

# P • A • E • R

PURDUE AGRICULTURAL ECONOMICS REPORT

YOUR SOURCE FOR IN-DEPTH AGRICULTURE NEWS  
STRAIGHT FROM THE EXPERTS.

## DECEMBER 2014

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Welcome to Purdue's snapshot of the Indiana agricultural economy for 2015. There's some positive news but also major areas of concern. First the good news! Lower grain prices have reduced feed costs and animal producers are having record positive margins in 2014 and 2015. All major live-stock species are seeing record high farm prices for animals and animal products including eggs, milk, chickens, turkeys, cattle and hogs. Also, total Indiana net farm income appears to be holding for 2014 near \$2.7 billion, similar to 2013.

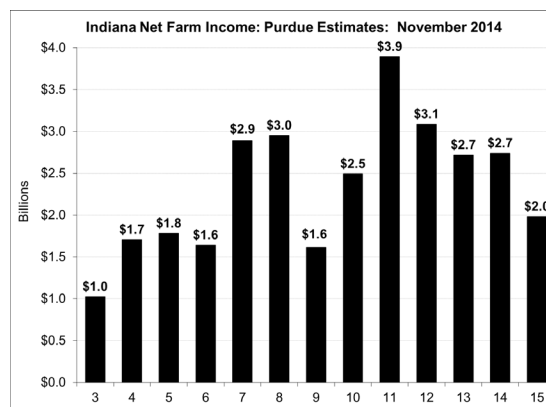
But, there are already disturbing signs that the income picture is changing quickly as the grain sector is forced to adjust to much lower prices with almost no decrease in production costs, at least not yet. Grain farm margins have largely collapsed as record Indiana yields in 2014 have not been enough to offset price declines. If we just consider crop farms, their incomes are expected to be down more than 30% in both 2014 and again by that margin in 2015. So, it is the high

incomes from animal related farms that are holding up the total net farm incomes for 2014.

Indiana agriculture's biggest problem is that crop prices have fallen below the record high costs of production. A number of farms will have negative margins at current expected prices. Our Purdue opinion is that grain prices are in a multi-year period of downward moderation from the high-price era. If correct, crop margins will be tight and adjustments will have to occur during the coming years.

The implications for crop agriculture may be substantial. Almost everyone in crop agriculture from input suppliers, to farm operators, to landlords got use to high revenues. Now crop revenues may be sharply lower

in coming years and downward adjustments are likely. Who is going to take less as this downward adjustment period proceeds? Will input suppliers cut prices? Will producers cut their application rates? Will farmers' margins collapse? Will cash rents drop? Will land values fall? Keep reading?



# THE ECONOMY PICKS UP IN 2015

By: Larry DeBoer

The U.S. economy is now in its 65th month of expansion, since the end of the Great Recession in 2009. It's been a disappointing expansion, with growth averaging only 2.3% per year. But growth was more rapid in the second and third quarters of 2014. Is there reason for optimism? Will this expansion finally take off?

There are lots of reasons to think that consumers will spend more in the coming year. Consumer confidence is up. Unemployment is down. Home prices are rising. Household debt payments as a share of income are at 30-year lows. Consumption spending probably will rise faster in 2015 than in 2014.

Home building will probably rise too. There is only a five and a half month supply of homes for sale, low enough to cause home prices to rise. Mortgage rates remain low. That should encourage more construction. Business investment looks less rosy. Capital goods orders are growing slowly. Still, if consumers spend more, businesses may invest to add to their productive capacity.

Indications are mostly positive for consumption and investment. In the second and third quarters real gross domestic product growth averaged 4.1%. Surely that's reason for optimism. But we've heard this story before. In four of the past five years higher growth in the fourth quarter was followed by disappointment in the first quarter.

Something like that could happen in 2015. The two components of GDP that contributed most to the GDP acceleration in the last two quarters were exports of goods and national defense spending. Combined, increases in those two added a point and a half to growth.

Japan is in recession now. Europe may just avoid recession in 2015. China is growing more slowly (for China). The exchange value of the dollar has been rising, raising the cost of U.S. exports to our trading partners. With lower incomes, at higher cost, the rest of the world is unlikely to increase purchases of U.S. exports.

The Congressional Budget Office does not foresee any increase in real defense spending in fiscal year 2015, which began with the fourth quarter. Recent increases may be a matter of the timing. Defense spending will not contribute much to growth in 2015.

Consumption will grow. So will investment. But real GDP growth closer to 2.5% than 4% seems likely for 2015.

That should be enough, though, to bring down the unemployment rate from its current 5.8%. Over past decades growth above 3% was needed to reduce unemployment, but that has changed with the slowing growth of the labor force. Now unemployment can fall with slower growth. Expect an unemployment rate down near 5.3% by this time next year.

Inflation has been something of a mystery since the Great Recession. Rapid money supply growth should have pushed inflation to near 10% per year. It didn't. Years of high unemployment should have plunged us into deflation. It didn't. Inflation has averaged 1.8% over the past year, about where it's been since the expansion began. Falling energy prices should help keep inflation low in 2015. Expect inflation to hold steady at just under 2%.

The Fed has ended quantitative easing part 3, and has hinted at an increase in the Federal funds rate in 2015, if the economy holds up. That policy interest rate has been near zero since the end of 2008. Interest rates will probably edge upward in 2015, but the Fed's caution, and the rest of the world's eagerness to lend in the U.S., should keep the increase small. Expect an increase in the 10-year Treasury rate from 2.5% to 2.75% by the end of 2015, and an increase in the 3-month Treasury rate from near zero to 0.3%.

Overall: Better than the recent past and much better than the rest of the developed world. But still not the boom we're hoping for.

## AGRICULTURAL TRADE PROSPECTS WEAKEN

By: Philip Abbott

Overall U.S. agricultural exports set another record in fiscal year 2014 at \$152.5 billion. According to USDA's most recent trade outlook, exports in 2015 are expected to fall to \$143.5 billion, due to lower prices and reduced export volumes for bulk commodities. Agricultural imports were at \$109.2 billion in fiscal 2014, and will set a record at \$116 billion in 2015. The agricultural trade balance will fall from \$43.3 billion in 2014 to \$27.5 billion in 2015, its lowest level since 2009.

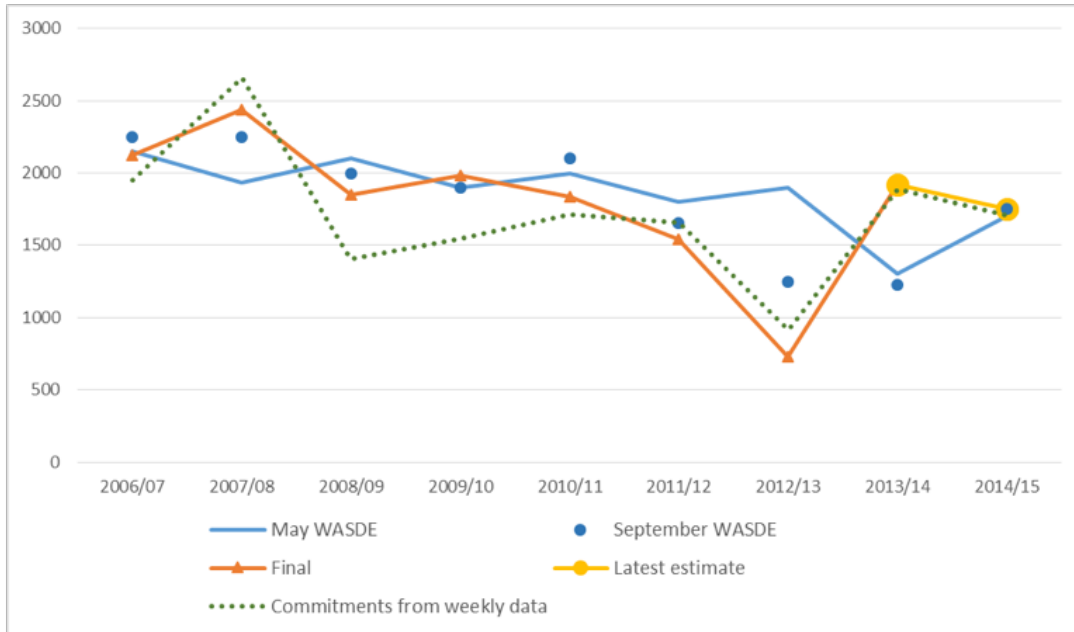
Grains and feeds exports are expected to be \$6.5 billion lower in 2015, with volumes traded declining as well. Coarse grains exports are projected to be 6.3 million metric tons lower, and feeds and fodder are expected to be 7.8 million metric tons lower. Soybeans, meal and oil exports are up slightly in volume, but the value of that trade should fall \$4.5 billion as a result of the lower prices

this year. For bulk commodities overall, value is down 6.3% while volume is down 4.5%.

The decline in overall U.S. agricultural exports is slightly less than the combined declines for grains, feeds and oilseeds, since the value and volume exported for most other commodity groups is flat. Pork exports as well as overall livestock, poultry and dairy exports are expected to fall by 0.3%, but horticultural product exports may increase by 7.7%.

year when production improved. Exports of corn had been trending downward since the peak in 2008, while soybean exports had been growing until 2011, largely due to Chinese demand. In the recent past these exports had been price inelastic, as foreigners bought what they needed regardless of price or market conditions in the U.S. When the drought occurred in 2012, exports fell much more than expected, even after drought effects on production were known. Then in 2013, when production recovered and prices fell, exports also increased more

Figure 1. Expected and Actual U.S. Corn Exports



Source: World Agricultural Outlook Board (WAOB), 2014 and earlier. *World Agricultural Supply and Demand Estimates (WASDE)*, USDA, Washington, DC. Various issues from May, 2006 to November, 2014.

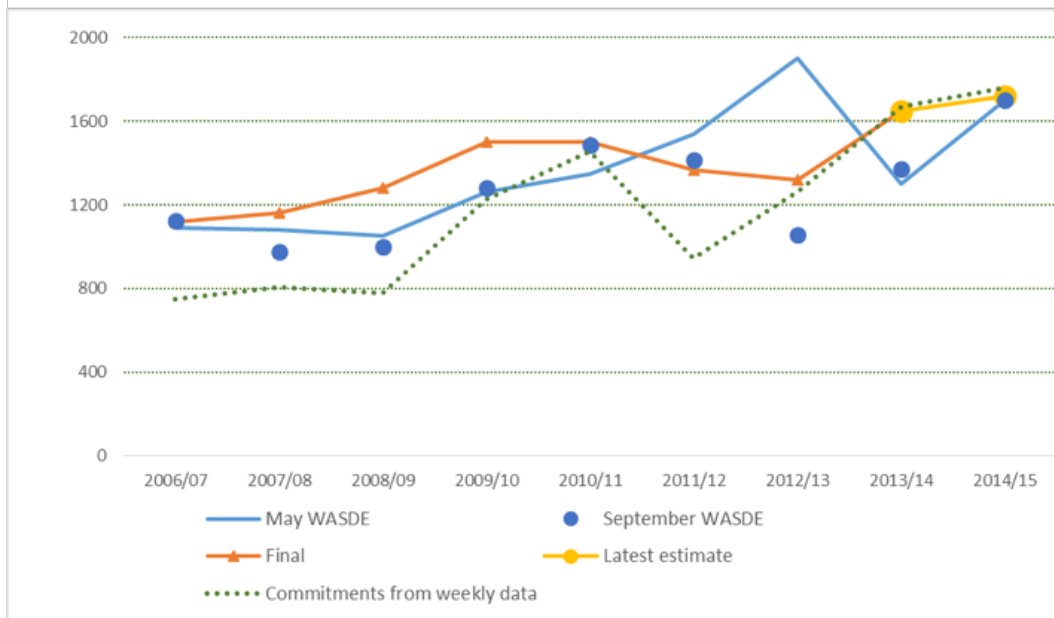
Prices for corn and soybeans are up somewhat from the lows in early fall when the excellent harvest began, but remain lower than last year and well below prices for 2011 to 2013. Prices over this period have been strongly influenced by surprises in trade, so attention is warranted for USDA's projections on exports of these crops for the 2014/15 crop year. That forecast has been for only modest growth in soybean exports and significant declines in grain exports. A question that needs to be addressed is why are the lower prices not bringing greater export volumes?

Figures 1 and 2 compare actual corn and soybean exports to WADSE forecasts since 2006. While these show differences between actual and expected exports every year that persist beyond harvest, deviations were much larger for the 2012/13 drought year and for the next crop

than expected. Initial WASDE estimates presumed more of the decline in the 2012/13 crop year was due to the ongoing trend, rather than a response to U.S. market conditions. The fall in exports in 2012/13 prevented prices from falling as much as they would have otherwise, and the surprisingly strong exports in 2012/13 kept prices higher than initially expected.

Figures 1 and 2 show the current USDA forecast: that soybean exports would increase only slightly and corn exports would fall for the current crop year. This was the case in the early May WASDE report, and the most recent (November) report is highly consistent with the May prediction. Weekly exports are reported to the USDA and published quickly. They provide some guidance as to how actual exports perform. Figures 1 and 2 also show weekly export data - accumulated export sales to date in late No-

Figure 2. Expected and Actual U.S. Soybean Exports



Source: World Agricultural Outlook Board (WAOB), 2014 and earlier. *World Agricultural Supply and Demand Estimates (WASDE)*, USDA, Washington, DC. Various issues from May, 2006 to November, 2014.

ember plus outstanding export sales that have not yet shipped. While these export commitments at this time of year are an imperfect predictor of future trade, they have performed reasonably in recent years, and are highly consistent with the most recent WASDE forecast. Thus, it is reasonable to expect export levels near the WASDE forecasts, so weaker export demand is consistent in spite of the low market prices now occurring. As always caution is advised, as soybean exports (and increasingly corn exports) are dependent on harvests in South America which will not occur until the coming spring.

Trade with China is a critical factor determining these outcomes, especially for soybeans and more recently for corn. Chinese soybean imports are expected to increase only 3.6 million to 74 million tons, while corn exports fall 0.7 million tons to 2.5 million tons. Chinese imports of DDGs were 6 million tons for 2013/14, and may fall dramatically in the coming year. A dispute involving GMOs over a Syngenta strain not approved for importation into China has resulted in shipments being refused for both corn and DDGs. Chinese restrictions on corn and DDG trade, and more strict enforcement of GMO regulations, is probably the consequence of a large corn crop and excessive stocks in China. Low price imports would interfere with their producer support programs as well. Those expecting corn trade to China to expand like soybean trade has in the past will have to wait at least until those stocks are drawn down, and probably longer.

U.S. agricultural exports are weak because of a weak

global economy as well. Europe and several emerging economies are in recession and key Asian economies are experiencing slower growth than has been the case in the past. The U.S. economy is the only one experiencing reasonable growth. That performance coupled with flight to safety of the dollar due to various geopolitical risks (Ukraine, Middle East ...) means that the dollar is quite strong now. The strong dollar has affected crude oil and metals more so than agricultural commodities for now, but the expected continuing appreciation of the dollar could eventually lower agricultural commodity prices. Moderate improvement in global economic growth is behind the USDA trade forecasts for 2015, however. The strong dollar and relatively stronger U.S. economic growth will also fuel agricultural import expansion.

Progress on trade negotiations is unlikely to change the trade outlook in the near future. The Bali WTO Ministerial a year ago made only minimal progress toward a Doha round agreement. The "low hanging fruit" of adopting a Trade Facilitation Agreement is more likely now that the U.S. and India have resolved their dispute over WTO disciplines on India's public grain stockholding to ensure food security. The U.S. and Brazil have also recently resolved their longstanding cotton dispute. While changes in the recent farm bill plus a \$300 million payment to Brazil were sufficient to bring an end to that dispute, the move to crop insurance in that bill has considerably reduced the room for the U.S. to negotiate a future reduction in its coupled farm payments. Attention is now focused less on WTO and more on bilateral agreements – the Trans Pacific

Partnership (TPP) and the US-EU trade and investment agreement (T-TIP). The recent Asian summit meeting has brought the TPP negotiations closer to conclusion, but the agricultural content of both those agreements remains highly uncertain.

Exports were key to limiting price declines last year, but global economic weakness and a strong dollar mean another favorable trade surprise is unlikely this year. In spite of lower prices and bumper crops this year, bulk commodity exports are likely to remain weak for the coming year.

## FOOD PRICE INFLATION TO SLOW

*By: Corinne Alexander*

Food shoppers are seeing a period of average food price inflation, with overall food price inflation currently averaging about 3.1% in 2014, which is in the normal range between 2.0 and 3.0%. However, this average inflation masks very different scenarios for specific food categories. Food shoppers purchasing meat products are experiencing very high levels of inflation, with beef prices up 17%, pork prices up 10%, while poultry is down slightly at -0.1%. By contrast, food shoppers purchasing cereal and bakery products are experiencing very low levels of inflation at 0.4%. The primary drivers of these divergent food price inflation patterns are: 1) rebuilding of global inventories for major cereal crops due to a favorable growing season in the United States and Europe; 2) continued challenges for the red meat sector to expand from the PED virus in the pork sector and poor pasture conditions in the beef sector.

In October 2014 overall food price inflation was 3.1% compared to October 2013. Food price inflation is composed of expenditures at the grocery store and restaurants. Grocery store prices are much more sensitive to commodity prices. Grocery store price inflation was 3.3% which reflects much higher prices for meat and dairy products. Restaurants price inflation is 2.8% as restaurants also benefit from lower energy costs.

Given the favorable U.S. weather conditions in 2014 which resulted in record large corn and soybean crops, US inventories of these commodities have been restored to comfortable levels. Consumers are already seeing the lower prices for cereals and vegetable oils. With a large supply of much less expensive feed, the livestock sector has started to expand production. Consumers will start to see the benefit in early 2015 with lower poultry prices, by summer 2015 with lower pork prices, as well as lower prices for dairy and eggs. The one exception will be the beef sector which will not be able to expand until

the long-term drought in the Southern Plains and West breaks and the pastures recover.

## PROFITS BLOOM FOR COW-CALF PRODUCERS

*By: Jim Mintert*

The U.S. beef industry has suffered from the effects of both high feed prices and drought conditions over the last several years. The run-up in production costs and resulting negative operating margins led producers to reduce beef cow inventories to a level not seen since the early 1960's. The result? U.S. per capita supplies of beef are the lowest they've been since the early 1950's and will remain low through the latter part of this decade.

The dramatic decline in beef supplies pushed retail beef, slaughter cattle, and calf prices all to record levels in 2014. Sharply lower feed grain prices, combined with increasing forage supplies and record high calf prices, will encourage cow-calf producers to expand their herds. However, it will take several years before expansion produces significantly larger beef supplies and weaker cattle prices. In the meantime, cow-calf operations will reap the benefits of the strongest margins in decades over the next several years.

The key to changes in future beef supplies and prices will be determined by the cow-calf production sector. Profitability and availability of forages drives cow-calf producers' expansion decisions. Production costs for cow-calf producers declined in 2014 compared to 2013 and could decline again in 2015 with normal weather conditions. Lower costs and sustained record high calf prices mean a dramatic turnaround in profitability for the sector. The improved profit picture is encouraging some producers to begin holding back females leading to a gradual rebuilding of the nation's beef cow herd. However, female retention this year and next is not expected to produce meaningful increases in beef supplies for several years. The real impact of herd expansion will not be felt until 2017 and beyond thus resulting in sustained cow-calf profitability through the latter part of this decade.

The cattle feeding profit picture has also improved dramatically during 2014 with the increase in profitability attributable to both record high slaughter cattle prices and declining feed costs. Cattle feeders are margin operators that benefit from reduced feed costs, but their costs for replacement cattle are surging and so cattle feeding margins will tighten appreciably in 2015.

Longer term, profitability in the cattle sector will be

determined in part by the strength of consumer demand in the face of record high beef prices. An improving U.S. economy is supporting domestic beef demand with the beef demand index on track to post a strong year-to-year increase in 2014. Tight supplies and record high retail beef prices could lead to modest declines in beef export volume the next couple of years. In the longer term, export prospects will be tied closely to consumer income growth in importing nations. If consumer incomes continue to grow in key importing nations, beef export growth will resume, but not until U.S. beef supplies start to increase.

## DAIRY ENTHUSIASM EDGING LOWER

*By: Nicole Olynk Widmar and Michael Schutz, Animal Sciences*

Phenomenal margins in the dairy industry have given way to concerns over falling dairy product prices. Expectations for lower prices are fueled by ample supplies of dairy products, expanding milk production, and a slow-down in dairy exports.

USDA reported a milk to feed ratio of 3.07 for October 2014, the highest milk to feed price ratio since October of 2007. However, with holiday 2014 orders comfortably satisfied, dairy product prices and milk prices are falling. As of December 4th, April 2015 Class III milk futures and options markets revealed a 50% chance of prices between \$14.43 and \$17.28/cwt (Michigan State University model). Of particular interest on the dairy product side is butter, which slipped more than \$1.00/lb. in price from the record-setting level of \$3.01 in the first week of October to \$1.99/lb. the last week of October. But, butter is not alone in the rapid downward price slide. Cheese, skim milk powder, and dry whey prices have all fallen rapidly as well.

Although prices have fallen they are still significantly higher than the export prices of competitors. "For example, for the week ending November 1, the U.S. butter price was \$1.99 per pound while the Oceania export price ranged from \$1.10 to \$1.45 per pound for the 2 weeks ending November 7" (USDA). Strong milk production in New Zealand and the EU, in addition to the Russian ban on agricultural imports, has contributed to the relatively low dairy prices abroad.

The significant differential between US dairy prices and foreign export prices has had a significant impact on US dairy trade recently. Exports for the 3rd quarter of 2014 were down 23% from exports in the 3rd quarter of 2013 (on a milk-fat equivalent basis), meanwhile US dairy imports have increased. While the dairy industry has relied on strong exports in recent times to contribute to higher

prices, that simply isn't the case any longer! U.S. dairy producers and foreign competitors are facing changing world prices and potential marketing challenges.

Dairy producers in the US are also navigating a new government program, the 2014 Farm Bill, **Margin Protection Program for Dairy (MPP-Dairy)**. MPP-Dairy is designed to give dairy farmers who choose to participate a compensating benefit payment when a national trigger indicates feed costs are high relative to the price of milk.

Farmers can decide each year how much margin coverage they want for the coming year in terms of the percentage of their milk sales and size of margin. The total amount of milk a farm can cover is determined by their historic milk sales volumes. Catastrophic coverage at the level of \$4.00 per cwt can be obtained without any premium above the \$100 administrative fee to enroll (which every enrolled farm must pay annually). Dairy farmers can buy higher levels of coverage in \$0.50 increments up to \$8.00/cwt and at each incremental increase the farm will have to pay higher premiums.

With the introduction of the MPP-Dairy we have had more emphasis than ever on the margin between milk price and feed cost. Producers watching margins with MPP-Dairy in mind can keep up with reported margins at <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=dmp&topic=landing>. Note that the final margin for October was \$15.62, which is a very strong margin relative to those in recent years.

Additional information on MPP-Dairy can be found at <http://dairymarkets.org/MPP/ResourceMaterial/> and the decision tool which can be used to help dairy farms determine whether or not to enroll, and at what level, can be found at <http://dairymarkets.org/MPP/Tool/>.

Dairy producers should note that the deadline for sign up for the 2014 and 2015 MPP-Dairy program was December 19, 2014.

## HOG PROFITS ROCK IN '14, STAY STRONG IN '15

*By: Chris Hurt*

Hog producers had a record profit year in 2014. The PED virus contributed to smaller pork supplies, but the fear that pork supplies could be down much more led to extremely high hog prices from the late-winter of 2014 into the early fall. Hog prices averaged a record \$76 per live hundredweight, and profits were estimated at \$53 per head.

Pork expansion is already underway for 2015 and prices will be lower, but still profitable. Producers intend to farrow 4% more sows in the final quarter of 2014 and those pigs will reach market by the spring of 2015 with pork supplies moving up 3% in the spring and by up to 5% in the summer and fall. For all of 2015, pork supplies are expected to rise by about 4%.

PED will still have some impacts on baby pig death losses this winter, but are expected to be smaller than a year ago. Producers have better management protocols to handle PED herds and prevent the spread of the disease to other herds. Also there are currently at least two vaccines that are approved and are partially effective against the disease and finally many more herds have been exposed to PED and therefore it is felt there is now better immunity built up against the disease.

Prices for live animals in 2015 are expected to drop to an average of around \$62 from the record of \$76 in 2014. Prices are expected to average in the low-\$60s in the first quarter, then in the mid-\$60s in the second and third quarters before falling to the mid-\$50s by the final quarter.

While hog prices are much lower in 2015, costs of production will drop by about \$4 per hundredweight due to the lowest feed prices in five years. Costs for the year are expected to be in the low-\$50s.

Profits are expected to average about \$31 for the first three quarters of 2015, but fade sharply in the final quarter as hog supplies build and hog prices fall. Still, for the entire year, profits are expected to average about \$25 per head with the strongest of the profits in the January through September period. Even more expansion can be anticipated throughout 2015 with even higher pork supplies in 2016 and narrow margins.

## **GRAIN OUTLOOK: TIGHT MARGIN YEARS**

*By: Chris Hurt*

Record size crops of corn and soybeans and substantially lower prices in combination with high costs have collapsed crop margins. The USDA expects corn prices to average \$3.50 per bushel for the 2014 crop, nearly \$1 lower than last year's crop. Soybeans are expected to be \$3 a bushel lower at \$10 per bushel.

Lower prices are a result of world inventories for both crops increasing over the last three years as world production has exceeded world consumption. World corn inventories are now at the highest level since 2002 and

soybean inventories are expected to be at record high levels after the huge South American crop is harvested this coming spring.

Prices of corn and soybeans reached their fall lows in early October and then had a strong rally. Corn futures prices are expected to trade in the \$3.70 to \$4.30 range this winter. Feed use will build in the second-half of the marketing year as animal numbers rise. Continued growth in animal numbers will provide a more substantial base for feed needs in the 2015 crop marketing year. Ethanol production has started the marketing year with a bang using about 3% more corn than at the same time last year. However, low crude oil prices are expected to weaken demand for E85 domestically and for ethanol exports, and thus corn use for ethanol may only be about 1% higher for this year's crop. Corn export commitments are still running about 8% behind last year's export pace as the strong dollar and competitive supplies of corn and feed wheat are hurting U.S. sales.

Corn usage will grow over time, and current budgets suggest that farmers will plant 2% to 3% less corn acreage next year. This smaller acreage and yields that move downward closer to normal would be the fundamentals that suggest higher corn prices for the 2015 crop. Given normal yields next year, a return of the U.S. average corn price close to \$4.00 a bushel seems likely.

While no one can accurately foretell prices in coming years, some Ag economists as well as futures markets have been suggesting prices might average \$4.00 to \$4.25 over the years of the farm bill which covers the 2014 through 2018 crops. This would be in contrast to \$5.69 a bushel for the previous four marketing year's that covered the 2010 to 2013 crops. If so, margins will be tight and some cost items will likely have to adjust downward as well.

Soybean fundamentals have some potentially bearish components over coming months. First, shortages of soybean meal helped bean prices recover this fall. Delayed harvest and tight farmer holding made it difficult for crushers to get up to full processing capacity. However, that meal shortage should soon be relieved. China was a large buyer of beans in October and seemingly was able to turn the market upward. However, they will soon begin to shift their purchases toward South America.

USDA is expecting a nearly 6% larger crop in South America and if that develops it will push world inventories to record high levels this winter/spring. South America has risen to produce 52% of all the world's beans this marketing year. U.S. production now represents just

34% of world production, and U.S. farmers are expected to increase soybean acres by about 3% next spring. These supply forces may provide incentives for lower soybean prices this winter and spring.

Bean futures may first retest the \$11 area this winter and those could be good pricing opportunities. Since South America is becoming so dominant in world production, most U.S. farmers will want to retain some ownership of soybeans into the winter in case weather becomes unfavorable to yields in South America. Weather issues there could carry soybean futures back up to \$12 to \$12.50 if they are severe enough. However, the odds of prices moving that high are reasonably small, but always a possibility at this time of year.

Prices of soybeans for the 2015 crop could fall toward the \$9.00 to \$9.50 level if both South America and the U.S. have near normal yields. Pricing of 2015 soybeans should be considered with November 2015 futures in the \$10.50 to \$11.00 range (or higher).

would be below total costs of production for many farms and mean tight margins. Grain producers should consider strategies that will enable them to adjust to a tight margin period including the possibility that some costs items will decrease in the next few years.

## CROP COST STAY HIGH AND RETURNS COLLAPSE

*By: Michael Langemeier, Allan Miller, and Craig Dobbins*

Crop margins are tight and even negative for many! Estimated earnings for Indiana corn and soybeans are expected to fall once again for 2015 crops, following severe declines in 2014. Contribution margins for 50/50 corn/soybean farms with average Indiana soils are expected to drop by \$233 per acre between 2013 and 2015. Returns for 2015 are expected to be back near 2005 levels before grain prices began to surge. Lower crop prices and continued high costs of production are the main culprits.

The 2015 Purdue Crop Cost and Return Guide, which is

**Table 1. 2015 Purdue Crop Budget for Average Productivity Soil.**

	Continuous Corn	Rotation Corn	Rotation Soybeans	Wheat	Double-Crop Soybeans
Expected Yield per Acre	155	165	50	71	35
Harvest Price	3.90	3.90	9.60	5.50	9.60
Market Revenue	\$605	\$644	\$480	\$391	\$336
Less Variable Costs					
Fertilizer	161	145	57	84	42
Seed	123	123	74	44	85
Pesticides	43	43	28	12	26
Dryer Fuel	39	31	0	0	4
Machinery Fuel	24	24	15	15	10
Machinery Repairs	22	22	18	18	15
Hauling	16	17	5	7	4
Interest	13	12	7	6	6
Insurance and Miscellaneous	32	33	23	3	4
Total Variable Costs	\$473	\$450	\$227	\$189	\$196
Contribution Margin	\$132	\$194	\$253	\$202	\$140

See ID-166-W for more detail, December 2014 Estimates.

Grain margins are expected to be narrow for several years. Current futures markets for the 2015 to 2017 crop years are suggesting U.S. price averages around \$4.00 to \$4.25 for corn and around \$10 for soybeans. These prices

available for free download from the Center for Commercial Agriculture website (<http://www.agecon.purdue.edu/commercialag/resources/farmmgmt/index.html>), gives estimated costs for producing crops, as well as estimated contribution margins and earnings. The guide is updated

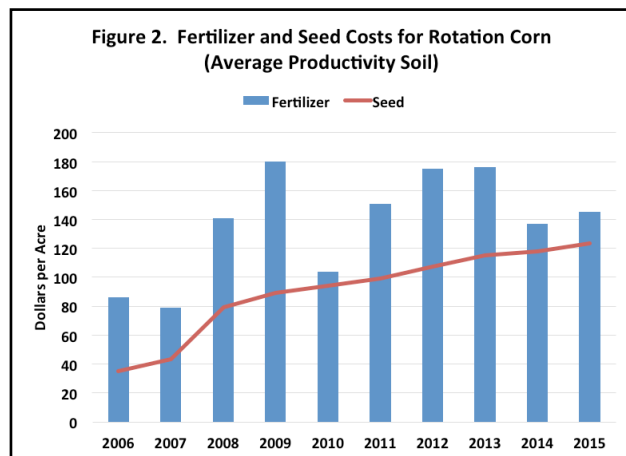


frequently as grain futures prices change and the costs of inputs, such as seed, fertilizer, pesticides and fuel, fluctuate. This article reflects updates for early December 2014. The guide presents cost and return information for low, average, and high productivity soils. The discussion here will focus on estimates for average productivity soils only.

Table 1 presents crop budget information for continuous corn, rotation corn, rotation soybeans, wheat, and double-crop soybeans for average productivity soil. Double-crop soybeans are typically planted after wheat so it is typical to combine the contribution margin for these two crops when comparing to continuous corn, rotation corn, and rotation soybeans. The contribution margin, obtained by subtracting total variable cost from market revenue, ranges from \$132 per acre for continuous corn to \$342 per acre for wheat/double-crop soybeans.

Contribution margins for rotation soybeans at \$253 per acre are far higher than for rotation corn at \$194. This suggests nearly \$60 per acre higher returns for soybeans than corn in 2015. This strong soybean premium is expected to cause some acreage to shift toward soybeans. Indiana producers should watch the price relationships between 2015 corn and soybeans this winter as they make their final planting decisions.

contribution margin is used to cover overhead costs such as machinery costs, family and hired labor, and cash rent. Failure to adequately cover these overhead costs typically puts downward pressure on rents.



Trends in market revenue, total variable costs, and the contribution margin for rotation soybeans are illustrated in Figure 3. As with rotation corn, the market revenue for rotation soybeans is expected to drop. Total variable costs are expected to be similar to those experienced in 2014. The trend in fertilizer and seed costs for rotation soybeans is illustrated in Figure 4. The contribution margin for rotation soybeans is expected to decline \$118 per acre. The contribution margin for rotation soybeans is the lowest it has been since 2009.

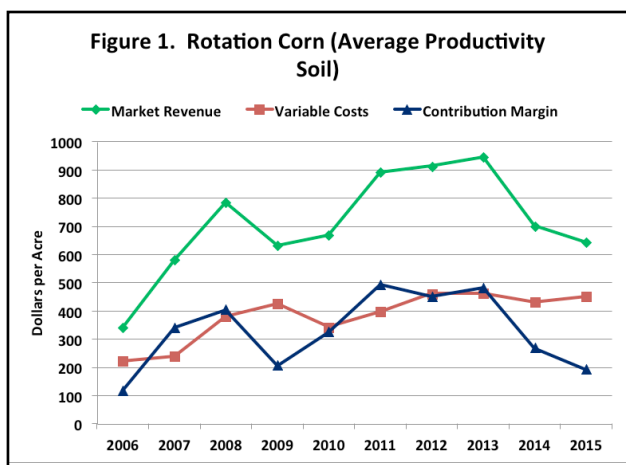
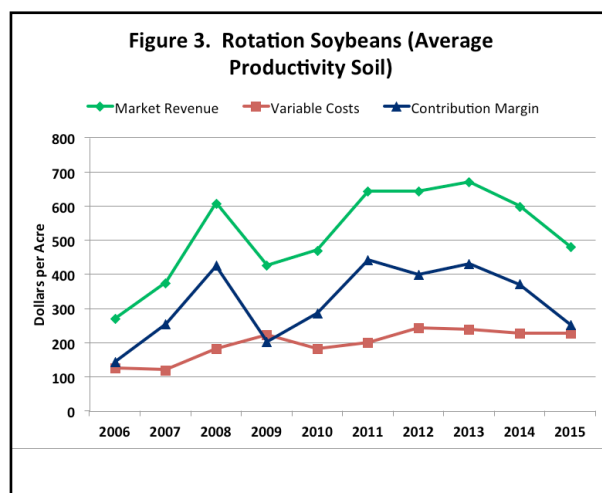
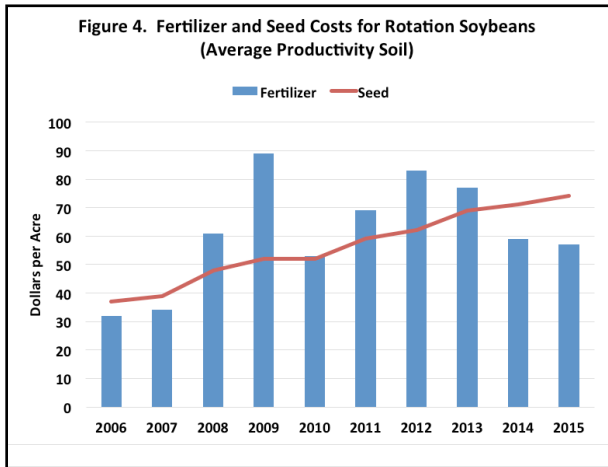


Figure 1 illustrates the trends in market revenue, total variable costs, and the contribution margin for rotation corn from 2006 to 2015. Market revenue in 2015 is expected to drop approximately 9 percent, due to the decline in corn price. Variable costs are expected to increase slightly. The trend in fertilizer and seed costs over the last ten years is illustrated in Figure 2. Fertilizer costs are based on price estimates in late November. The contribution margin for 2015 is expected to drop \$75 per acre (approximately 28 percent) and is expected to be the lowest since 2006. It is important to note that the

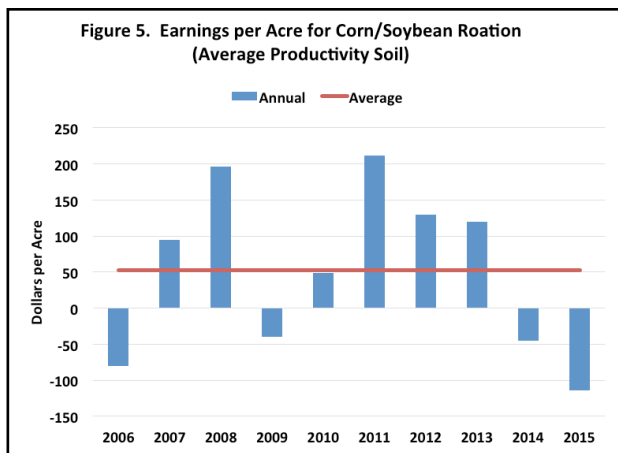


From 2010 to 2013, the contribution margin for rotation corn was higher than the contribution margin for rotation soybeans. The average difference in the contribution margin was approximately \$50 per acre during this period. The relative attractiveness of corn during the last few years, encouraged many producers to plant relatively

more corn than soybeans. The situation in 2014 and 2015 is considerably different. Soybeans had a relatively higher contribution margin in 2014. For 2015, rotation soybeans are expected to have a contribution margin that is approximately \$60 per acre higher than the contribution margin for corn. Given the expected change in the relative attractiveness of corn and soybeans, producers should carefully budget both crops.



In the long-run, in addition to covering variable costs, producers need to cover the overhead costs associated with machinery, family and hired labor, and cash rent. Even if a producer does not hire labor or rent land, they need to consider the opportunity costs associated with these items, which can be estimated by answering the following questions. What is the value of family labor if it is employed off the farm? Similarly, what could the land that I own be rented for? The residual remaining after subtracting variable costs and overhead costs, which include the opportunity costs associated with family labor and owned land, from market revenue and government payments is called “earnings” in the Purdue crop cost and return guide.



Over the long-run, we would expect the average earnings per acre to gravitate towards zero. Figure 5 presents earnings per acre for a farm with 3,000 crop acres that utilizes a corn/soybean rotation. From 2006 to 2014, earnings per acre ranged from a negative \$81 in 2006 to \$212 in 2011. Earnings per acre are expected to be a negative \$115 per acre in 2015, well below the ten-year average of \$52 per acre.

In summary, margins will be considerably tighter in 2015. This increases the importance of carefully scrutinizing input and crop decisions. Producers are encouraged to create crop budgets and in general improve their record keeping. Lower crop margins will adversely impact a farm’s liquidity position and financial performance.

## GOVERNMENT PROGRAM BUILDS FARM SAFETY NET

By: Roman Keeney

The 2014 Farm Bill was signed into law in February of 2014 providing a valuable safety net for Indiana farmers. In late September, USDA completed the definitions, details, and schedules for the commodity programs. While the program choices seem complicated at first, most farmers will find it beneficial to learn about the programs and make their “best” choices. The USDA-FSA offices, Purdue Extension and other organizations are all helping farmers and land owners understand and evaluate their alternatives.

### Four Steps

There are four steps that will eventually lead to being eligible for commodity program payments under the 2014 Farm Bill: 1) Payment Yield Updates, 2) Base Acre Reallocation, 3) Commodity Program Election, and 4) Annual Commodity Program Enrollment.

The first two steps set the farm payment definitions, are the responsibility of the farm owner, and must be completed by the February 27, 2015 deadline. Payment yields are the fixed yield values for each crop that are used in calculating price based payments. Every farm has an established payment yield from their participation in the counter cyclical program. Program participants received letters from USDA-FSA advising them of these counter cyclical yields for each crop and FSA farm they operate or own. The decision before farmers is to either keep these counter cyclical yields or exercise an update option which allows them to replace those yields with ninety percent of the average of their 2008-2012 yields for each crop.

Every farm has an allotment of base acres that determines

their total payment eligibility. That total will not change as part of the base acre reallocation process. What farmers can adjust is how those base acres are distributed among the covered commodities raised on the farm. As with yields, the August letter from USDA-FSA provides the current assignment of base acres to different crops. In addition, that letter provides information on reported crop planting from 2009-2012. Farm owners have the option to either maintain their existing allocation of base acres or use the average plantings from the four year 2009-2012 period to "reallocate" their base to reflect what was planted in the more recent period.

Step 3 is the process of electing the commodity programs that will control how payments on the farm are made for the 2014 through 2018 crop years. The program election is the responsibility of the current farm operator and must be completed by March 31, 2015. The decision on program election is a one-time process that locks the farm into that particular program over the next five years. Farmers have three program options, and for two of these offer the flexibility to enroll on a crop by crop basis.

The first program is called Price Loss Coverage (PLC) and provides payments when the national marketing year average price falls below a given reference price. Reference prices are set at \$3.70 for corn, \$8.40 for soybeans, and \$5.50 for wheat and will remain at those levels through the 2018 crop year. In any year where the marketing year average price falls below a given reference price a payment is made based on the payment yield established in step 1 and for base acres of that crop established in step 2.

In addition to the PLC program, farmers have two revenue based program options as part of the Agricultural Risk Coverage (ARC) program. One of these operates by tracking the county revenue (ARC-CO) while the other tracks individual (ARC-IC) revenue in determining payments. In both programs, a benchmark is set using information from the most recent five years and payments are initiated when actual revenues fall below 86% of that benchmark. These ARC payments are limited to ten percent of the benchmark revenue, meaning that once losses take revenue below 76% of benchmark revenue no additional support is forthcoming through this program.

Election of ARC-IC, the individual option requires that a farmer only make use of that program for subsidy support. ARC-CO and PLC may be elected on a crop by crop basis allowing e.g. a farmer to elect to have their corn subsidies received through ARC-CO while the wheat subsidies are provided through PLC. Both ARC-CO and PLC pay farmers for 85% of base acres while ARC-IC cov-

ers only 65% of base acres. Thus, in addition to the loss of flexibility that comes with ARC-IC, farmers face an additional cost for having subsidy protection at the individual farm level.

Step 4 is the annual enrollment. This is merely the requirement that farms maintain their program enrollment on an annual basis with their FSA office. No program decisions can be made or altered during the annual enrollments. Program enrollment for the 2014 and 2015 crop years will happen simultaneously starting sometime in April of 2015 and continuing into the summer of 2015.

### **Guidelines for Farmers**

The overhaul of the farm bill has certainly placed a large number of options in front of farmers. Just as with other farm management decisions there is no substitute for gathering information and analyzing options at the individual level to see which choices provide the best program safety net in concert with family objectives. Despite the complexity we can make some general statements about which decisions are most likely to provide the largest program payouts in the Corn Belt. In summary:

1) If the yield update provides a higher PLC program yield, then that option should be exercised.

This is a straightforward conclusion resulting from the fact that higher program yields will increase payments in the PLC program. Even though these yields are only used in the PLC program, every farm owner should make the effort to analyze this decision and establish the higher PLC yield for their farms. Future farm programs may use these same PLC program yields and higher yields could result in higher total payments.

2) Many farmers will opt for the base acre allocation that assigns the most base to corn, due to the higher likelihood of payments in that crop over the next five years.

Five year forecasts from all sources show corn prices having the largest percentage drop relative to the most recent five year period. This increases the potential for payments made to corn base acres relative to other crops. Farmers and land owners would like to have the most base acres in the crop that is expected to make the highest expected payments over the life of the bill. Right now that appears to strongly favor corn acres in the Midwest.

3) Many farmers will elect the ARC-CO program for corn and soybeans, due to the high revenue benchmarks that are already established for 2014 and 2015.

The past five years of high prices means that the ARC-CO program begins with high revenue benchmarks for most counties. For counties where the yield is near the same level as the past five years, there is implied price protection in the ARC-CO program for corn of around \$4.50. This same value for soybeans is \$10.50. These are much higher than the fixed reference prices of \$3.70 and \$8.40 for corn and soybeans respectively. Moreover the ARC-CO price protection of 2014 is essentially repeated in 2015 because of the Olympic moving average nature of that program and the fact that the lowest prices of the 2009-2013 period occurred in the first year which is dropped for purposes of 2015 benchmark calculations. The ARC-CO program has the feature that as prices fall so too does future protection via a decline in the benchmark but the fact that the program starts from such a high level offers significant inducement to farm operators trying to capture the potentially large payments that could be delivered in the early years of the program as markets adjust downward from the recent highs of the past five years.

## FARMLAND AND CASH RENT OUTLOOK

By: Craig Dobbins

### Farmland Values

The large positive margins that existed in crop production for the last several years have disappeared. Falling prices of corn, soybeans and wheat have dropped well below the full-cost breakeven point of most producers. Will these negative margins lead to a decline in farmland values comparable to recent increases? Using history as a guide, such a decline seems unlikely in the short term.

While grain prices have fallen sharply, most of the other factors influencing the farmland market still remain positive. Interest rates still remain at historical lows. The amount of land offered to the market still remains small and the prospects of a sharp increase in farmland for sale because of financial stress like the early 80s seems unlikely. Farmland as an investment is still attractive; providing a competitive annual return and over the long-run a positive capital gain. While the cropping sector will be under stress, the livestock sector has found renewed strength as a result of strong livestock prices and lower feed costs.

Data from the quarterly survey of farmland values conducted by the Chicago Federal Reserve Bank indicates that farmland values are softening. Changes in farmland values from July 1 to October 1, 2014 were generally down. The exceptions were Indiana and Michigan where farmland values were up. Farmland values from year to

year, showed the same pattern.

Table 1. Percent change in dollar value of good farmland; Agricultural Newsletter from the Federal Reserve Bank of Chicago, November 2014.

	Jul 1, 2014 to Oct 1, 2014	Oct 1, 2013 to Oct 1, 2014
Illinois	-2	-1
Indiana	+4	+3
Iowa	-6	-4
Michigan	+1	+10
Wisconsin	-4	0
Seventh District	-2	0

There is no doubt that the current crop price situation is a large negative when it comes to the farmland values. Given the current price prospects, this will leave the direction of the farmland market uncertain with the likelihood of a modest decline, 0% to 5%, more likely than an increase. If the forecasts of tight margins in 2016 and 2017 materialize we could be in for a series of small declines in farmland value.

### Cash Rent

Negative crop margins are also putting strong downward pressure on cash rents. Given the decline in crop prices, the overall cost of producing corn, soybeans, and wheat needs to be reduced. It is difficult to know exactly how this adjustment will materialize, but it is likely to be a shared reduction across several inputs. With the concern about margins in 2009, there were reductions in fertilizer and other annual inputs that occurred. However these tight margins were temporary because crop prices quickly rebounded. It does not appear a quick increase in crop prices is likely this time.

In lowering the per bushel cost of production, operating costs receive much of the attention, but there are also fixed costs. These labor and machinery and facility ownership expenses can be lowered by spreading these costs over more acres. Custom work, custom farming, and renting additional land are all common strategies for lowering the per unit fixed cost. These dynamics lead to keeping the farmland rental market very competitive in spite of the current negative crop margins.

Looking at the year ahead, it will be important to explain to landowners the productivity of their farm, how farm productivity influences per unit costs, and the new economic environment of crop production. The probability of a decrease in average rent values seems likely, but the competitiveness of the rental market will make achieving a reduction difficult. Like the farmland market, a modest change in cash rents is expected, declining 1% to 5%.



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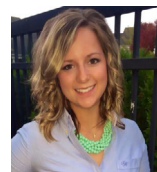
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