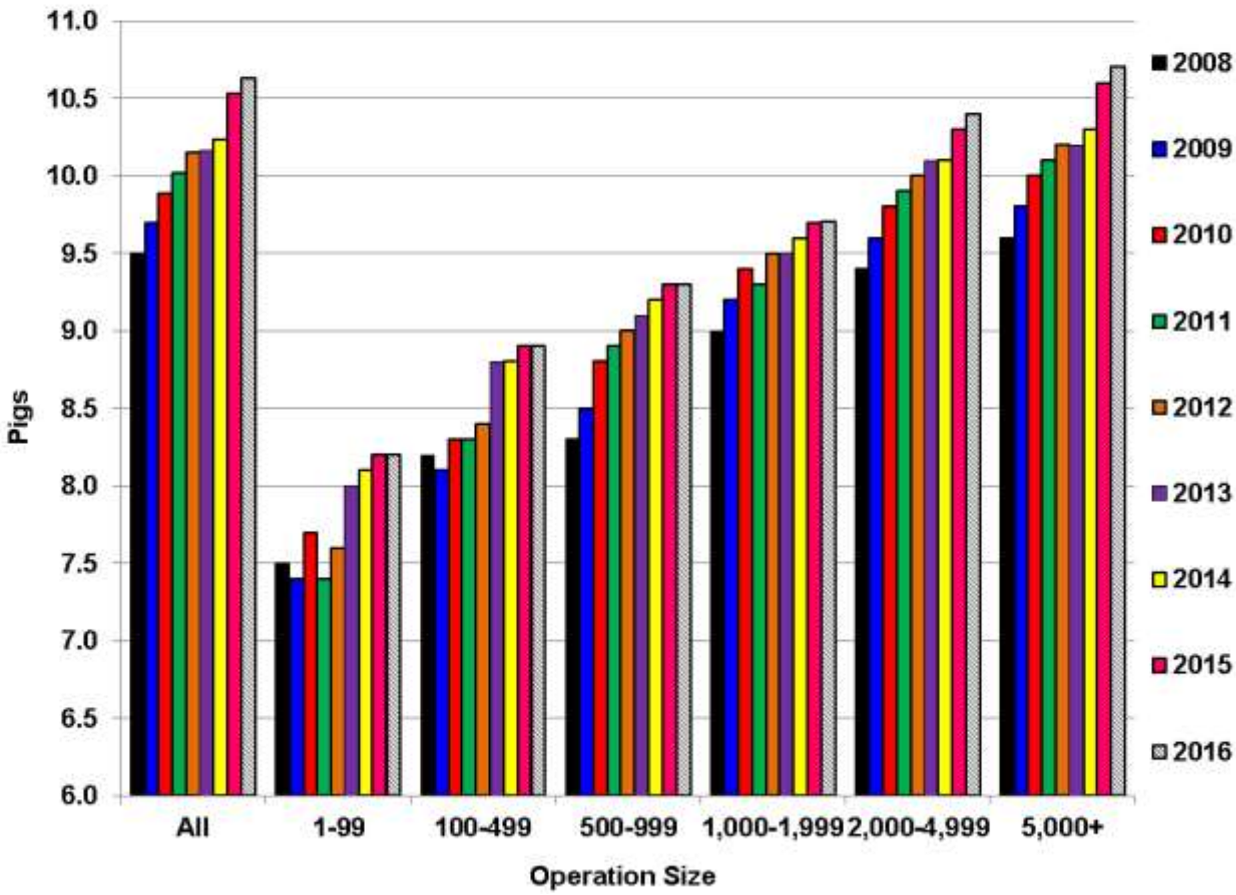
Full report: http://usda.mannlib.cornell.edu/usda/current/HogsPigs/HogsPigs-12-23-2016.pdf
* 1,000 head; **1,000 litters; [1] December preceding year; [2] 2015/16 sows farrowing and 2016/17 farrowing intentions; [3] 2016 sows farrowing and 2016 farrowing intentions.

U.S. hog producers have been investing in equipment and facilities to expand production on strong profits. Even if more pork pressures prices producers will fill their facilities as long as prices cover variable costs and leave some income to apply to fixed costs.

Continual improvement in genetics and management practices, less any disease disruptions, will bolster incremental productivity gains, which will keep adding to supplies. The average pigs saved per litter was a record high at 10.63 for the September-November period.

The influence of larger operations, those with inventories of 5,000 or more hogs and pigs, on litter rates has increased greatly, even over the last several years. In September-November of 2008, the average number of pigs saved per litter on operations with less than 5,000 head was 8.48 (figure 1). The average number saved per litter on all operations was 9.50 pigs and the average on operations with 5,000 or more head was 9.60 pigs. By September-November of 2016, operations with 5,000 or more head saved 10.70 pigs per litter while the national average for all operations was 10.63 and the average for operations with less than 5,000 head was 9.30 pigs per litter.

Figure 1. U.S. Pigs Saved per Litter by Operation Size, September-November



Data Source: USDA-NASS.

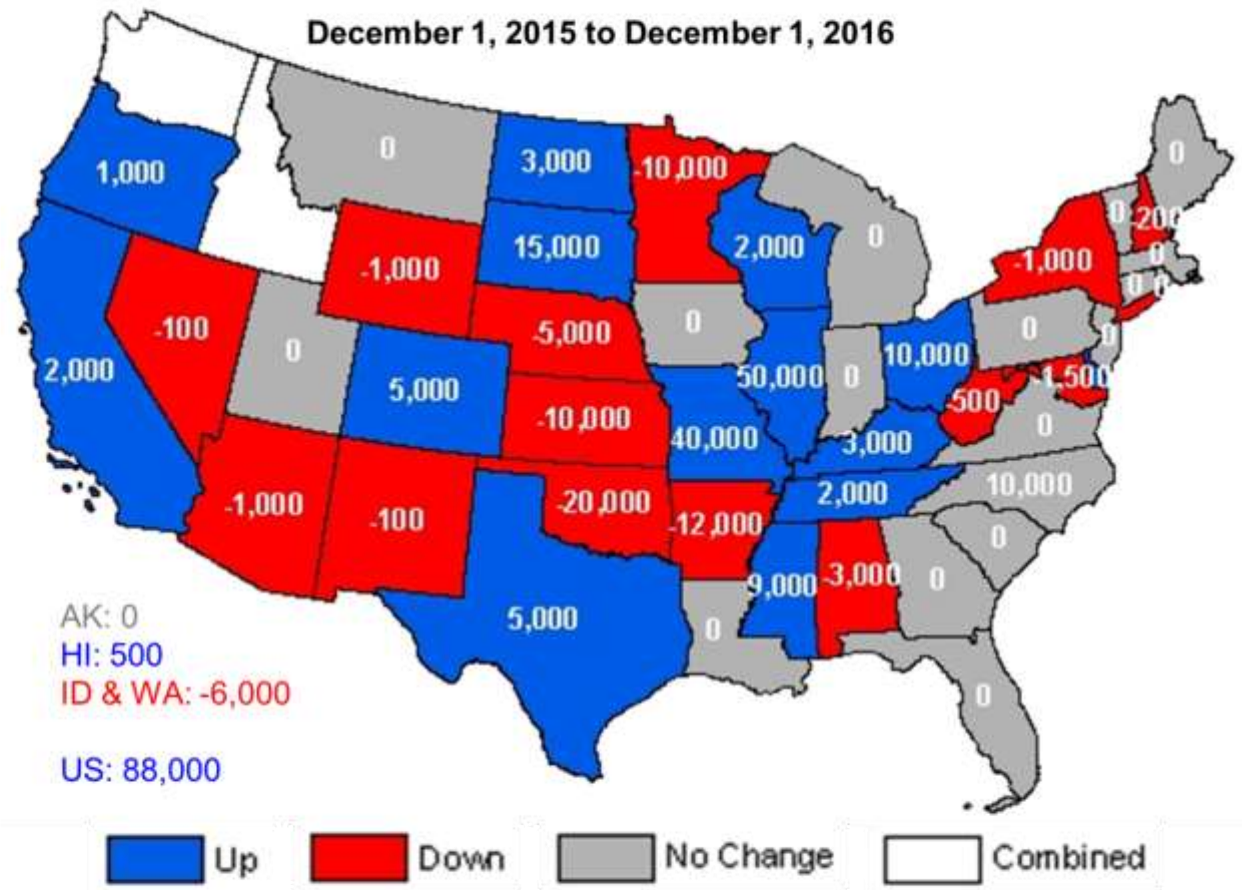
Keeping sows in position

As hog slaughter ratcheted up in 2016, cull sow prices plummeted. Nationally sow prices for the week ending December 24th averaged $26.53 per cwt, down $28.04 per cwt from the last week of August. Lower salvage values plus inexpensive and plentiful feed give producers little incentive to cull sows. In fact, the ratio of sow slaughter to sows that have farrowed suggests that producers have been holding their sows for longer given the excellent profits available the last few years. Anticipated profits are also an incentive to maintain the breeding herd at the current level.

Futures are offering a small, but positive, margin for 2017. Possibly bridging the gap to when the cyclical price pendulum swings back. Producers that have sizable inventories will be well-positioned to quickly seize windows of opportunity that may open up in the months and years ahead.

The big expanders according to USDA were in the states of Illinois and Missouri. Combined these two states added 90,000 head to the breeding herd from December 1, 2015 to December 1, 2016 (figure 2). Take them out of the mix and the rest of the U.S. states, collectively, operated about even.

Figure 2. Hogs & Pigs Breeding Inventory



Data Source: USDA-NASS.

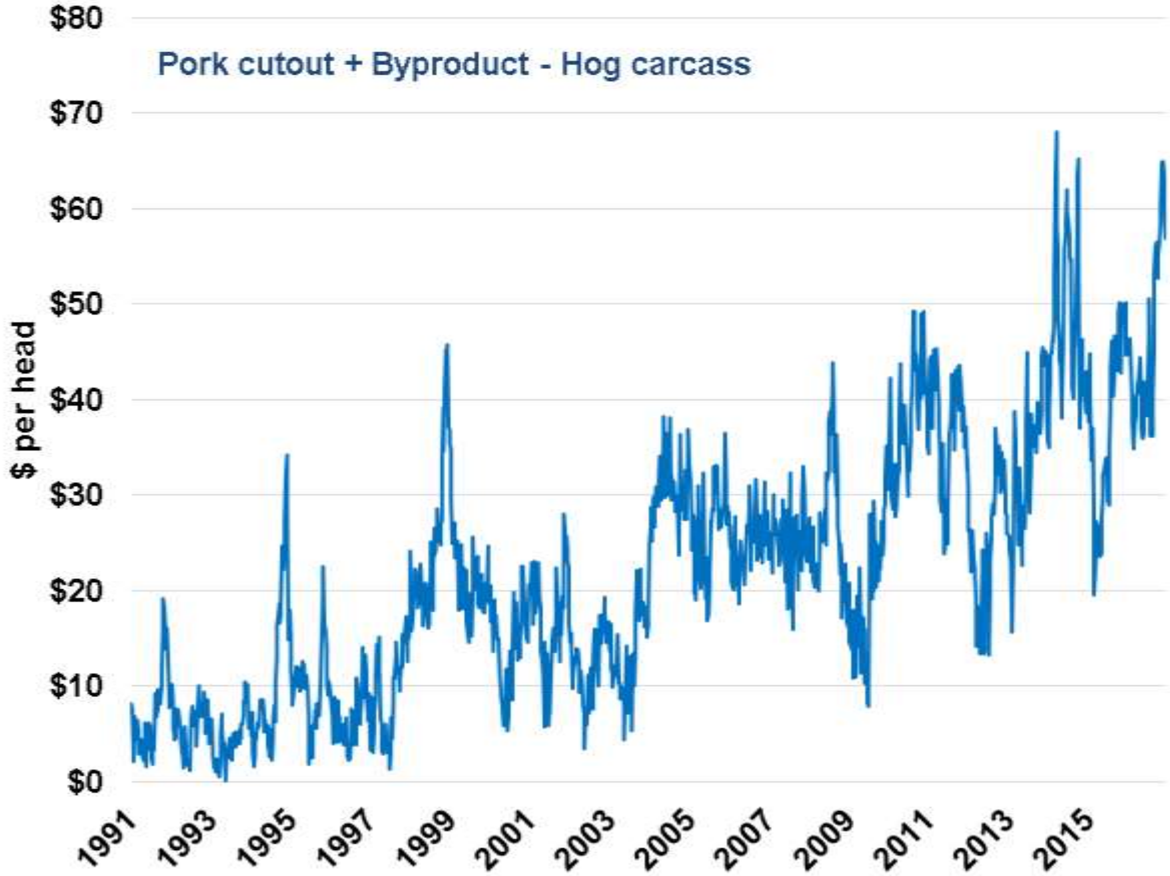
More competition among packers coming

First half 2017 pork production will rise based on hogs already in the pipeline. Second half output will likely top 2016’s record levels. Additional packing plants coming on line in 2017 and 2018 will help ease capacity constraints. The additional capacity is good news for producers as more competition for their hogs will give producers a bit more leverage.

Packers will want to hold market share. To do so, they’ll need to get after hogs. Packers want to spread fixed costs over as many hogs as possible. Plus, no packer wishes to give up shelf space, food service, or export markets. Those are all incentives to pay a higher price for hogs to secure a quantity level that captures operating efficiencies.

Weekly slaughter topping 2.5 million several weeks last fall stressed capacity. Plus, total pork packer gross margins (cutout plus byproduct minus hog carcass) have been extraordinary, only rivaled by the pork packer gross margins of 2014 (figure 3). No wonder new packing plants are under construction and the industry is in an all-hands-on-deck mode to get operational as soon as possible. The key going forward is whether packers will be able to grow sales, particularly to key export markets.

Figure 3. Pork Packer' Estimated Gross Margins, Weekly



Data Source: USDA-NASS.

Trade crucial for demand

Rising production should moderately lift domestic per capita pork consumption in the years ahead. Still, U.S. per capita consumption may not return to what it was decades ago.

Rather than merely jockeying for U.S. market share, industry participants will keep looking outside the U.S. for profitable growth. About 26% of U.S. pork and variety meat production is exported and is likely to keep growing.

Commercial Slaughter and Price Forecasts

Table 2 contains the Iowa State University price forecasts for the next four quarters and the quarterly average futures prices based on December 23, 2016 settlement prices. The futures price forecasts are adjusted for a historic Iowa/Southern Minnesota basis. The table also contains the projected year over year changes in

Table 2. Commercial Hog Slaughter Projections and Lean Hog Price Forecasts, 2017

	Year-over-Year Change In Commercial Hog Slaughter (percent)	ISU Model Price Forecast, Negotiated IA/So MN ($/cwt)	CME Futures (12/23/16) Adjusted for Negotiated IA/So MN Basis ($/cwt)
Jan-Mar 2017	2.77	59-63	60.83
Apr-Jun 2017	4.62	67-71	68.98
Jul-Sep 2017	2.45	68-72	70.11
Oct-Dec 2017	2.92	56-60	58.62

commercial hog slaughter. Taking the report as is, using pig crop numbers for June-August and September and November and farrowing intentions for December-February and March-May with commensurate pigs saved per litter to project supplies, expect hog slaughter in 2017.Q1 to be up 2.77%, 2017.Q2 slaughter to be up 4.62%, 2017.Q3 slaughter to be up 2.45%, and 2017.Q4 slaughter to be up 2.92% compared to previous year levels.

Lee Schulz

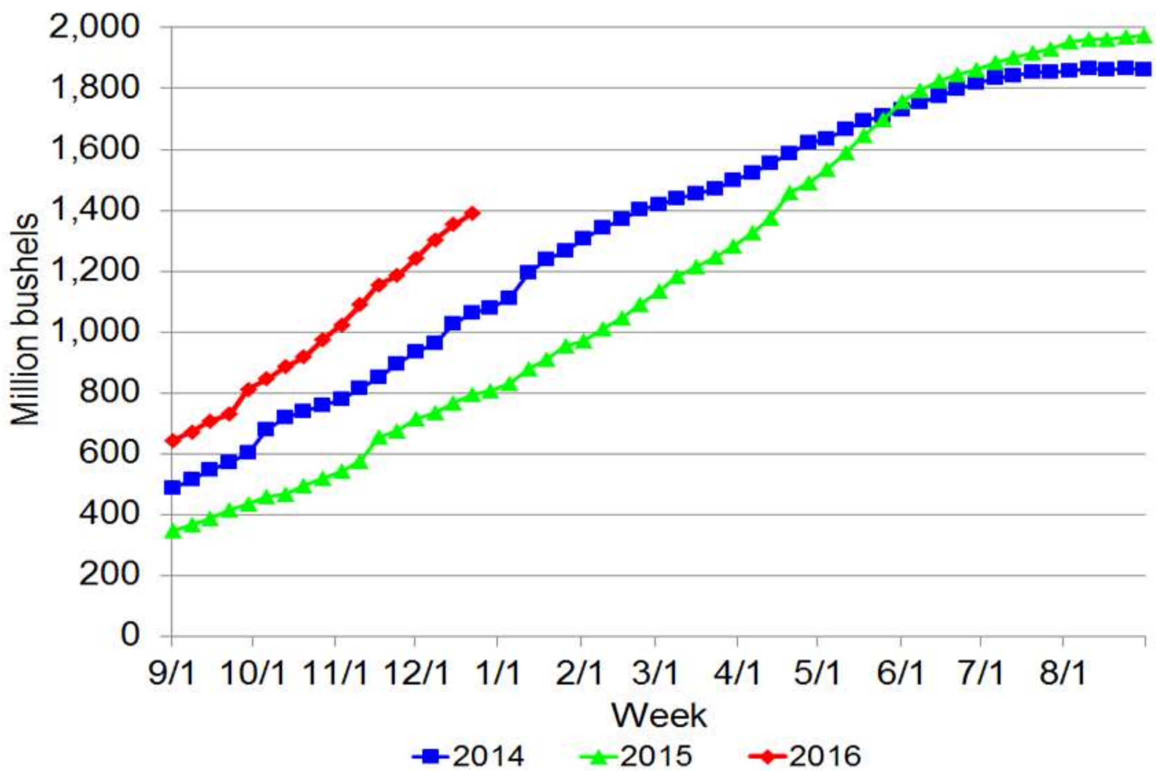
Crop Usage Has Never Been Better

While crop prices may not reflect it, crop usage has never been better. This fall the U.S. harvested record corn and soybean crops again. But prices did not buckle down as usage rose to records as well. The combination of strong domestic usage from the livestock and biofuel industries and exceptional export demand has relieved some of the pressure from the massive supplies. And the surge in usage continues as we enter 2017. The livestock sector continues to grow, biofuel production is hovering near all-time highs, and export sales have far surpassed last year's pace.

Feed demand remains on a growth trend as expansion rolls on in the major livestock species. Beef production in 2017 is projected to reach nearly 26 billion pounds, increasing by 800 million pounds. Pork production in 2017 is following a very similar pattern to beef, growing by 880 million pounds to 25.8 billion. 2017 looks to be an expansion year for the broiler and turkey sectors as well, with 2% growth for broilers and turkeys. Higher meat production translates into stronger feed demand.

The expansion in the U.S. livestock industry is likely being paralleled by the global livestock sector. And that helps partially explain the surge in corn and soybean exports over the past six months. Increased international feed demand, in conjunction with some issues sourcing crop supplies from South America in the spring and summer of 2016, has boosted U.S. export sales. Corn export sales entered the 2016/17 marketing year with a 300 million bushel lead on sales from 2015/16. That lead has expanded to roughly 600 million bushels as we start the 2017 calendar year.

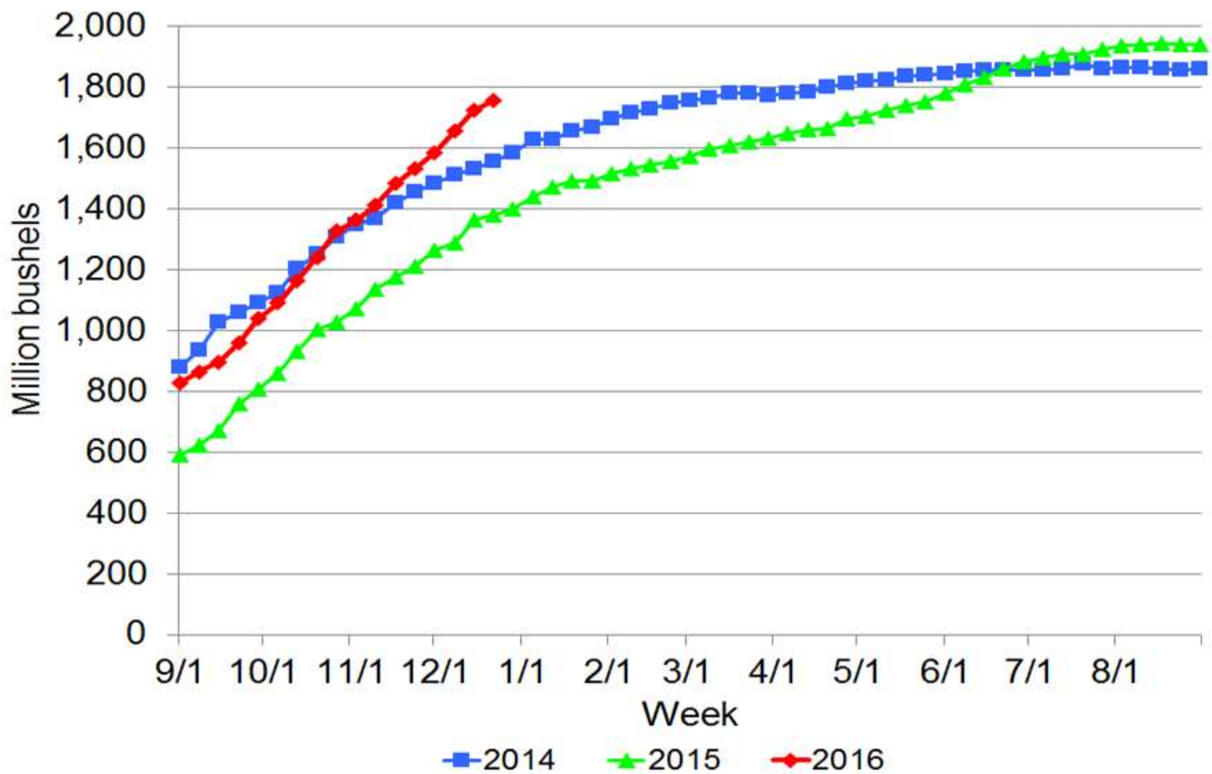
Figure 1. Corn Export Sales. Source: USDA-FAS.



The strength in corn exports has come from several countries. All of the top six export markets have increased their corn purchases compared to last year, with South Korea, Taiwan, and Peru more than doubling their corn purchases from this time last year. Overall, corn export sales are up nearly 75% from a year ago. And while the U.S. dollar has strengthened over the past few months, it has not deterred corn sales.

The same can be said for soybean export sales. The surge started late last spring and has continued since then. We started the 2016/17 marketing year with a 200 million bushel lead on last year's record export pace and have watched that lead grow to nearly 400 million bushels, up over 28% from last year.

Figure 2. Soybean Export Sales. Source: USDA-FAS.



China represents the lion's share of the growth, with just over 300 million bushels more headed there for the current crop year. The Chinese market absorbs roughly two-thirds of all U.S. soybean exports, or to put it another way, roughly 25% of the total U.S. soybean crop. But the growth in soybean export sales is not limited to China. Many other markets have increased their purchases of U.S. soybeans. Out of our top six markets, only the European Union has purchased fewer beans.

Corn usage via ethanol has continued to climb slowly higher over the past few years. The ethanol industry produced a record amount in 2016 and that trend is expected to continue in 2017. Domestic motor fuel consumption has been recovering with the slowly growing economy. And international demand for ethanol has been building for the past couple of years. With oil prices hovering in the $50-60 range, ethanol margins remain strong enough to promote slow growth. Biodiesel production has also been strong over the course of 2016, with soybean oil remaining the top feedstock. The biofuel sector now provides a solid base for crop usage.

The combination of these uses adds up to record total usage for both crops. And that record demand has allowed prices to recover some from their early harvest lows. The slight recovery in prices, along with the extra bushels from the above-trend-line crops, translated into better margins for the 2016/17 crops that one would have expected, given the size of the harvest. In fact, the extra bushels added roughly $60 per acre for both crops. Soybean margins are holding in the $25 per acre range, while corn margins are still below breakeven, at -$50 per acre. The late spring/early summer rally provided an opportunity to capture margins above $100 per acre for both crops. Looking back, last year at this time, projected margins were -$100 per acre for both crops. So the 2016/17 marketing year is turning out stronger than expected.

Figure 3. Corn Usage for Ethanol.

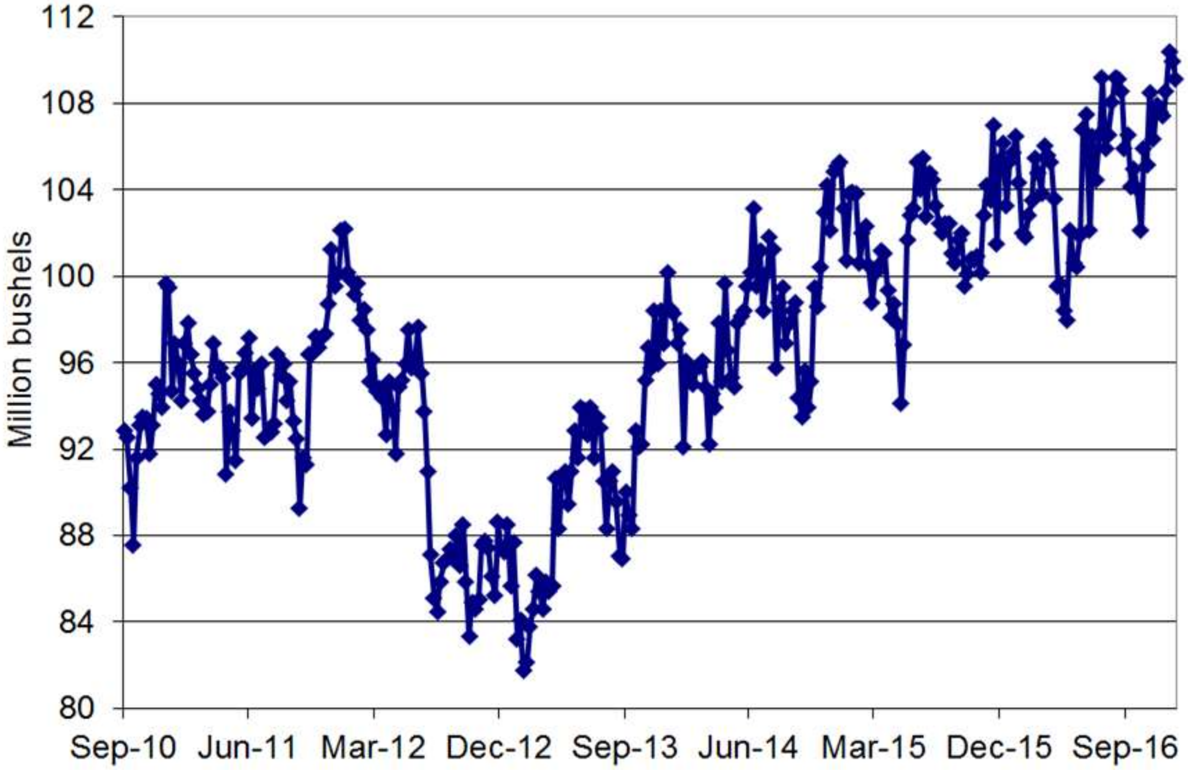
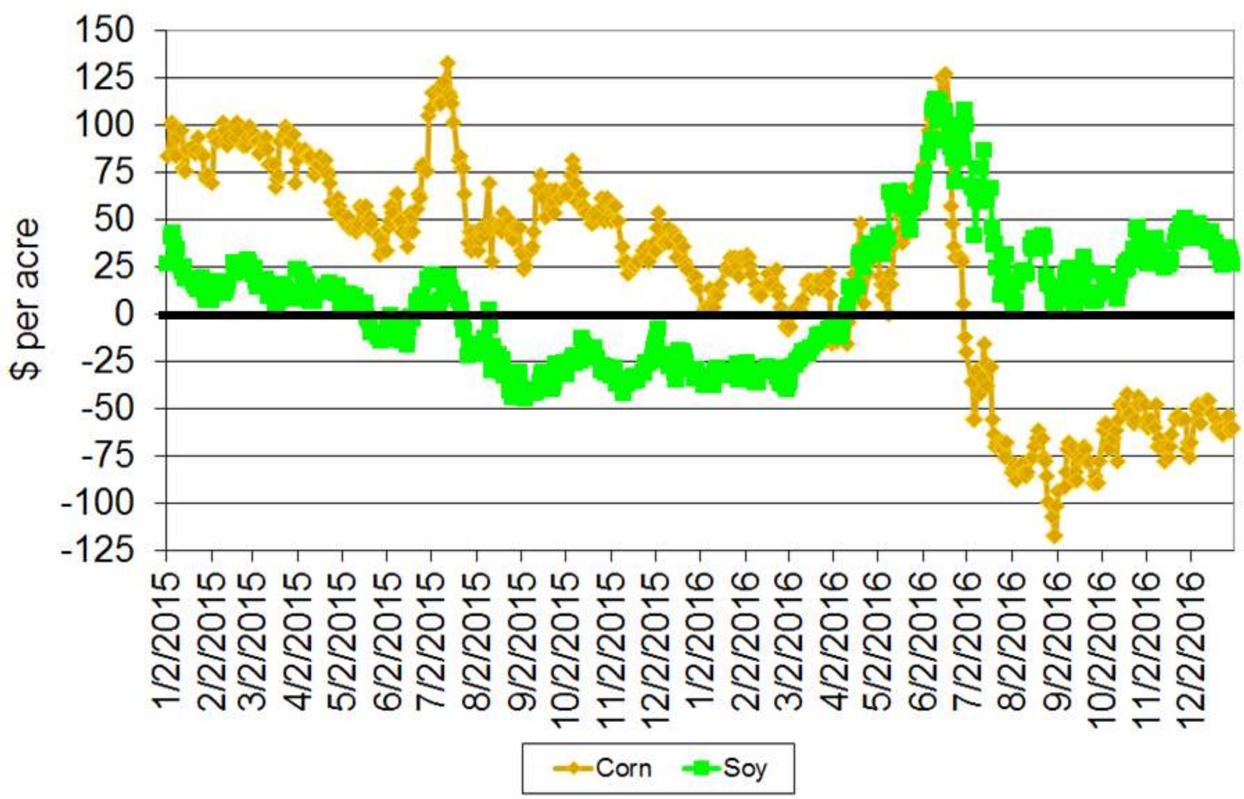
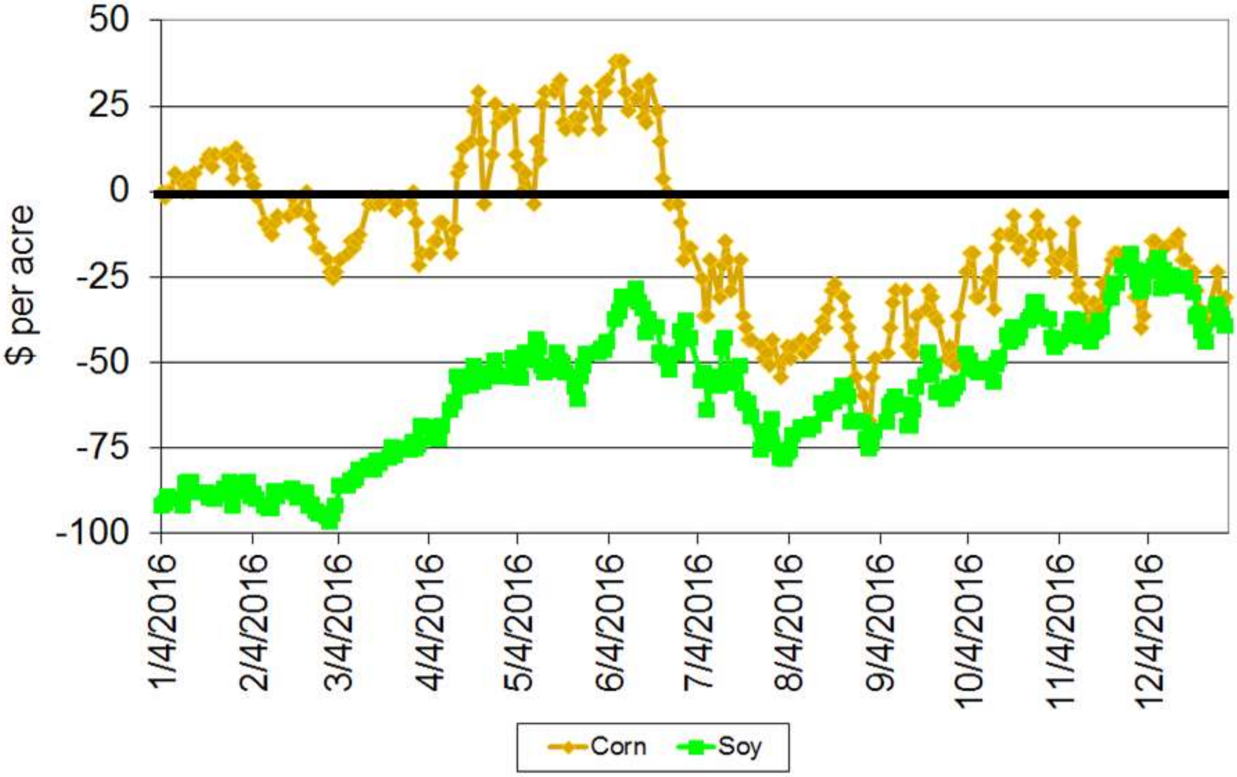


Figure 4. 2016/17 Crop Margins.



But we'll need to hope for a similar pattern for the 2017/18 crops. Currently, projected margins for both corn and soybeans in 2017 are below breakeven. But the gap is between $25 and $50 per acre. As USDA's early estimates showed last month, the markets are expecting fewer corn acres to be planted, but more soybeans will be sown. With trend-line yields, production would fall for both crops. USDA's early price projections put corn at $3.30 per bushel and soybeans at $9.35 per bushel. The markets are much more bullish about 2017, with current price estimates in the $3.80 range for corn and $9.70 range for soybeans.

Figure 5. 2017/18 Crop Margins.



And the markets are set up to partially replay the events of the previous year. Supplies stand at record levels, but so are demands. The markets are looking for potential weather issues. Last year, it was the harvest problems in South America. This year, it is the potential for dryness to spread from the southeast U.S. In a sense, this is a storyline we have replayed for the past couple of years. Prices hold lower as we start the year, begin to rally as planting approaches, top out by the 4th of July, crash down to reach the lows during the early harvest, and recover slightly as we close out the year. And looking back over the longer-term history of agriculture, it is a pattern we see quite often as it is our typical seasonal pricing pattern. We didn't see this pricing pattern much over the 10-12 years, but with biofuel demand growth now slowed, we can expect to see such a pricing pattern more often.

As the projected margins indicate, cost control will still be critical for the financial stability of the farm. Good marketing opportunities will arise in 2017, but they can quickly disappear if our record crop production string continues. The challenge, as it has been for the past couple of years, is to capture positive cash flow opportunities and maintain good working capital on the farm. In the state-level aggregate data, we can see some financial stress building in the agricultural sector. Overall, the ag balance sheet still looks good, but not as good as it did one, two, or even three years ago. The squeeze has been felt by farmers, ag input suppliers, rural communities, and even the state government. Current futures prices imply that squeeze will continue in 2017, but things won't be quite as tight. Given some time, the growing crop usage can pull prices higher, offering better margins and returns in the future.

Chad Hart

Dr. Chad Hart	Dr. Lee Schulz
Associate Professor of Economics	Assistant Professor of Economics
Extension Crop Marketing Specialist	Extension Livestock Economist
478F Heady Hall	478 Heady Hall
Phone: (515) 294-9911	Phone: (515) 294-3356
Fax: (515) 294-3838	Fax: (515) 294-3838
chart@iastate.edu	lschulz@iastate.edu
www2.econ.iastate.edu/faculty/hart/	www.econ.iastate.edu/people/faculty/schulz-lee