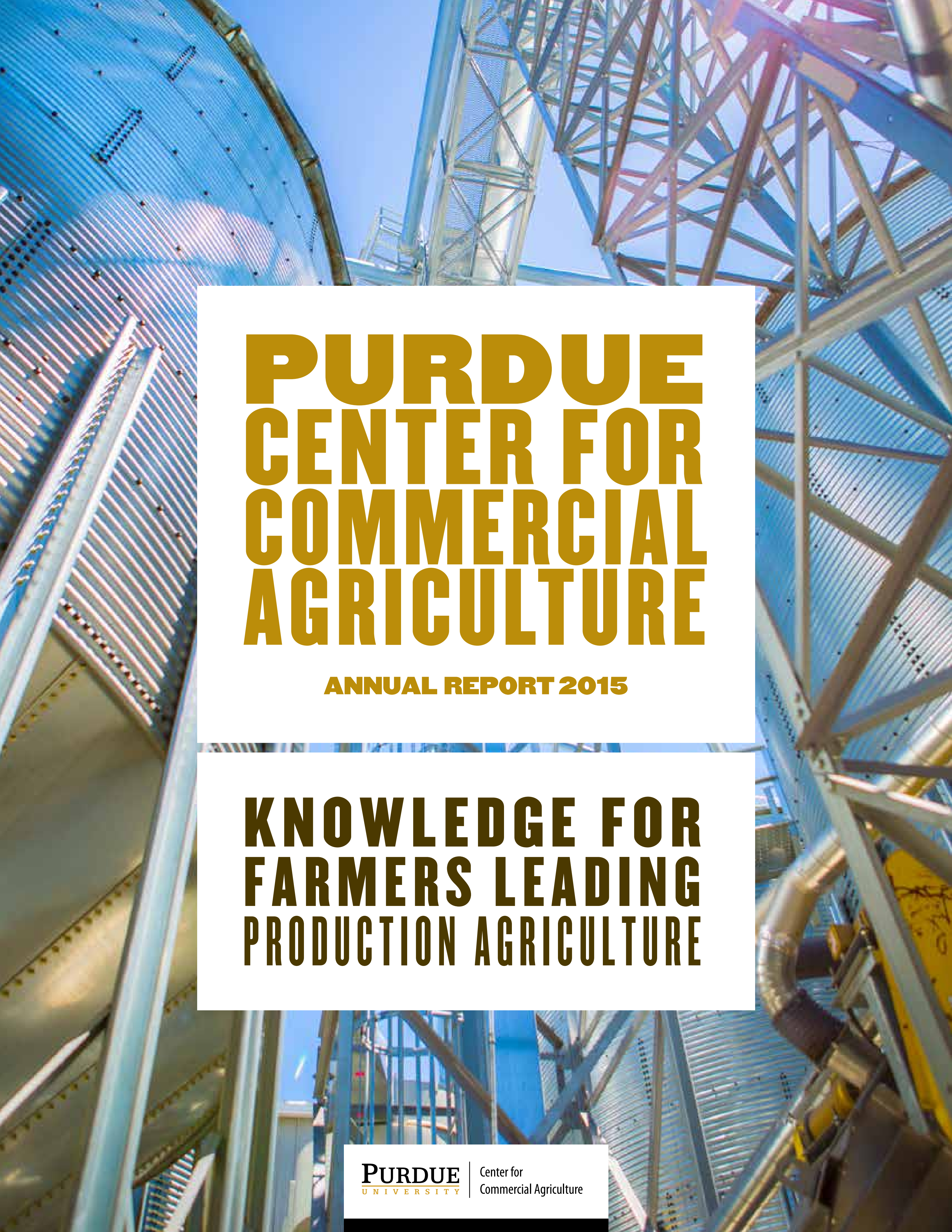


PURDUE CENTER FOR COMMERCIAL AGRICULTURE

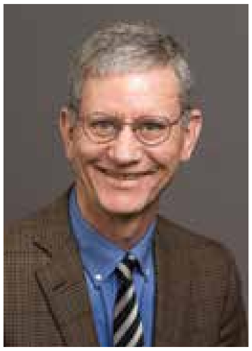
ANNUAL REPORT 2015

KNOWLEDGE FOR FARMERS LEADING PRODUCTION AGRICULTURE

PURDUE UNIVERSITY | Center for Commercial Agriculture

Photos by John Lai, a Ph.D Student studying Agricultural Economics.

LETTER FROM THE DIRECTOR



The Center for Commercial Agriculture had an eventful 2015 as we continued to grow our reputation as a key management information resource for commercial farming operations throughout the U.S. Interest in center programs is increasing and we're optimistic about future opportunities. Please take a few moments to review some of the activities highlighted in this year's annual report.

The year began with center faculty delivering workshops focused on helping farmers better understand key provisions of the 2014 Farm Bill. Workshops highlighted differences in farm program alternatives and how they might play out under various market scenarios to help farmers make their program choices.

The center also organized the Purdue Farm Management Tour in June and the Midwest's premier management conference for farmers, the Purdue Top Farmer Conference, in July. In addition, we partnered with Farm Credit Mid-America to offer four Know-To-Grow workshops targeted toward beginning farmers.

The ability to deliver programming when users have time to access it has become increasingly important. To make it easier to make information available when farm managers need it, the center launched a new website in spring 2015. The site houses a wide variety of information, including an entire section devoted to *Managing in a Financial Downturn*, currently composed of 25 short and to-the-point articles with timely ideas about how to better manage farm operations in a challenging operating environment.

The center continued to provide webinars on timely topics throughout the year. We broadcast ten webinars during 2015 on topics ranging from agricultural outlook to management strategies that farmers can use to be successful during the current downturn in agriculture. Participants have the option of viewing webinars live or on YouTube via the Archived Webinars page on the center's website. Both formats are popular.

As part of our partnership with the Indiana Soybean Alliance on risk management, the center again offered a session on strategic risk at the 2015 Commodity Classic in Phoenix, Arizona. The session provided an opportunity to highlight the new strategic risk management web site, farmriskresources.com, developed by center faculty and staff with financial support from the Indiana Soybean Alliance.

Recognizing that the downturn in agriculture was creating financial stress for many Corn Belt farming operations, the center partnered with the Indiana Soybean Alliance and other Indiana agricultural groups to offer a series of financial risk management workshops in fall 2015 and winter 2016. Working with a group of Purdue Extension educators, we also are spearheading additional financial risk workshops throughout Indiana in 2016.

Thanks for your interest in and support of the Purdue Center for Commercial Agriculture! We're excited about the many programming and applied research opportunities the center will have in the year ahead. As always, if you have suggestions for future programs or research, or just want to chat, we'd love to hear from you.

Sincerely,

Jim

James Mintert
Director

CENTER ACTIVITIES

WEBINARS

Webinars provide a low-cost way for center faculty to deliver information to a broad audience on timely topics. The center delivered its first webinar in 2011, focused on land values. From 2011 through 2015, the center delivered more than 20 webinars on a wide variety of farm and financial management, agricultural outlook, and strategy-related topics. Participants unable to view the webinars live have the opportunity to view them at their convenience via the center's YouTube playlist. Since 2011, the center has received on-line webinar registrations of over 4,300 with more than 9,000 views taking place live and via YouTube.

Webinars delivered in 2015:

How to Win in Tough Times

Management strategies that farmers can put in place to help deal with the pressure of low profitability in the crop sector were highlighted. Purdue economists Michael Langemeier and Jim Mintert discussed the "Best in Class" strategies, which will help position farms for success now and in the years ahead. This webinar drew 256 registrants and more than 350 YouTube views in 2015.

2014 Farm Bill Questions

More than 270 farmers and agribusiness professionals registered for this late-winter webinar and it received more than 273 YouTube views. This webinar focused on the analysis of key decisions farmers and landowners need to make regarding their participation in programs available under the 2014 Farm Bill. Roman Keeney, Jim Mintert and Michael Langemeier discussed base acreage reallocation, ARC-County, PLC and ARC-Individual programs. The webinar included a demonstration of a spreadsheet tool that compared expected returns from both the ARC-County and PLC programs.

2015 Crop Insurance Decisions

Michael Langemeier and Jim Mintert reviewed and analyzed 2015 crop insurance choices. Included was a review of the natural hedge, available crop insurance products, 2015 price guarantees, coverage levels, and a case farm that illustrates the cost of various insurance products in White county, Indiana. This webinar generated more than 215 registrations and 456 YouTube views.

2015 Crop Outlook

This webinar focused on the corn and soybean crop price outlook for 2015. Purdue economists Chris Hurt, Corinne Alexander* and Jim Mintert reviewed the updated crop outlook, following the release of USDA's March Prospective Plantings and Grain Stocks reports, and discussed marketing strategies for the 2014 and 2015 crops. This webinar received more than 340 registrations and 383 YouTube views.

Crop Outlook and Management Strategy

Chris Hurt, Michael Langemeier, and David Widmar reviewed the fundamental drivers of crop prices and updated management recommendations in light of shifting crop conditions. This webinar had more than 250 participants viewing live with more than 175 additional views via the center playlist on the Purdue Extension YouTube channel.

Where are Indiana Farmland Values Headed?

Results from the June 2015 Purdue Farmland Values Survey, including average farmland and cash rental value estimates for the state of Indiana and key cropping regions within the state were the focus. Estimates for future direction of both farmland values and cash rental rates were provided in this webinar, which featured Craig Dobbins, Michael Langemeier and Jim Mintert. The webinar drew 395 registrations and 360 YouTube views.

Crop Outlook for 2015-2016

This webinar focused on the outlook for corn and soybeans following USDA's September 2015 Crop Production and Supply/Demand reports. The webinar featured a review of factors influencing prices and provided marketing and management recommendations. With nearly 500 registered participants and more than 400 views on YouTube, this presentation by Purdue economists Chris Hurt, Corinne Alexander* and Jim Mintert was quite popular.

Capturing the Upside and Buffering the Downside

This webinar focused on key management strategies farmers can use to successfully manage their farms during the economic downturn in agriculture. Purdue faculty Mike Boehlje, Michael Langemeier and Mike Gunderson discussed several clear-cut strategies that farmers can implement now that will help position their farming operations for success in the years ahead. This webinar drew 425 registrations and nearly 300 YouTube views.

Long-Term Cash Rent Decisions Using a Cash Rent Decision Tool

During this December webinar, Purdue agricultural economists discussed the dilemma facing Corn Belt farmers/landowners regarding farmland cash rental rates and potential for operator losses over the next several years. Jim Mintert and Michael Langemeier demonstrated the use of a cash rent spreadsheet tool to calculate breakeven cash rents, compare the breakeven cash rent to local market rents, compute the market rate premium (if any) above the breakeven rate and the impact paying premiums could have on a farm's liquidity over the course of the next five years. This timely webinar had 605 registrants and received more than 250 YouTube views.

PROGRAMS

Farm Credit Services: Know-to-Grow (K2G)

The Center for Commercial Agriculture and Farm Credit Mid-America (FCMA) partnered on several sessions of Know to Grow during 2015. Know-to-Grow is designed for young and beginning farmers enrolled in Farm Credit Mid-America's Growing Forward program. During the two-day program, Purdue faculty sessions were integrated with FCMA-led sessions. The focus was on taking business to the next level; shifting from being a tactical to a strategic manager; understanding farm financials, profitability measures and how they are critical in decision making; setting priorities; and thinking about the big picture for their farms. Sessions were hands-on with practical exercises and sharing in small group discussions. Professors Jim Mintert and Michael Langemeier led Purdue program segments.

Approximately 35 farm operations were represented at each of the four sessions, including farms from Kentucky, Tennessee, Ohio, and Indiana. The 2015 schedule was:

- *February 5-6 in Nashville, Tennessee*
- *March 5-6 in Columbus, Ohio*
- *March 9-10 in Indianapolis, Indiana*
- *September 3-4 in Louisville, Kentucky*

Purdue Top Farmer Conference

Nearly 120 farmers, agricultural lenders and agribusiness managers attended the 48th Purdue Top Farmer Conference where they learned how to remain competitive in an uncertain business environment. The conference was held July 9-10, 2015 at the Beck Agricultural Center in West Lafayette, Indiana. Conference sessions included discussions on inflation and implications for agriculture, ways to improve a management team, key growth strategies beyond increasing acreage, and farmland values. Participants had an opportunity to explore how to compete for the best talent available and how to find value in information.

Conference speakers included agricultural economics experts from Purdue's Center for Commercial Agriculture and the University of Illinois farmdoc website team. Jason Henderson, director of Purdue Extension and center faculty member, presented the keynote session, When Will You See the Whites of the Eyes of Inflation? And What It Means for Agriculture.

In addition to educational sessions, conference participants had multiple opportunities to network with their peers from across the country.

Plans are underway for the 49th Top Farmer Crop Conference, which will be held July 7-8, 2016, in West Lafayette.

Association of Agricultural Production Executives

The membership of the Association of Agricultural Production Executives (AAPEX), an organization now more than two decades old, is made up of many of the nation's leading agricultural producers and is devoted to ongoing executive education for its members. AAPEX reached out to the Center for Commercial Agriculture to consider an alliance and, commencing with their 2016 annual program, the center is partnering with AAPEX to manage their annual executive education program, web site and member communications.

The 2016 AAPEX program will be held in February 3-6, 2016 in Puerto Rico. Working with this group of producers will provide insights into the research and educational needs of America's leading farmers and provide opportunities for further collaboration.

Commodity Classic 2015 Learning Center Session Don't Bet the Farm: Strategic Approaches to Risk

In light of the unprecedented amount of risk that today's farmers are facing and the need for strategic thinking when dealing with these risks, the Indiana Soybean Alliance and the Center for Commercial Agriculture presented Don't Bet the Farm: Strategic Approaches to Risk at the 2015 Commodity Classic in Phoenix, Arizona. Beth Yeager, Mike Boehlje and Jim Mintert presented to a crowd of more than 100 attendees. The session focused on the financial risk many U.S. farms are facing now that the business climate for agriculture

has shifted to a lower output price environment. It also highlighted strategies to successfully manage through this difficult operating environment.

The session provided an opportunity to unveil the farmriskresources.com web site developed with funding provided by the Indiana Soybean Alliance. The web site is devoted to risk management with a special emphasis on strategic risk management using a variety of innovative teaching tools including case studies and short video segments that emphasize a particular approach to risk management.

Introduction to the Business of Commercial Agriculture

This undergraduate class provides an overview of U.S. commercial agriculture from an insider's perspective. Each class features a presentation by a farmer or agribusiness executive focused on their firm's position within the industry. Students enrolled in the course gain a better appreciation of the diversity among U.S. farms and agribusinesses in addition to gaining insight into business strategy from people in the field. Students also learn more about the wide range of career opportunities available to College of Agriculture graduates and how they can position themselves for future success. In addition to guest speakers coming to campus, this course includes several field trips to area farms and agribusinesses.

Although class presentations by farmers and agribusiness executives cover a wide range of topics, there are several common themes. First, relationships

are extremely valuable. Former classmates, colleagues and those we interact with in our daily business transactions provide a wealth of information and perspectives that can help us think through our competitive position and future strategy.

Second, it is increasingly important to effectively use new technologies. Change takes place very rapidly in today's agriculture. If beneficial technology is not adopted, firms risk losing their competitive edge compared to those that have adopted the technology.

Third, but perhaps most importantly, it is important to have a guiding principle. What are you passionate about? How does this passion feed into your excitement for your career choice and your job productivity? It is much easier to work in a job or in an industry that you find interesting. Part of maintaining this edge is to make sure you are a lifelong learner. Luckily, today's agricultural sector provides a multitude of opportunities for new employees and entrepreneurs.

Comments from students who have taken the class:

"This course was great to take as a freshman. I feel like I gained a lot of industry knowledge!"

"This was by far my favorite class here at Purdue. Learning about different aspects of agriculture helped broaden my horizons on all of the career opportunities in agriculture."

Purdue Tax Schools

Michael Langemeier, the center's associate director, coordinates the Purdue Tax School program. In 2015, it included 10, two-day Indiana tax schools held in Fort Wayne, South Bend, Valparaiso, Muncie, Kokomo, Seymour, Evansville, Indianapolis (two schools), and West Lafayette.

Each program addressed a combination of individual taxpayer and business topics. Individual taxpayer topics included the Affordable Care Act, individual issues, tax accounting issues, provisions limited by amount of income, net operating losses, retirement, and IRS issues.

Business topics included repair regulations, business issues, business entity issues, trade or business, and agricultural and natural resource issues. Langemeier presented material pertaining to key agricultural tax issues, including livestock income and expense, inherited property, net investment income tax, and repair regulations; and key business issues, such as net investment income tax and grouping considerations, sale of section 1250 property, business travel expenses, and car and truck expenses.

The Purdue Tax Schools were supplemented with an agricultural tax webinar targeted toward accountants, attorneys, and tax preparers in December 2015. Approximately 60 individuals participated in the webinar that covered taxation issues pertaining to income and expenses, material participation, like-kind exchanges, depreciation, and repair regulations.

Purdue Farm Management Tour

More than 500 attendees participated in the 2015 Purdue Farm Management Tour in Jay and Adams counties in northeast Indiana in late June. Attendees visited two crop farms and one crop/livestock operation in addition to an innovative agribusiness firm focused on working with farmers to provide value-added soybean products to their customers. At each location, a session featuring an overview of the farm operation was provided along with several mini-tours that featured innovative individual farm aspects that participants could learn more about and possibly apply on their own operations.

Center Begins Work to Measure Sentiment and Confidence Toward the Ag Economy

In 2015, the center began work on a research program to regularly measure and report the perceptions and sentiment of the agricultural economy. After more than a year of planning, we are currently surveying producers and agribusiness leaders to understand current and future expectations about the sector. Watch for the results from this project to be reported starting in spring 2016.

Is Farmland Still an Attractive Investment?

By Timothy Baker, Michael Boehlje and Michael Langemeier

During the past year, farmland prices declined over much of the Corn Belt. However, farmland prices still remain substantially above historical prices. For example, farmland prices in 2015 in west central Indiana were 78 percent higher than they were in 2010 and 287 percent higher than they were in 2005. Concerns are still being expressed that farmland prices are higher than justified by the fundamentals. One justification for this concern is that previous research has established the tendency of the farmland market to over-shoot its fundamental value.

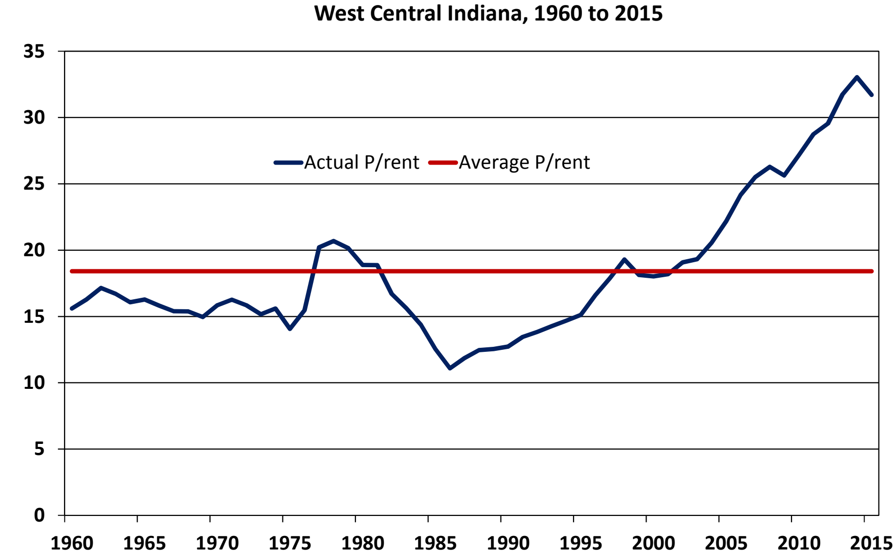
Price in Relationship to Earnings

A standard measure of value used for stocks is the price to earnings ratio (P/E). A high P/E ratio sometimes indicates that investors think the investment has good growth opportunities, relatively safe earnings, a low capitalization rate, or a combination of these factors. However, a high P/E ratio may also indicate that an investment is less attractive because the price has already been bid up to reflect these positive factors.

The equivalent ratio of farmland price to cash rent (P/rent) can be compared to the P/E ratio of stocks included in the S&P 500. We use land value and cash rent data for 1960 to 2015 for west central Indiana to illustrate the P/rent ratio. Data from 1975 to 2015 was obtained from the annual Purdue Land Value and Cash Rent Survey. For 1960 to 1974, the 1975 Purdue survey numbers were indexed backwards using the percentage change in USDA farmland value and cash rent data for the state of Indiana.

The P/rent ratio for west central Indiana has an average value of 18 over the 56-year period from 1960 to 2015, with a high of 33 in 2014 and a low of 11 in 1986, which was perhaps the bottom after the price bubble of the 1970s and very early 1980s (Figure 1). During that bubble, the P/rent ratio rose from 14 in 1975 to 21 in 1978. The P/rent ratio subsequently dropped to its low in 1986. The early and mid-1980s is recognized as a difficult period of adjustment for U.S. agriculture. Over the past year, land values fell more than cash rents decreased thus resulting in a drop in the P/rent ratio to 32. While this is a slight movement back toward the historic average of 18 and previous high around 20, the continued extremely high level at least raises concerns that current farmland prices could be overvalued in relationship to returns. In addition, it should be recognized that the downward adjustment of the P/rent ratio from 1978 to 1986 took eight years. This raises the question about whether the drop in the P/rent ratio over the past year is just the start of a longer adjustment process.

Figure 1. Farmland Price to Cash Rent Multiple West Central Indiana, 1960 to 2015



Concluding Comments

Our analysis indicates that the 2015 P/rent ratio (price per acre divided by cash rent per acre) is substantially higher than historical values, and that this ratio is also high relative to the comparable P/E ratio on stocks as measured by the S&P 500. In order to maintain the current high farmland values, cash rents would have to remain very high, or even move higher, and interest rates would also have to remain very low. Most agricultural economists expect crop returns to remain at current levels, putting downward pressure on cash rents, and for interest rates to increase in coming years.

Furthermore, we demonstrated that farmland values tend to have a cyclical component in which farmland values move too high relative to the underlying fundamentals and then over time move too low relative to fundamentals. We use a cyclically adjusted P/rent ratio to show that a very high P/rent ratio, as we have now, tends to be associated with low subsequent returns. Simply stated, this means that the historical relationships show that those who bought farmland when the P/rent ratio was high tended to have low subsequent returns. On the other hand, those who bought farmland when the P/rent ratio was intermediate or low, tended to have intermediate or high subsequent returns. The current record high P/rent ratio could be a warning to current farmland buyers that their odds of favorable returns on current purchases may be low.

Our reading from examining 56 years of history is that current farmland values are extremely elevated in relationship to the underlying economic fundamentals. Secondly, the ratios we have presented have begun to adjust downward in the past one or two years. Thirdly, we observe from history that once these ratios peak and begin downward adjustments, adjustment may continue for a number of years.

If we are correct, this means that those purchasing farmland at current prices have a high probability of experiencing buyer's remorse in coming years. As we have shown in our review of history, buying land when the price is high in relation to returns, as it continues to be now, has tended to result in low average returns in the subsequent 10-20 years after purchase.

While the course seems to be set for even lower land values and rents in the next few years, there remain some possible situations in which farmland values could be maintained or even increase. These might include much higher grain and soybean prices than are now expected by futures markets; very rapid declines in prices for inputs such as seed, fertilizer and chemicals; and interest rates that stay the same or decrease from current low levels. None of these appear likely and thus, we tend to favor continued downward adjustments in land values and cash rents.

Evaluating Your Farmland Rental "Options"

By Michael Langemeier, Gary Schnitkey, Mike Boehlje and James Mintert

Gross revenues for most Indiana corn and soybean farms reached unprecedented levels during 2006-2013, but declined sharply in 2014 and 2015. The revenue decline, which was exacerbated on many Indiana farms by yield reductions caused by this past spring and summer's excessive rainfall, is putting tremendous pressure on operating margins. To see the picture more clearly, let's examine a typical west central Indiana farm following a corn-soybean crop rotation.

Gross revenue per corn acre on our representative farm in 2005 was just $350 per acre. Revenues increased sharply over the next six years, peaking in 2011 at over $1,000 per acre before declining in 2014-2015 by approximately $300 per acre compared to the peak. Looking ahead, per-acre corn revenues on this same representative farm are expected to average less than $750 during 2016-2018.

RESEARCH, PAPERS AND PRESENTATIONS

Unfortunately, the decline in revenues has not been matched by a decline in costs. Variable production costs on our representative farm climbed sharply from 2005, when they totaled approximately $260 per corn acre, to reach $440 per acre in 2011 the same year revenues peaked. Although variable production costs did moderate in 2015, the decline was much smaller than the fall in revenue with variable costs declining just $30 to $40 per acre compared to peak production costs. Current forecasts suggest further reductions in variable production costs will be modest over the next several years, implying that farmers will have to look elsewhere for significant cost reductions.

The combination of declining revenues and stubbornly high variable production costs has squeezed the contribution margin on corn and soybean farms. The contribution margin equals the gross revenue minus the variable production costs on a per-acre basis. In essence, the contribution margin is the combined return to labor and management, machinery services, land resources, and risk. In 2005, the contribution margin on our representative west central Indiana farm was just over $100 per acre. By 2011 the contribution margin climbed to over $600 per acre. The sharp climb in the contribution margin was a key factor in driving cash rental rates up to unprecedented levels as farmers competed to expand their crop operations in this profitable environment.

But times have changed dramatically. Contribution margins in west central Indiana the next several years could fall in a range of $325 to about $350 per acre. This means that, if cash rental rates remain at their 2015 level ($281 per acre in west central Indiana on the 2015 Purdue Land Values Survey), most farms will fail to cover their costs. Given this more difficult business climate, crop producers will face tough decisions concerning their land rental arrangements. Farm operators will be attempting to reduce all costs, and land costs are one of the largest expenditures. But many landowners will be reluctant to accept sizable reductions to their rental payments. Past history suggests land rental rates will adjust downward in response to reductions in contribution margins, but continued strong competition for land resources means the adjustment will be slow and take place over a period of several years.

What should farmers do in this challenging operating environment? Should a farmer continue to rent the land if he or she fully expects to lose money? One reason farmers continue to rent land, even if they expect it to

be unprofitable in a given year, is to retain control of the land in the expectation that profitability will return in the future. But how much of a premium should a farmer pay to hold on to a property until profit prospects improve? Alternatively, should farmers possibly try to reposition their operations by giving up a rental property that doesn't fit the business very well (for example, a farm that is 20 miles from the base unit or has rocks, obstructions, and is difficult to farm) and pursue rental property that better fits the operation? Importantly, what happens to the financial resiliency and staying capacity of the farm business if you choose to continue renting farmland that has a high potential of a loss for one or more years?

One way to analyze these questions is to use options thinking—to determine how much you must pay to maintain control of the land—and then assess the implications of farming this property at a loss on the working capital (defined as current assets minus current liabilities) of the business. The process is relatively straightforward.

1. Determine an economic or breakeven rent based on the profit potential given expected future commodity prices, costs and yields.

2. Calculate the option premium as the difference between the expected market rent minus the economic breakeven rent. This premium will depend on the willingness of the landowner to adjust rents, the competitiveness of the local rental market, and the length of the downturn or speed of recovery in profit prospects for the grain sector. Think of this option premium as being similar to paying someone for an option to purchase a farm or other real estate except,

in this case, you are effectively making a payment for the right to continue renting the property.

3. Determine the burn rate in working capital that will occur if the property continues to be farmed at a loss. Burn rate, defined as working capital/net income loss, is the length of time in which a farm's working capital will be exhausted by ongoing losses.

4. Assess whether the premium (the losses incurred) being paid to maintain control of the property will be recovered in future years when margins improve, and whether the working capital burn rate is too high for the business to absorb the expected losses without threatening the viability of the business.

To make doing the analysis easier for your farm using your own financial information and price scenarios we've built a spreadsheet decision tool that you can download from the Purdue Center for Commercial Agriculture website. Using the spreadsheet, you can estimate potential option premiums you might be paying to retain control of farmland and the impact it will have on your working capital and financial position.

International Benchmarks for Corn Production

By Michael Langemeier, Elizabeth Lunik

Examining the competitiveness of corn production in different regions of the world is often difficult due to lack of comparable data and agreement regarding what needs to be measured. To be useful, international data needs to be expressed in common production units and converted to a common currency. Also, production and cost measures need to be consistently defined across production regions or farms.

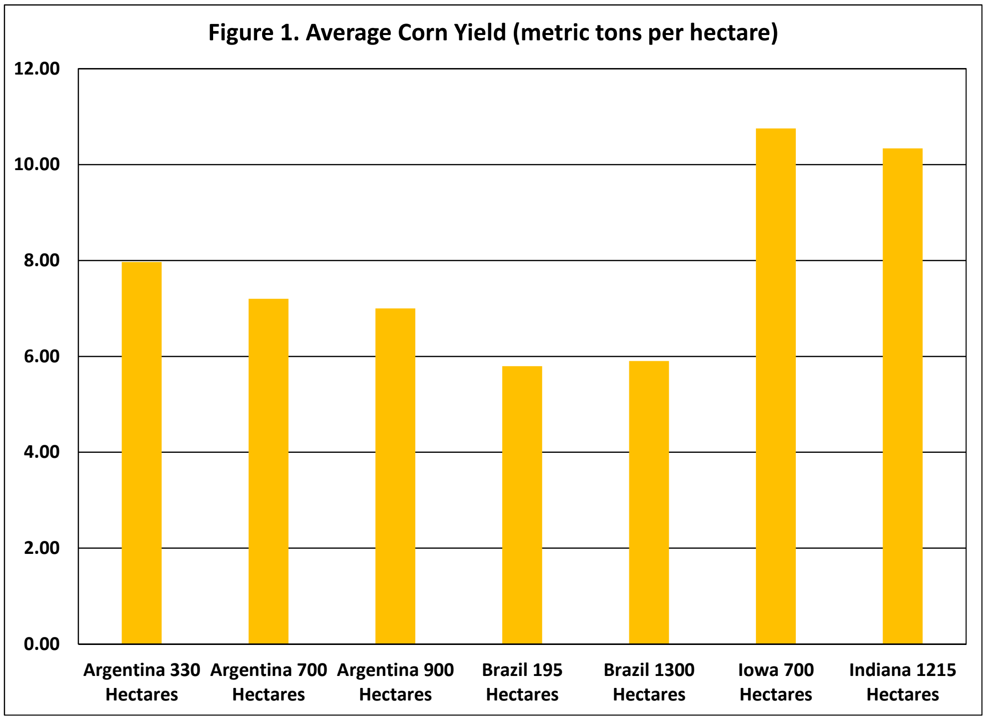
The competitiveness of corn production for important international corn regions was examined using 2012 to 2014 data from the *agri benchmark* network. This network collects data on beef, cash crops, dairy, pigs and poultry, horticulture, and organic production in 32 countries. The *agri benchmark* concept of typical farms was developed to understand and compare current farm production systems around the world. Participant countries follow a standard procedure to create representative farms categorized by production system or a combination of enterprises and structural features. The sample farms used in this paper were comprised of seven typical farms with corn enterprise data from Argentina, Brazil, and United States. While the farms may produce a variety of crops, this paper focuses on corn production.

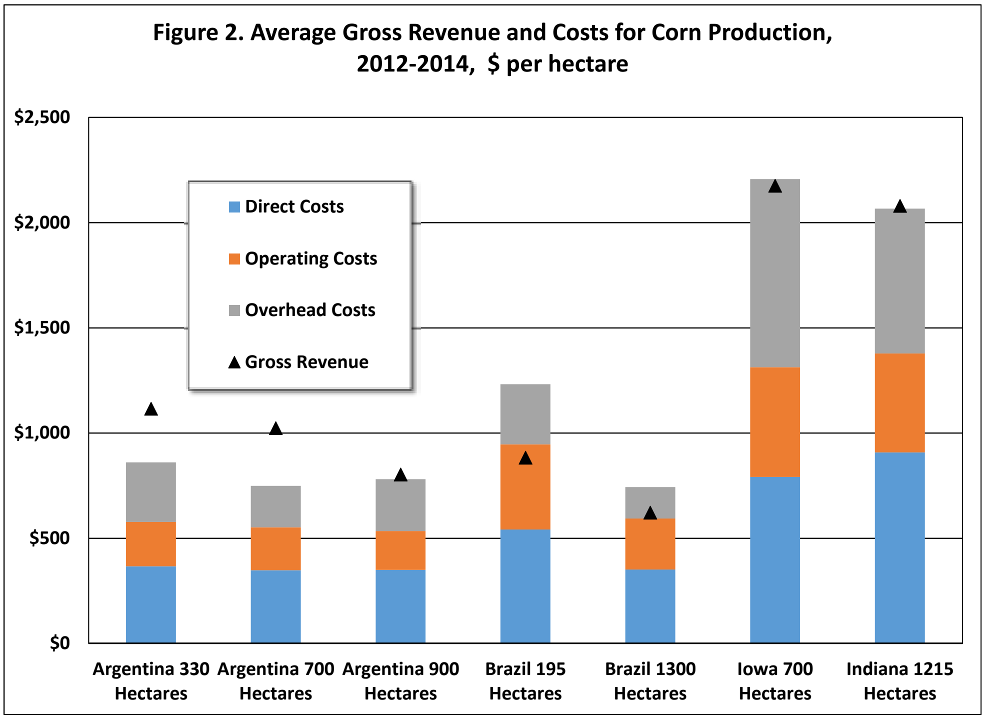
Corn Yields

Although yield is only a partial gauge of performance, it reflects the available production technology across farms. Average farm yields ranged from approximately 5.79 metric tons per hectare for one of the Brazilian farms (92 bushels per acre) to 10.75 metric tons per hectare for the Iowa farm (171 bushels per acre). Figure 1 illustrates average corn yield for each typical farm.

Input Cost Shares

Due to differences in technology adoption, input prices, fertility levels, efficiency of farm operators, trade policy restrictions, exchange rate effects, and labor and capital market constraints, input use varies across corn farms. Cost shares were broken down into three major categories: direct costs, operating costs, and overhead costs. Direct costs included seed, fertilizer,





crop protection, crop insurance, and interest on these cost items. Operating cost included labor, machinery depreciation and interest, fuel, and repairs. Overhead cost included land, building depreciation and interest, property taxes, general insurance, and miscellaneous costs. The average input cost shares were 43.5 percent for direct cost, 26.7 percent for operating cost, and 29.7 percent for overhead cost. The U.S. farms had below average cost shares for direct cost and operating cost, and an above average cost share for overhead cost. The above average overhead cost in the U.S. reflects high U.S. land costs.

Revenue and Cost

Figure 2 presents average gross revenue and cost for each typical farm. Gross revenue and cost are reported in U.S. dollars per hectare. Comparisons are focused on the largest typical farm from Brazil and the two typical farms from the United States. It is obvious from Figure 2 that gross revenue per hectare was substantially higher for the two U.S. farms. However, cost per hectare was also substantially higher for these two farms. Average economic profit for the farm from Indiana was $13 per hectare ($5 per acre). The largest Brazilian farm and the farm from Iowa lost $122 and $32 per hectare ($49 and $13 per acre), respectively.

The largest Brazilian farm and the two U.S. farms had an economic profit in 2012. However, these three farms suffered economic losses in 2013 and especially in 2014. During 2014, losses for the largest Brazilian and two U.S. farms were $189, $390, and $193 per hectare ($76, $158, and 78 per acre), respectively. Due to having a lower gross revenue, economic losses as a percent of gross income were much larger for the Brazilian farm.

Conclusions

Yield, gross revenue, and cost per hectare for agri benchmark farms were all substantially higher for the U.S. farms than representative farms in Argentina and Brazil. The three farms from Argentina and one of the U.S. farms had an average economic profit during the 2012 to 2014 period, but gross revenue and profitability has fallen substantially for all farms since 2012. All of the typical farms in these three countries face challenges in this new lower corn price environment.

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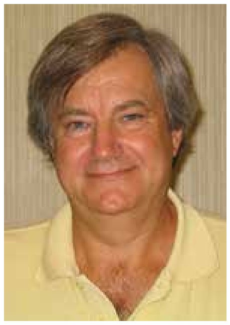

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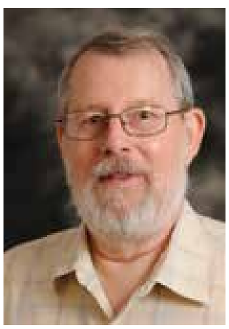

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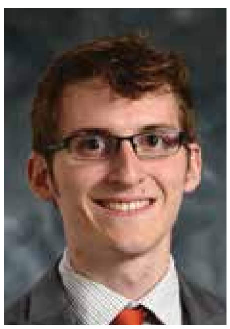

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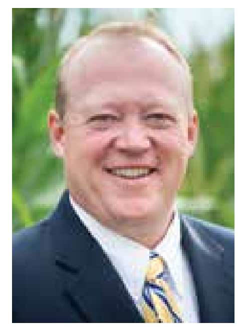

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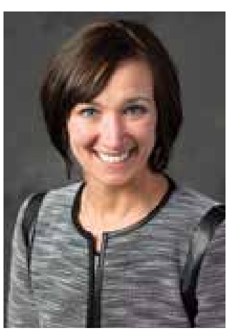
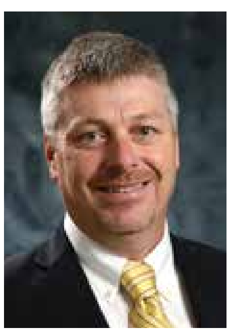
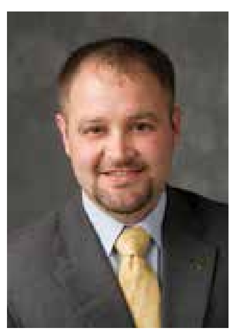


Aissa Good
Business Development Manager

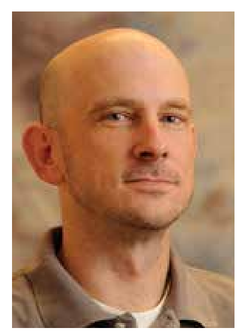


Allan Gray
Professor and Land O'Lakes Chair in Food and Agribusiness



Mike Gunderson
Associate Professor

Chris Hurt
Professor



Roman Keeney
Associate Professor

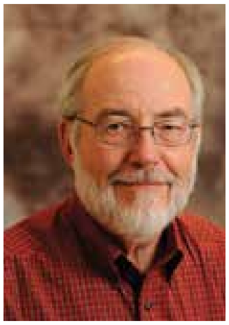
**Dr. Corinne Alexander, an outstanding researcher, mentor and teacher, passed away unexpectedly in January 2016. Dr. Alexander was a driving force in her field, passionately committed to her work. Although we lost her too soon, her impact on the lives of the many people she touched lives on.*

Tammy Kettler
Director of
Corporate Relations

Michael Langemeier
Associate Director
and Professor

Jim Mintert
Director and
Professor

Lindsey Myszak
CRM Analyst/
Marketing Coordinator



George Patrick
Professor

Janet Pool
Office Manager

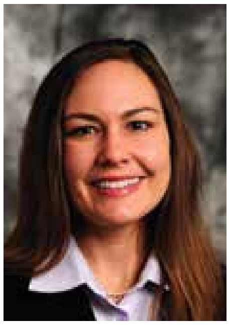
Katricia Sanchez
Event Manager

Jennifer Stewart-Burton
Content Marketing and Social
Media Manager

Lisa Swain
Marketing Director

Nicole Olynk Widmar
Associate Professor

David Widmar
Senior Research Associate



Elizabeth Yeager
Assistant Professor
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