STATE OF INDIANA

DEPARTMENT OF LOCAL GOVERNMENT FINANCE

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REFERENCE MATERIALS FOR VALUING AGRICULTURAL LAND FOR JANUARY 1, 2016

BASE RATE - $1,960

Index

General Notes for the Agricultural Land Market
Value in Use for January 1, 2016 Rate of $1,960

April, 2016

History:

In compliance with the Town of St. John v. State Board of Tax Commissioners court case, the 2002 Real Property Assessment Guidelines contained a section on valuing agricultural land based on its value in use. A summary of our calculations can be found in Chapter 2, Page 100 of those guidelines, in Table 2-18. For the 2002 reassessment, the base rate for agricultural land calculated to be $1,050 and remained unchanged for 2003 and 2004. Pursuant to 50 IAC 27-6-1(a), the Department of Local Government Finance ("Department") issued the annual rate for March 1, 2005 to be $880. In the 2005 legislative session, Senate Enrolled Act 327 was passed. This bill contained a non-code provision that set the base rate for agricultural land for both March 1, 2005 and March 1, 2006 at $880. Senate Enrolled Act 327 also contained language for March 1, 2007 which instructed the Department to adjust the methodology from a four-year rolling average to a six-year rolling average (IC 6-1.1-4-4.5). The base rate for March 1, 2007 was calculated to be $1,140 per acre. The base rate for March 1, 2008 was updated by removing 1999 data and adding 2005 data to the six year average which resulted in a base rate of $1,200. The base rate for March 1, 2009 was updated by removing 2000 data and adding 2006 data to the six year average which resulted in a base rate of $1,250. The base rate for March 1, 2010 was updated by removing 2001 data and adding 2007 data to the six year average which resulted in a base rate of $1,400; however in March of 2010, Senate Enrolled Act 396-2010 was signed into law which required the highest year of the six-year average to be excluded in the calculation. This change in the calculation lowered the base rate for March 1, 2010 from $1,400 to $1,290 when the 2007 data was excluded. The base rate for March 1, 2011 was updated by removing the 2002 data, adding the 2008 data, and excluding the highest year (2008) of the six-year average to arrive at a base rate of $1,500. The base rate for March 1, 2012 was updated by removing the 2003 data, adding the 2009 data, and excluding the highest year (2008) of the six-year average to arrive at a base rate of $1,630. The base rate for March 1, 2013 was updated by removing the 2004 data, adding the 2010 data, and excluding the highest year (2010) of the six-year average to arrive at a base rate of $1,760. The base rate for March 1, 2014 was updated by removing the 2005 data, adding the 2011 data, and excluding the highest year (2011) of the six-year average to arrive at a base rate of $2,050. The base rate for March 1, 2015 was updated by removing the 2006 data, adding the 2012 data, and excluding the highest year (2011) of the six-year average to arrive at a base rate of $2,420; however Senate Enrolled Act 436-2015 was passed which set the March 1, 2015 base rate at $2,050 (unchanged from 2014). Senate Enrolled Act 436-2015 also established a new method of calculating the base rate for 2016 which took the preceding year's base rate and multiplied it times an assessed value growth quotient; however in the 2016 legislative session, Senate Enrolled Act 308 repealed this new method and re-instated the previous method of using a six-year rolling average with the highest year excluded and added the requirement of using the most current data available and adjusting the capitalization rate after the preliminary base rate was determined. The base rate for January 1, 2016 was updated by removing the 2007, 2008 and 2009 data, adding

the 2013, 2014 and 2015 data, excluding the highest year (2013) of the six-year average, and adjusting the capitalization rates to arrive at a final base rate of $1,960.

<u>SEA 308 – The New Calculation of the Agland Base Rate for January 1, 2016</u>

IC 6-1.1-4-4.5 (e) In making the annual determination of the base rate to satisfy the requirement for an annual adjustment under subsection (c) for the January 1, 2016, assessment date and each assessment date thereafter, the department of local government finance shall determine the base rate using the methodology reflected in Table 2-18 of Book 1, Chapter 2 of the department of local government finance's Real Property Assessment Guidelines (as in effect on January 1, 2005), except that the department shall adjust the methodology as follows:

(1) Use a six (6) year rolling average adjusted under subdivision (3) instead of a four (4) year rolling average.

(2) Use the data from the six (6) most recent years preceding the year in which the assessment date occurs for which data is available, before one (1) of those six (6) years is eliminated under subdivision (3) when determining the rolling average.

(3) Eliminate in the calculation of the rolling average the year among the six (6) years for which the highest market value in use of agricultural land is determined.

(4) After determining a preliminary base rate that would apply for the assessment date without applying the adjustment under this subdivision, the department of local government finance shall adjust the preliminary base rate as follows:

(A) If the preliminary base rate for the assessment date would be at least ten percent (10%) greater than the final base rate determined for the preceding assessment date, a capitalization rate of eight percent (8%) shall be used to determine the final base rate.

(B) If the preliminary base rate for the assessment date would be at least ten percent (10%) less than the final base rate determined for the preceding assessment date, a capitalization rate of six percent (6%) shall be used to determine the final base rate.

(C) If neither clause (A) nor clause (B) applies, a capitalization rate of seven percent (7%) shall be used to determine the final base rate.

(D) In the case of a market value in use for a year that is used in the calculation of the six (6) year rolling average under subdivision (1) for purposes of determining the base rate for the assessment date:

(i) that market value in use shall be recalculated by using the capitalization rate determined under clauses (A) through (C) for the calculation of the base rate for the assessment date; and

(ii) the market value in use recalculated under item (i) shall be used in the calculation of the six (6) year rolling average under subdivision (1).

Updates to Table 2-18 for January 1, 2016

Table 2-18 – Years:
For January 1, 2016, the six years of data used in the calculations were: 2010, 2011, 2012, 2013, 2014 and 2015.

Table 2-18 – Net Income from Cash Rents:
Since agricultural land in Indiana is almost evenly divided between cash rent and owner-occupied production, the Department used an average of both types of income in the calculation.

The data for cash rents came from three Purdue Agricultural Economics Reports (PAER). For the 2010 & 2011 rents, go to Table 2 of Page 4 (P-19) of the August 2011 report. For the 2012 & 2013 rents, go to Table 2 of Page 4 (P-21) of the August 2013 report. For the 2014 & 2015 rents, go to Table 2 of Page 4 (P-23) of the August 2015 report. From these tables, we used the statewide averages for average soil.

There is also an adjustment to these amounts to reduce the rents for property taxes paid on the land. This adjustment was based on a study conducted by the Department.

Table 2-18 – Net Income from Operating:
This income represents the profits from the owner-occupied production of crops on agricultural land.

The foundation for the calculations that the Department adopted comes from Table 1 (P-13) of the June 24, 1999 Doster/Huie report.

Doster/Huie Report – Table 1-Years:
This report used the years of 1996, 1997, 1998, & 1999. The year of 1999 was removed from the 2002 calculations since the Department's calculations were based on January 1, 1999. Information for 1995 was obtained and added to the calculations. (Also note the date of June 24, 1999 for the report which means that six months of data had been estimated.)

Doster/Huie Report – Table 1-Yields:
The yields in this report were obtained from the Indiana Agricultural Statistics Service (IASS) for both corn and soybeans. The IASS publishes these statistics on an annual basis. Yield information for these four years can be found in the 1999-2000 publication for corn on page 31 in the Final Yield per Acre column of the Crop Summary section and on page 32 for soybeans.

Doster/Huie Report – Table 1-Prices:
The prices used in this report were for the month of November. They can found in IASS publications for that time period. Note: The Department made an adjustment to this part

of the calculation because the majority of the grain harvested in Indiana is not sold in November but throughout the year. This adjustment will be discussed later.

Doster/Huie Report – Table 1-Sales:
Yields for each type of crop (corn/soybeans) multiplied by the Price per Bushel for each type of crop equals Sales.

Doster/Huie Report – Table 1-Less Variable Costs:
This information can be found in the Purdue Crop Guide. This guide is an annual publication. The dollar amount for each crop type can be found in section titled "Estimated Per Acre Crop Budgets" in the column for Corn/Soybean Rotation for Average Soil. See the line for "Total variable cost". The costs include seed, fertilizer, chemicals, machinery repairs, and fuel.

Doster/Huie Report – Table 1-Crop Contribution Margin:
Sales less Variable Costs equal Crop Contribution Margin for each type of crop (corn/soybeans).

Doster/Huie Report – Table 1-Plus Government Payment:
The publication adds government payments as a source of additional revenue for the land. This amount for each year was estimated by the authors of the publication.

Doster/Huie Report – Table 1-Total Contribution Margin:
This number represents the average of the Crop Contribution Margin for corn and soybeans plus one-half (1/2) of the amount for the government payment. (The sum of the three numbers divided by two.)

Doster/Huie Report – Table 1-Less Overhead:
The overhead expense for machinery, drying/handling, & family/hired labor can be found on the Purdue Crop Guide. The dollar amount for each crop type can be found in section titled "Estimated 20___ (year) Per Acre Production Costs in the column for Corn/Soybean Rotation for Average Soil. See the lines for "Indirect charges per acre".

Doster/Huie Report – Table 1-Real Estate Tax:
A deduction of $10 for real estate taxes was estimated by the authors.

Doster/Huie Report – Table 1-Income:
Total Contribution Margin less the Overhead Expenses of machinery, drying/handling, labor, & real estate taxes equals Income.

Doster/Huie Report – Table 1-Estimated Land Value:
The authors of the paper then averaged the four years (1996 – 1999) income and divided it by a 1999 interest rate to arrive at an Estimated Land Value of $971.

Table 2-18 – Net Income from Operating:
This income represents the profits from the owner-occupied production of crops on agricultural land. While the foundation for the calculations that our agency adopted comes from Table 1 of the June 24, 1999 Doster/Huie report, we did make some alterations to it.

Adjustments Made To The Doster/Huie Report By Our Department:

Years:
We added the statistics for 1995 which were available and deleted the estimates for 1999 since interest rates and income data were not available.

Price:
We added two averages to the Doster/Huie report since this report used only November prices. Since only a small portion of Indiana's grain is sold in November, the Department of Local Government Finance developed two annual averages for the calculation. The first average was the calendar year average of the grain prices which are published in the IASS book. The second average was the market year average. This average is calculated by the IASS and is a weighted average that is based on the end of the month grain price and the percentage of the total grain harvested that was sold that month.

Interest Rate:
Instead of using the 1999 St. Paul Farm Credit Bank interest rate, we chose to use the quarterly farm loan rates published by the Federal Reserve Bank of Chicago. The FRBC publishes an agricultural newsletter on a quarterly basis called the "AgLetter". This newsletter provides interest rates on farm loans for operating loans, feeder cattle, and real estate. The Department averaged the interest rates for the operating loans and real estate categories. A study was conducted on different sources of interest rates between Purdue Agricultural Economics Reports, the St. Paul Farm Credit Bank, and the Federal Reserve Bank of Chicago. The study found that the rates varied from year to year but when averaged out over the four year period were comparable.

Summary of the January 1, 2016 Base Rate:
The Department first calculated the Table 2-18 Base Rate including years 2010, 2011, 2012, 2013, 2014 and 2015. The implementation of Senate Enrolled Act 308 changed the capitalization rates to 8% which lowered the Preliminary Table 2-18 Base Rate of $2,990 to a Final Base Rate of $1,960. (Refer to Page 15 of this packet for a detailed comparison.)

Valuing Agricultural Land

The agricultural land assessment formula involves the identification of agricultural tracts using data from detailed soil maps, aerial photography, and local plat maps. Each variable in the land assessment formula is measured using appropriate devices to determine its size and effect on the parcel's assessment. Uniformity is maintained in the assessment of agricultural land through the proper use of soil maps, interpreted data, and unit values.

In order to apply the agricultural land assessment formula, you need to understand the following topics, which are discussed in the sections below:

- agricultural land base rate values
- assessment of agricultural land
- units of measurement for agricultural land
- classification of agricultural land into land use types
- use of soil maps
- calculating the soil productivity index
- valuation of strip mined agricultural land
- valuation of oil and gas interests

The rest of the chapter provides instructions for completing the "Land Data and Computations" section of the agricultural property record card.

Agricultural Land Base Rate Value

The 2002 general reassessment agricultural land value utilizes the land's current market value in use, which is based on the productive capacity of the land, regardless of the land's potential or highest and best use. The most frequently used valuation method for use-value assessment is the income capitalization approach. In this approach, use-value is based on the residual or net income that will accrue to the land from agricultural production.

As illustrated in the following equation, the market value in use of agricultural land is calculated by dividing the net income of each acre by the appropriate capitalization rate.

Market value in use = Net Income ÷ Capitalization Rate

The net income of agricultural land can be based on either the net operating income or the net cash rent. Net operating income is the gross income received from the sale of crops less the variable costs (i.e. seed and fertilizer) and fixed costs (i.e. machinery, labor, property taxes) of producing crops. The net cash rent income is the gross cash rent of an acre of farmland less the property taxes on the acre. Both methods assume the net income will continue to be earned into perpetuity.

The capitalization rate converts the net income into an estimate of value. The capitalization rate reflects, in percentage terms, the annual income relative to the value of an asset; in this case agricultural land. Conceptually, this capitalization rate incorporates the required returns to various forms of capital, associated risks, and the anticipated changes over time.

Since agricultural land in Indiana is nearly evenly divided between cash rent and owner-occupied production, the State Board of Tax Commissioners utilized a four-year rolling average (1995 to 1998) of both methods in determining the market value in use of agricultural land. The capitalization rate applied to both types of net income was based on the annual average interest rate on agricultural real estate and operating loans in Indiana for this same period. The table below summarizes the data used in developing the average market value in use.

Table 2-18. Agricultural Land market value in use

	NET INCOMES		CAP. RATE	MARKET VALUE IN USE		
YEAR	Cash Rent	Operating		Cash Rent	Operating	Average
1995	$88	$56	9.92%	$887	$565	$ 726
1996	$94	$131	9.29%	$1012	$1410	$1,211
1997	$100	$124	9.31%	$1074	$1332	$1,203
1998	$102	$91	9.10%	$1121	$1000	$1,060
				Average Market Value in Use =		$1,050

The statewide agricultural land base rate value for the 2002 general reassessment will be the average market value in use calculated as shown above or $1,050 per acre.

Assessing Agricultural Land

The agricultural land assessment formula involves identifying agricultural tracts using data from a detailed soil map, aerial photography, and local plat maps. Each variable of the land assessment formula is measured using various devices to determine its size and effect on the parcel's assessment. The proper use of the soil maps, interpreted data, and unit values results in greater uniformity in the assessment process of agricultural lands. Some commercial and industrial zoned acreage tracts devote a portion of the parcel to an agricultural use. The assessor classifies these parcels as either commercial or industrial. However, the portion of land devoted to agricultural use should be valued using the agricultural land assessment formula. Portions not used for agricultural purposes would be valued using the commercial and industrial acreage guidelines described in this chapter.

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Certification of Agricultural Land Base Rate Value for Assessment Year 2016

This memorandum hereby serves to notify assessing officials of the agricultural base rate to be used for the January 1, 2016 assessment date: **$1,960 per acre**.

Land used for agricultural purposes shall be adjusted consistent with the guideline methodology developed for the 2012 general reassessment agricultural land value except, in determining the annual base rate, the Department of Local Government Finance ("Department") shall adjust the methodology to use the lowest five years of a six (6) year rolling average. Senate Enrolled Act 308 then requires a comparison of the preliminary Table 2-18 base rate to the prior year's final base rate in order to determine the statutory capitalization rate to be used to calculate the final base rate for this assessment date.

Those portions of agricultural parcels that include land and buildings not used agriculturally, such as homes, homesites, and excess land and commercial or industrial land and buildings, shall be adjusted by the factor or factors developed for other similar property within the geographic stratification. The residence portion of agricultural properties will be adjusted by the factors applied to similar residential properties.
50 IAC 27-6-1(b)

The 2016 assessment year agricultural land value utilizes the land's current market value in use, which is based on the productive capacity of the land, regardless of the land's potential or highest and best use. The most frequently used valuation method for use-value assessment is the income capitalization approach. In this approach, use-value is based on the residual or net income that will accrue to the land from agricultural production.

As illustrated in the following equation, the market value in use of agricultural land is calculated by dividing the net income of each acre by the appropriate capitalization rate.

Market value in use = Net Income ÷ Capitalization Rate

The net income of agricultural land can be based on either the net operating income or the net cash rent. Net operating income is the gross income received from the sale of crops less the variable costs (i.e. seed and fertilizer) and fixed costs (i.e. machinery, labor, property taxes) of producing crops. The net cash rent income is the gross cash rent of an acre of farmland less the property taxes on the acre. Both methods assume the net income will continue to be earned into perpetuity.

The capitalization rate converts the net income into an estimate of value. The capitalization rate reflects, in percentage terms, the annual income relative to the value of an asset; in this case agricultural land. Conceptually, this capitalization rate incorporates the required returns to various forms of capital, associated risks, and the anticipated changes over time.

Since agricultural land in Indiana is nearly evenly divided between cash rent and owner-occupied production, the Department utilized a six-year rolling average (2010 to 2015) of both methods in determining the market value in use of agricultural land. The capitalization rate applied to both types of net income was based on the language contained in SEA 308. The table below summarizes the data used in developing the average market value in use.

Senate Enrolled Act 308 – Final Agricultural Land Base Rate

	NET INCOMES			MARKET VALUE IN USE		
Year	Cash Rent	Operating	Cap. Rate	Cash Rent	Operating	Average
2010	141	172	8.00%	1,763	2,150	1,957
2011	161	254	8.00%	2,013	3,175	2,594
2012	185	116	8.00%	2,313	1,450	1,882
~~2013~~	~~204~~	~~341~~	~~8.00%~~	~~2,550~~	~~4,263~~	~~3,407~~
2014	205	173	8.00%	2,563	2,163	2,363
2015	198	-39	8.00%	2,475	-488	994

Average Market Value in Use	**$1,960**

The statewide agricultural land base rate value for the 2016 assessment year will be $1,960 per acre.

Dated this 29th day of April, 2016.

Courtney L. Schaafsma, Commissioner
Department of Local Government Finance

Attest:

Michael E. Duffy, General Counsel

A Method for Assessing Indiana Cropland
An Income Approach to Value

D. Howard Doster & John M. Huie, Purdue Ag Economists
June 24, 1999

Summary

A method for taxing agricultural cropland based on the income potential of the land can be developed. The method is illustrated below. Data components of this method include detailed soil maps, estimated yields and production costs by soil type, reported average yields by county, reported average Indiana November corn and soybean prices, USDA corn and soybean loan prices by county, and the interest rate on new Farm Credit Bank loans in the St Paul district.

Using this information, a land value can be calculated for each soil type in each county in Indiana. Using detailed soil maps, county staff can then calculate income, land value, and tax due for each ownership parcel.

Using state yields, prices, and costs for 1996, 1997, 1998, and estimates for 1999, income and land values are calculated below for average and high yield soil types. As shown in Table 1, the average land value is calculated to be $971. In Table 2, the high yield land is valued at $1510.

As shown in the tables, incomes for 1996 and 1997 are much higher than incomes for 1998 and projected 1999. Though not shown, income for 1995 was much higher than projected income for 1999.

Detailed soil maps

Maps from The Natural Resource and Conservation Service (NRCS) are now available for all counties indicating the soil type of all land in the state. County staff have used this information in past years. For five counties, this soil type information has been transferred to a GIS data base. In these counties, county staff could identify land ownership units in the GIS data base and with appropriate computer software, calculate the real estate tax on cropland.

In 1998, computer software was developed by Purdue Ag Economists for calculating income for user entered ownership parcels in Tippecanoe County. This program was shown at the July, 1998 Purdue Top Farmer Crop Workshop and the September, 1998 Prairie Farmer Farm Progress Show. The purpose of these demonstrations was to show prospective landowners, prospective tenants, and professional appraisers a way to estimate income potential of an ownership parcel.

Estimated yield and production cost by soil type

Purdue agronomists and NRCS staff have estimated crop yields for each soil type in Indiana. (These yield estimates may need to be updated, and possible differences considered for the same soil type in different counties.) Purdue staff annually estimate crop production costs for low, average, and high yielding soil types. The process could be computerized and budgets could be prepared for all Indiana soils.

Reported average yield by county

The Indiana Agricultural Statistics Service reports average yield for each county in May each year for the preceding year's crops. An expected trend yield could be calculated for each soil in each county. Each year, these trend yields could be adjusted by the same percentage change as the difference between the county expected and reported average yields.

Reported average Indiana November corn and soybean prices

The Indiana Agricultural Statistics Service reports average Indiana crop prices for each month. Prices for November[1/] are used in calculating per acre corn and soybean income.

USDA corn and soybean loan price

USDA has determined corn and soybean loan prices for each Indiana county. These prices reflect crop price differences because of the location of the county. Therefore, the November state average prices for corn and soybeans could be adjusted by the price location differences in loan prices to obtain an estimate of November prices by county.

St Paul Farm Credit Bank interest rate

For each year, the Internal Revenue Service issues a listing of the average annual effective interest rates charged on new loans under the Farm Credit Bank system. These rates are used in computing the special use value of real property used as a farm for which an election is made under section 2032A of the Internal Revenue Code. Indiana is in the St Paul district. For 1999, the reported interest rate is .0821.

Weighted annual incomes and estimated land values

As shown in Table 1, the 4-year average annual income is $80 and the estimated land value is $971. As shown in Table 2, for the high yield land the average income is $124 and the land value is $1510.

Annual incomes could be weighted with income from the most recent year being weighted the most. One option would be a percentage weight of 40 - 30 - 20 - 10 with the most recent year at 40% and the most distant year at 10%. Using this criteria, the weighted average annual income is $71.10 and the estimated average land value is $866. A weighting of 33 - 27 - 22 - 18 with the most recent year at 33% and the most distant year at 18% produces a weighted average annual income of $75.27 and an estimated average land value of $917.

For high yield soil, the 40 - 30 - 20 - 10 optimal weights give an average income of $113 and a land value of $1379. The 33 - 27 - 22 - 18 weights give an average income of $118 and a land value of $1442.

This approach - discounting the potential agricultural income - to valuing farm land is reasonable so long as the income estimates and the discount rates are defensible. There is also logic to using a four year average with the most recent years being weighted higher, especially if the state were to go to annual assessments. So long as they stay with a four year assessment cycle it becomes more of a judgement call.

[1/]Prices tend to increase throughout the year. November, a month close to the end of the harvest season was chosen. If prices later than November are chosen then a storage cost would also need to be included.

Income and land value estimates

As illustrated in Tables 1 and 2, income from a corn/soybean rotation on average and high yield soils is calculated for 1996-99.

State average yields for each soil are multiplied by November prices to obtain per acre sales.

Variable costs as found in the Purdue Crop Guide for average and high yield soils are subtracted to obtain per acre contribution margin from crops.

Corn contribution margin plus soybean contribution margin plus government payment is added and the sum is divided by 2 to get per acre total contribution margin.

Overhead costs from the Purdue Crop Guide for a corn/soybean farm are subtracted from the contribution margin to get per acre income.

Incomes for the four years are averaged.

The average income is divided by the St Paul interest rate to get estimated land value.

Table 1. Indiana Land Value Calculation
Based on an Income Approach, 1996-99
Average Yield Soil

	1996		1997		1998		1999	
	Corn	Beans	Corn	Beans	Corn	Beans	Corn	Beans
Yield[1/]	123	38	122	43.5	132	42	134.1	42.9
Price (November)[1/]	$2.69	$6.90	$2.60	$6.88	$2.06	$5.49	$2.04	$5.40
Sales	$331	$262	$317	$299	$282	$231	$274	$232
Less variable costs[2/]	134	94	137	96	148	85	145	86
Crops contribution margin	$197	$168	$180	$203	$134	$146	$129	$146
Plus government payment[3/]	$23		$45		$53		$34	
Total contribution margin	$194		$214		$167		$154	
Less overhead:								
Annual machinery[2/]	48		50		49		49	
Drying/handling	6		6		7		7	
~~Family/hired labor[2/]~~	~~37~~		~~37~~		~~37~~		~~37~~	
Real estate tax[3/]	10		10		10		10	
Equals:								
Income	$93		$111		$64		$51	

4-year average income = $80
1999 St Paul interest rate[4/] = .0821
Estimated land value = $971

1/ State average yield, state average November price as reported by Indiana Agricultural Statistics Service.
2/ Costs are taken from annual Purdue Crop Guide, ID-166.
3/ Government payments and real estate tax are estimated by the author.
4/ Average annual effective interest rate on new loans under the Farm Credit Bank System, St Paul district.

Table 2. Indiana Land Value Calculation
Based on an Income Approach, 1996-99
High Yield Soil

	1996		1997		1998		1999	
	Corn	Beans	Corn	Beans	Corn	Beans	Corn	Beans
Yield[1/]	151.3	46.8	49.9	53.6	169	51	165	52.8
Price (November)[1/]	$2.69	$6.90	$2.60	$6.88	$2.06	$5.49	$2.04	$5.40
Sales	$407	$323	$390	$369	$348	$280	$337	$285
Less variable costs[2/]	153	103	157	106	170	91	167	92
Crops contribution margin	$254	$220	$233	$263	$178	$189	$170	$193
Plus government payment[3/]	$29		$56		$64		$42	
Total contribution margin	$252		$276		$216		$202	
Less overhead:								
Annual machinery[2/]	53		55		54		54	
Drying/handling	7		7		8		8	
~~Family/hired labor[2/]~~	~~37~~		~~37~~		~~37~~		~~37~~	
Real estate tax[3/]	14		14		14		14	
Equals:								
Income	$141		$163		$103		$89	

4-year average income = $124
1999 St Paul interest rate[4/] = .0821
Estimated land value = $1510

[1/] State average yield, state average November price as reported by Indiana Agricultural Statistics Service.
[2/] Costs are taken from annual Purdue Crop Guide, ID-166.
[3/] Government payments and real estate tax are estimated by the author.
[4/] Average annual effective interest rate on new loans under the Farm Credit Bank System, St Paul district.

January 1, 2016
Senate Enrolled Act 308 - Assignment of Capitalization Rate To Determine Final Base Rate

Department of Local Government Finance's Table 2-18 Calculation of Agricultural Land Base Rate

	NET INCOMES PER ACRE		RATE	MARKET VALUE IN USE PER ACRE		AVERAGE MARKET VALUE IN USE
Year	Cash Rent	Owner-Operated	Cap. Rate	Cash Rent	Owner-Operated	PER ACRE
2010	141	172	5.97%	2,362	2,881	2,622
2011	161	254	5.61%	2,870	4,528	3,699
2012	185	116	5.06%	3,656	2,292	2,974
~~2013~~	~~204~~	~~341~~	~~4.84%~~	~~4,215~~	~~7,045~~	~~5,630~~
2014	205	173	4.77%	4,298	3,627	3,963
2015	198	-39	4.74%	4,177	-823	1,677

Preliminary Table 2-18 Base Rate (Average - 5 Lowest Years)	2,990

Determination of SEA 308 Capitalization Rate:

Prior Year's Final Base Rate	2,050
Current Year's Table 2-18 Base Rate	2,990
Percent Difference	46%
SEA 308 Capitalization Rate to Use	8%

Department of Local Government Finance's SEA 308 Calculation of Final Agricultural Land Base Rate

	NET INCOMES PER ACRE		RATE	MARKET VALUE IN USE PER ACRE		AVERAGE MARKET VALUE IN USE
Year	Cash Rent	Owner-Operated	Cap. Rate	Cash Rent	Owner-Operated	PER ACRE
2010	141	172	8.00%	1,763	2,150	1,957
2011	161	254	8.00%	2,013	3,175	2,594
2012	185	116	8.00%	2,313	1,450	1,882
~~2013~~	~~204~~	~~341~~	~~8.00%~~	~~2,550~~	~~4,263~~	~~3,407~~
2014	205	173	8.00%	2,563	2,163	2,363
2015	198	-39	8.00%	2,475	-488	994

SEA 308 Final Base Rate (Average - 5 Lowest Years)	1,960

Table 2-18 - Updated for January 1, 2016
Source: Real Property Assessment Guidelines

	Column A		Column B		Column C		Column D	Column E	Column F	
			NET INCOMES PER ACRE		RATE		MARKET VALUE IN USE PER ACRE		AVERAGE MARKET VALUE IN USE	
Year	Cash Rent		Owner-Operated		Cap. Rate		Cash Rent	Owner-Operated	PER ACRE	
2010	141	P-17	172	P-33	5.97%	P-26	2,362	2,881	2,622	(1)
2011	161	P-17	254	P-33	5.61%	P-26	2,870	4,528	3,699	(1)
2012	185	P-17	116	P-33	5.06%	P-26	3,656	2,292	2,974	(1)
~~2013~~	~~204~~	P-17	~~341~~	P-33	~~4.84%~~	P-26	~~4,215~~	~~7,045~~	~~5,630~~	(1)
2014	205	P-17	173	P-33	4.77%	P-26	4,298	3,627	3,963	(1)
2015	198	P-17	-39	P-33	4.74%	P-26	4,177	-823	1,677	(1)
								Base Rate (Average - 5 Lowest Years)	2,990	(2)
Formula	Gross Cash Rent Less Property Taxes		Gross Income Less Expenses		Average of Qtly. Farm Loan Rates		Column A divded by Column C	Column B divided by Column C	The average of Columns D and E	(1)
Source:	Purdue Ag. Econ. Reports (PAER)		Indiana Ag. Statistics Service and Purdue Crop Guide		Federal Reserve Bank of Chicago				The base rate is the average of the 5 lowest averages above rounded to the nearest $10. [IC 6-1.1-4-4.5(e)(2)]	(2)

As illustrated in the following equation, the market value in use of agricultural land is calculated by dividing the net income of each\ acre by the appropriate capitalization rate.

Market Value In Use = Net Income Divided By The Capitalization Rate

Table 2-18 - Updated for January 1, 2016
Calculation for Net Income-Cash Rent Column

Year	Gross Cash Rent		Less Property Tax		Net Cash Rent	Cap Rate		Cash Rent Value
2010	161	P-19	-20	P-25	141	5.97%	P-26	2,362
2011	182	P-19	-21	P-25	161	5.61%	P-26	2,870
2012	208	P-21	-23	P-25	185	5.06%	P-26	3,656
2013	229	P-21	-25	P-25	204	4.84%	P-26	4,215
2014	232	P-23	-27	P-25	205	4.77%	P-26	4,298
2015	229	P-23	-31	P-25	198	4.74%	P-26	4,177

PURDUE UNIVERSITY

Purdue Agricultural Economics Report

August 2011

Indiana Farmland Market Continues to Sizzle

Craig L. Dobbins, Professor, & Kim Cook, Research Associate

Introduction

For Indiana farmland values, it seems that history may be repeating itself. Just like the early 1970s, strong grain prices, robust net farm incomes, favorable interest rates, competitive farmland demand, and a limited supply of farmland offered to the market provides the environment for a strong increase in farmland values. The 2011 Purdue Farmland Value Survey[1], indicates that the statewide increase in value was 22.8% to 25.3%. Increases this large have not occurred since 1977.

State-wide Farmland Values

For the state as a whole, the 2011 survey found the average value of bare Indiana cropland ranged from $4,386 per acre for poor quality land to $6,521 per acre for top quality land (Table 1). Average quality cropland had a value of $5,468 per acre. For the 12-month period ending June 2011, the value of top, average, and poor quality land increased 22.8%, 23.7% and 25.3%, respectively.

To assess the productivity of the various land qualities, survey respondents estimated long-term corn yields for poor, average, and top quality land. The average of these long-term corn yield estimates provides one measure of land productivity. For the state, the average long-term corn yields for poor, average, and top quality land were 126, 157, and 188 bushels per acre, respectively. State-wide, the value per estimated bushel of corn yield for poor, average, and top land qualities was $34.89, $34.87 and $34.64 per bushel, respectively.

The transitional land market, farmland moving out of agriculture, continues to be soft. For the fourth straight year, the average value of transitional land declined. In 2011 the average value was $7,931, a decline of 4.5%. The estimated value of land in this market continues to have a wide range. In June 2011, transitional land value estimates ranged from $1,000 to $30,000 per acre. This is a specialized market with the transitional land value strongly influenced by the planned use and location. Because of the wide variation in transitional land values, the median value[2] may give a more meaningful picture than the arithmetic average. The median value of transitional land in 2011 was $7,250 per acre. This

[1] The individuals surveyed include rural appraisers, agricultural loan officers, FSA personnel, farm managers, and farmers. The results of the survey provide information about the general level and trend in farmland values.

[2] The median is the middle observation in data arranged in ascending or descending numerical order.

In This Issue

Table 2. Average estimated Indiana cash rent per acre, (tillable, bare land) 2010 and 2011, Purdue Land Value Survey, June 2011

			Rent/Acre		Change	Rent/bu. of Corn		Rent as % of June Land Value	
Area	Land Class	Corn bu/A	2010 $/A	2011 $/A	'10-'11 %	2010 $/bu.	2011 $/bu.	2010 %	2011 %
North	Top	196	213	243	14.1%	1.10	1.24	4.0	3.6
	Average	160	165	187	13.3%	1.06	1.17	3.8	3.4
	Poor	127	121	139	14.9%	1.01	1.09	3.7	3.2
Northeast	Top	179	192	211	9.9%	1.06	1.18	3.7	3.5
	Average	151	150	162	8.0%	1.00	1.08	3.5	3.1
	Poor	121	115	123	7.0%	0.98	1.02	3.4	2.9
W. Central	Top	195	225	264	17.3%	1.15	1.35	3.8	3.5
	Average	166	184	217	17.9%	1.13	1.31	3.7	3.5
	Poor	137	147	172	17.0%	1.14	1.25	3.7	3.4
Central	Top	192	206	233	13.1%	1.09	1.21	3.7	3.5
	Average	163	169	190	12.4%	1.05	1.17	3.5	3.3
	Poor	134	135	154	14.1%	1.04	1.15	3.4	3.2
Southwest	Top	188	192	234	21.9%	1.04	1.24	3.6	3.3
	Average	150	146	176	20.5%	0.98	1.17	3.7	3.2
	Poor	115	106	130	22.6%	0.95	1.13	3.7	3.4
Southeast	Top	171	151	169	11.9%	0.92	0.99	4.1	4.3
	Average	139	119	129	8.4%	0.88	0.93	3.8	3.8
	Poor	106	86	95	10.5%	0.85	0.89	3.5	3.3
Indiana	Top	188	202	230	13.9%	1.08	1.22	3.8	3.5
	Average	157	161	182	13.0%	1.04	1.16	3.6	3.3
	Poor	126	124	141	13.7%	1.02	1.12	3.5	3.2

bar along the right side of the line indicates the average.

Consider top quality land in the North region. The range of perceived values was from about $5,000 per acre to over $10,000 per acre. This is a wide range. The average of the responses was $6,699 per acre, a value closer to the per acre minimum than maximum. This indicates there were a greater number of responses in the lower part of the range. For top land in the Central region there is more agreement, a smaller range. In addition, the average is more in the center of the range. For this situation, the respondents' perception of value is distributed more evenly across a smaller range.

Figure 3 illustrates the same information for cash rents. In both the case of farmland value and cash rent, the survey provides a general guide to value or rent but does not indicate the value or cash rent for a specific farm. Arriving at a value or amount of cash rent for a specific farm requires additional research or assistance from a professional.

PURDUE UNIVERSITY

Purdue Agricultural Economics Report

August 2013

Up Again: Indiana's Farmland Market in 2013

Craig Dobbins, Professor and Kim Cook, Research Associate

While the 2012 Indiana crop suffered from the worst drought since 1988, the increase in farmland values did not bother to slow down. The drought-reduced corn and soybean supply lifted corn and soybean prices to all-time highs. The price increases more than offset lower yields. When insurance indemnities are included, farm income from the 2012 crops was much better than many expected. The 2013 U.S. net farm income is currently forecast to be $128.2 billion, the highest on record.

High net farm income combined with favorable interest rates, strong farmland demand, and a limited supply of farmland for sale pushed farmland values and cash rents higher. The June 2013 Purdue Farmland Value Survey[1] indicates the statewide increase in farmland values ranged from 14.7% to 19.1% depending on the productivity of the farmland. Statewide cash rents increases ranged from 9.4% to 10.9%.

For the state as a whole, the largest change from 2012 to 2013 was top land, increasing 19.1% to $9,177 per acre. Average quality cropland increased 17.1% to a value of $7,446 per acre. Poor quality land increased 14.7 % to a value of $5,750 per acre (Table 1).

To assess farmland productivity, survey respondents estimated long-term corn yields for poor, average, and top quality land. For the state, the average long-term corn yields for poor, average, and top quality land were 127, 160, and 193 bushels per acre, respectively.

The transitional land market, that is farmland moving out of agriculture, seems to have sprung back to life. The survey indicated a 24.4% increase in its average value, increasing from $8,505 to $10,581 per acre. This is a specialized market with transitional land value strongly influenced by the planned use and location. The estimated values from June 2013 respondents had a very wide range from $2,500 to $45,000 per acre. Because of the wide variation in transitional land values, the median value[2] may give a more meaningful picture than the arithmetic average. The median value of transitional land in June 2013 was $9,500 per acre, $1,500 per acre more than in 2012.

[1] The individuals surveyed include rural appraisers, agricultural loan officers, FSA personnel, farm managers, and farmers. The results of the survey provide information about the general level and trend in farmland values.

[2] The median is the middle observation in data arranged in ascending or descending numerical order.

In This Issue

Table 2. Average estimated Indiana cash rent per acre, (tillable, bare land) 2012 and 2013, Purdue Land Value Survey, June 2013

			Rent/Acre		Change	Rent/bu. of Corn		Rent as % of June Land Value	
Area	Land Class	Corn bu/A	2012 $/A	2013 $/A	'12-'13 %	2012 $/bu.	2013 $/bu.	2012 %	2013 %
North	Top	202	277	310	11.9%	1.37	1.53	3.5	3.3
	Average	163	211	228	8.1%	1.29	1.40	3.3	3.1
	Poor	126	154	165	7.1%	1.23	1.31	3.2	3.0
Northeast	Top	184	238	259	8.8%	1.29	1.41	3.3	2.9
	Average	151	187	204	9.1%	1.24	1.35	3.0	2.9
	Poor	122	143	154	7.7%	1.17	1.26	2.9	2.7
W. Central	Top	202	314	350	11.5%	1.55	1.73	3.5	3.2
	Average	171	253	282	11.5%	1.48	1.65	3.4	3.1
	Poor	141	195	222	13.8%	1.39	1.57	3.2	3.1
Central	Top	194	271	294	8.5%	1.40	1.52	3.4	3.1
	Average	162	214	238	11.2%	1.30	1.47	3.2	2.9
	Poor	134	171	188	9.9%	1.27	1.40	3.2	2.9
Southwest	Top	192	254	294	15.7%	1.32	1.53	3.2	3.2
	Average	153	195	216	10.8%	1.27	1.41	3.2	3.0
	Poor	116	142	155	9.2%	1.21	1.34	3.2	3.2
Southeast	Top	175	186	199	7.0%	1.06	1.14	4.2	4.1
	Average	144	141	152	7.8%	0.97	1.06	3.7	3.9
	Poor	108	106	110	3.8%	0.97	1.02	3.4	3.6
Indiana	Top	193	265	294	10.9%	1.37	1.52	3.4	3.2
	Average	160	208	229	10.1%	1.30	1.43	3.3	3.1
	Poor	127	159	174	9.4%	1.12	1.37	3.2	3.0

developed from several responses about perceived value and cash rent. In some cases, responses are closely clustered around the average and the range of survey responses will be narrow. In other cases, the responses are widely dispersed. It is possible to have the same or nearly the same average with either type of dispersion. Figure 2 illustrates these properties for farmland values in the 2013 survey results. The top of the dark line is the average plus one standard deviation. The bottom of the dark line indicates the average minus one standard deviation. If farmland values are normally distributed, 66% of the values fall between the bottom and top value of the line.

Figure 3 illustrates the same information for cash rents. In both the case of farmland value and cash rent, the survey provides a general guide to value or rent but does not indicate a farmland value or cash rent for a specific farm. There is wide dispersion which means there are wide differences of opinion on values. Arriving at a land value or amount of cash rent for a specific farm requires additional research or assistance from a professional.

Rural Home Sites

Respondents were asked to estimate the value of rural home sites located on a blacktop or well-maintained gravel road with no accessible gas line or city utilities. These properties have a very wide range in value. Because of this wide range, median values (the value at the midpoint of the range) are used

P.A.E.R
PURDUE AGRICULTURAL ECONOMICS REPORT
YOUR SOURCE FOR IN-DEPTH AGRICULTURAL NEWS STRAIGHT FROM THE EXPERTS.
AUGUST 2015

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THE BEARS CONTROL THE 2015 INDIANA FARMLAND MARKET

Craig L. Dobbins, Professor and Kim Cook, Research Associate

Last year at this time there were signals that the boom propelling crop agriculture upward for ten years was running out of gas. Since then, the continued low grain prices have begun to influence things other than net farm income. Purchases of machinery, buildings, farmland, and other capital items have declined. There has also been a steady flow of reports about declining farmland values in the Midwest. This year's Purdue Farmland Value Survey will be another such report.

This survey has been conducted in June for more than 40 years. Farmland market professionals are surveyed to track changes in Indiana's farmland market[1].

Farmland Values

For the state as a whole, all qualities of farmland declined. Top, average, and poor quality farmland declined by 5.1%, 3.8%, and 4.8%, respectively (Table 1). Top, average, and poor farm land quality had a per acre value of $9,266, $7,672, and $5,863, respectively. This is the first time since 2009 that all three farmland quality classes declined. In 2009, there were small declines of 0.2%, 1.2%, and 1.7% for top, average, and poor quality land, respectively.

The state average corn yield for each farmland quality was up again this year. Top, average and poor farmland had expected yields of 200, 169, and

[1] The individuals surveyed include rural appraisers, agricultural loan officers, FSA personnel, farm managers, and farmers. The results of the survey provide information about the general level and trend in farmland values.

farmland declined by 8.8% for the state. Since last year's survey indicated a 22.6% increase in average value, this year's decline is more likely a downward correction than a change in the direction of an upward trend. State-wide there was almost no change in the value of recreational land (Table 1).

These two markets are highly specialized. Values are strongly influenced by the planned use, tract size and location. Values in these markets have a very wide range. In June 2015, transitional land reports ranged from $2,800 to $35,000 per acre. Recreational land reports ranged from $1,500 to $10,500.

Table 2. Average estimated Indiana cash rent per acre, (tillable, bare land) 2014 and 2015, Purdue Land Value Survey, June 2015

			Rent/Acre		Change	Rent/bu. of Corn		Rent as % of June Land Value	
Area	Land Class	Corn bu/A	2014 $/A	2015 $/A	'14-'15 %	2014 $/bu.	2015 $/bu.	2014 %	2015 %
North	Top	202	297	284	-4.4%	1.47	1.41	3.1	3.0
	Average	168	228	227	-0.4%	1.36	1.35	3.0	3.0
	Poor	136	166	167	0.6%	1.22	1.23	3.0	3.0
Northeast	Top	191	261	262	0.4%	1.37	1.37	2.9	2.9
	Average	161	205	203	-1.0%	1.27	1.26	2.7	2.7
	Poor	130	159	156	-1.9%	1.22	1.20	2.6	2.5
W. Central	Top	213	352	334	-5.1%	1.65	1.57	3.4	3.2
	Average	182	291	281	-3.4%	1.60	1.54	3.3	3.2
	Poor	156	233	224	-3.9%	1.49	1.44	3.4	3.2
Central	Top	202	305	296	-3.0%	1.52	1.47	3.2	3.1
	Average	173	248	241	-2.8%	1.43	1.39	3.0	2.9
	Poor	144	197	188	-4.6%	1.38	1.31	3.0	2.9
Southwest	Top	204	277	278	0.4%	1.36	1.36	2.7	2.7
	Average	167	204	216	5.9%	1.22	1.29	2.7	2.9
	Poor	124	143	149	4.2%	1.15	1.20	2.9	3.0
Southeast	Top	184	186	202	8.6%	1.01	1.10	3.6	4.0
	Average	150	141	152	7.8%	0.95	1.01	3.2	3.5
	Poor	114	98	118	20.4%	0.86	1.04	2.8	3.4
Indiana	Top	200	292	285	-2.4%	1.46	1.43	3.1	3.1
	Average	169	232	229	-1.3%	1.37	1.36	3.0	3.0
	Poor	137	179	175	-2.2%	1.31	1.28	3.0	3.0

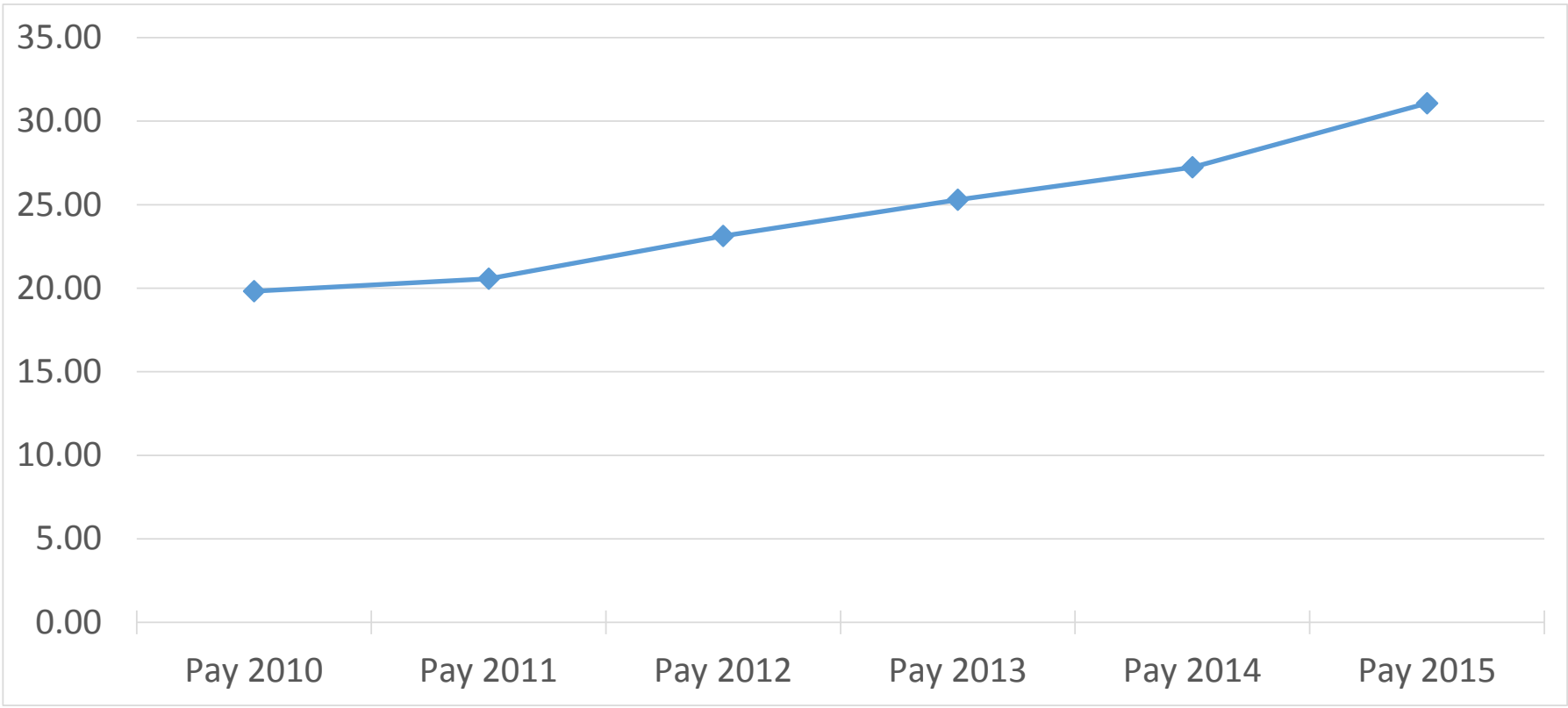
[1] The cash rent reported in this summary represents averages over several different locations and soil types. Determining an appropriate cash rent for a specific property requires more information than is contained in this report. You may also want to obtain advice from a professional that manages agricultural properties.

Because of the wide range of values in these markets, the median value[2] may give a more meaningful picture than the arithmetic average. On a state-wide basis, the median value of transitional land in June 2015 was $10,000 per acre, the same value as reported in 2014. The median value for rural recreational land in June 2015 was $3,500 per acre, $375 less than in 2014.

Respondents were asked to estimate the value of rural home sites located on a blacktop or well-maintained gravel road with no accessible gas line or city utilities. Like transitional farmland and recreational farmland these properties have a very wide range in value. Because of this wide range, median values are reported. The median value for five-acre home sites ranged from $8,000 per acre in the Southeast region to $11,000 per acre in the West Central and Central region (Table 3). Reported per acre median values of the larger tracts (10 acres) ranged from $8,250 per acre in the Southeast region to $11,000 per acre in the West Central, region. For 2015, the home site data indicate that the change in values was mixed.

[2] The median is the middle observation in data arranged in ascending or descending numerical order.

Average Net Tax Bill/Acre of Farmland



January 1, 2016
Average Net Tax Bill/Acre of Farmland

Pay 2010	**19.82**
Pay 2011	**20.56**
Pay 2012	**23.12**
Pay 2013	**25.30**
Pay 2014	**27.24**
Pay 2015	**31.07**

Indiana		Real Estate Loans	Operating Loans	Avg.	Source:
2010	Jan.	6.04	6.13		P-28
	April	5.99	6.12		P-28
	July	5.81	6.05		P-28
	Oct.	5.70	5.85		P-28
	Average	5.89	6.04	5.97	
2011	Jan.	5.80	6.01		P-28
	April	5.62	5.75		P-28
	July	5.36	5.66		P-28
	Oct.	5.20	5.47		P-28
	Average	5.50	5.72	5.61	
2012	Jan.	5.08	5.34		P-30
	April	4.94	5.27		P-30
	July	4.86	5.21		P-30
	Oct.	4.70	5.03		P-30
	Average	4.90	5.21	5.06	
2013	Jan.	4.60	4.91		P-30
	April	4.65	4.94		P-30
	July	4.68	4.94		P-30
	Oct.	4.94	4.99		P-30
	Average	4.72	4.95	4.84	
2014	Jan.	4.66	4.93		P-32
	April	4.67	4.86		P-32
	July	4.62	4.89		P-32
	Oct.	4.61	4.87		P-32
	Average	4.64	4.89	4.77	
2015	Jan.	4.57	4.80		P-32
	April	4.64	4.81		P-32
	July	4.58	4.82		P-32
	Oct.	4.67	4.96		P-32
	Average	4.62	4.85	4.74	

The Agricultural Newsletter
from the Federal Reserve Bank of Chicago
Number 1955 *February 2012*

AgLetter

FARMLAND VALUES AND CREDIT CONDITIONS

Summary
Farmland values for 2011 escalated 22 percent in the Seventh Federal Reserve District—the biggest annual increase since 1976. Compared with the third quarter of 2011, the value of "good" agricultural land rose 4 percent in the fourth quarter, based on 205 surveys of agricultural banks in the District. Although these increases in farmland values were smaller than the increases of the prior quarter, still over 40 percent of those surveyed expected continued farmland value gains during the January through March period of 2012.

Agricultural credit conditions were stronger in the fourth quarter of 2011 than in the preceding fourth quarter, although non-real-estate loan demand was weaker. Funds availability, farm loan repayment rates, and rates of loan renewals and extensions were in better shape for the October through December period of 2011 than in 2010. Agricultural interest rates inched down again, setting new lows for the District. At 68.7 percent, the District's average loan-to-deposit ratio reached its lowest level since 1997.

Farmland values

With an annual increase of 22 percent in the value of "good" farmland for 2011, the District not only experienced dramatic land auctions but also saw the biggest boom of the past 35 years (see chart 1 on the next page). Since enhanced gains in agricultural land values had already begun a year ago, the 22 percent annual increase was not quite as high as the past quarter's 25 percent year-over-year increase. After adjusting for inflation, the 2011 annual increase in farmland values (19 percent) was still the largest since 1976. The run-up in Iowa's and Indiana's agricultural land values outpaced that in the rest of the District (see table and map below). Farmland values rose 4 percent from the third quarter to the fourth quarter of 2011 in the District, cooling some from a blistering pace.

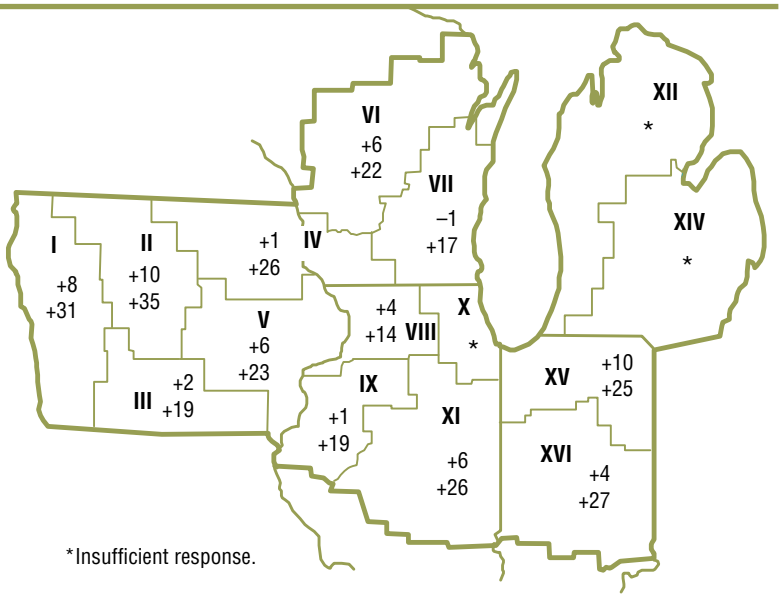
Just like the annual index of nominal farmland values, the index of inflation-adjusted farmland values set a record for the District (see chart 2). The compound annual growth rate for agricultural land values (adjusted for inflation) has been 5.5 percent since farmland values hit bottom in 1986. Going back further, the real compound annual growth rate for District farmland values has been 2.9 percent since 1970, encompassing the boom of the 1970s followed by the bust of the 1980s.

The year 2011 may go down in the annals of U.S. agriculture as a once-in-a-generation phenomenon. Undergirding the huge upward movement in farmland values was an unusual shift up in agricultural prices across the board. Not only did major crop prices move higher, but key livestock and dairy prices were higher as well. Corn, soybean, and wheat prices averaged 57 percent, 26 percent, and 45 percent, respectively, higher in 2011 than in 2010. Milk, hog, and beef cattle prices rose 23 percent, 21 percent,

Percent change in dollar value of "good" farmland

Top: October 1, 2011 to January 1, 2012
Bottom: January 1, 2011 to January 1, 2012

	October 1, 2011 to January 1, 2012	January 1, 2011 to January 1, 2012
Illinois	+5	+21
Indiana	+6	+27
Iowa	+6	+28
Michigan	*	*
Wisconsin	+3	+18
Seventh District	+4	+22



*Insufficient response.

Credit conditions at Seventh District agricultural banks

	Loan demand	Funds availability	Loan repayment rates	Average loan-to-deposit ratio	Interest rates on farm loans: Operating loans[a]	Interest rates on farm loans: Feeder cattle[a]	Interest rates on farm loans: Real estate[a]
	(index)[b]	*(index)*[b]	*(index)*[b]	*(percent)*	*(percent)*	*(percent)*	*(percent)*
2009							
Jan–Mar	116	112	105	76.2	6.20	6.31	6.14
Apr–June	88	118	93	77.3	6.18	6.36	6.16
July–Sept	95	121	89	75.3	6.17	6.35	6.13
Oct–Dec	102	125	92	75.4	6.23	6.40	6.13
2010							
Jan–Mar	109	127	79	73.7	6.13	6.25	6.04
Apr–June	98	122	85	74.5	6.12	6.25	5.99
July–Sept	90	138	114	73.2	6.05	6.14	5.81
Oct–Dec	101	142	142	71.8	5.85	6.02	5.70
2011							
Jan–Mar	81	149	146	69.8	6.01	5.93	5.80
Apr–June	79	145	133	70.3	5.75	5.91	5.62
July–Sept	81	149	133	69.0	5.66	5.79	5.36
Oct–Dec	87	153	150	68.7	5.47	5.65	5.20

[a]At end of period.
[b]Bankers responded to each item by indicating whether conditions during the current quarter were higher, lower, or the same as in the year-earlier period. The index numbers are computed by subtracting the percentage of bankers that responded "lower" from the percentage that responded "higher" and adding 100.
Note: Historical data on Seventh District agricultural credit conditions are available for download from the *AgLetter* webpage, www.chicagofed.org/webpages/publications/agletter/index.cfm.

With 8 percent of reporting banks requiring larger amounts of collateral during the October through December period of 2011 and 0.5 percent requiring less, it was still slightly harder to qualify for farm loans than a year ago. Moreover, 24 percent of the banks tightened credit standards for farm loans in the fourth quarter of 2011 relative to the fourth quarter of 2010 (just 2 percent eased credit standards). Even so, respondents thought that fewer than 1 percent of their farm customers with operating credit in 2011 would not qualify for new operating credit in 2012, which was about half the level reported a year ago.

Looking forward

Volumes for agricultural loans were anticipated by respondents to grow in the first quarter of 2012, relatively more for real estate than non-real-estate farm loans. For the January through March period, responding bankers expected expanded volumes of operating, farm machinery, and grain storage construction loans in 2012 relative to 2011, but contractions in loan volumes guaranteed by the Farm Service Agency and for farms with cattle.

Farmers' capital expenditures in 2012 were anticipated by respondents to rise above those of 2011. While 51 percent of the responding bankers forecasted higher levels of land purchases or improvements in 2012, only 3 percent forecasted lower levels than in 2011. Capital expenditures on buildings and facilities were expected to increase by 55 percent of the respondents and to decrease by 9 percent. For sales of machinery and equipment, 68 percent of responding bankers predicted more spending by farmers, while 4 percent predicted less spending in 2012. Similarly, truck and auto sales for farms were anticipated to be higher according to 57 percent of the respondents, with just 2 percent anticipating lower sales of trucks and autos for farms in 2012.

The optimism implicit in these predictions for increased capital expenditures by farmers in 2012 suggested that agriculture could experience another phenomenal year. However, the USDA predicted net farm income to fall to $91.7 billion in 2012—a decline of 8.2 percent from 2011. Even with this drop off, the five-year average of net farm income, after accounting for inflation, would be the highest since 1977, during the previous surge in farmland values. This kind of momentum may carry the current upward trend in farmland values into 2012. With 43 percent of the responding bankers expecting agricultural land values to increase from January through March of 2012 and only 2 percent expecting a decrease, the survey responses provided support for the notion that farmland values will continue to rise in early 2012.

David B. Oppedahl, *business economist*

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The Agricultural Newsletter
from the Federal Reserve Bank of Chicago
Number 1963 *February 2014*

AgLetter

FARMLAND VALUES AND CREDIT CONDITIONS

Summary
In 2013, the Seventh Federal Reserve District had an annual increase of 5 percent in "good" farmland values, yet growth in farmland values appeared to be slowing. Some areas in the District even saw declines in farmland values, as corn and soybean prices tumbled from a year ago. According to survey respondents from 186 agricultural banks across the District, agricultural land values rose 3 percent from the third quarter to the fourth quarter of 2013. A majority of respondents anticipated farmland values to remain stable during the January through March period of 2014, but the rest of the respondents' expectations tilted toward decreases in farmland values during this period.

Agricultural credit conditions weakened in the fourth quarter of 2013 compared with the fourth quarter of 2012. Repayment rates on non-real-estate farm loans were lower in the October through December period of 2013 versus the same period of 2012, and rates of loan renewals and extensions were higher. In the fourth quarter of 2013, non-real-estate loan demand picked up from a year ago—which last occurred in the fourth quarter of 2010, as farmers had relatively more working capital during the intervening quarters. Funds available for lending remained above the level of a year ago. At 67.3 percent, the average loan-to-deposit ratio for reporting banks was just above the level of a year ago. Agricultural interest rates continued to inch up in the fourth quarter of 2013.

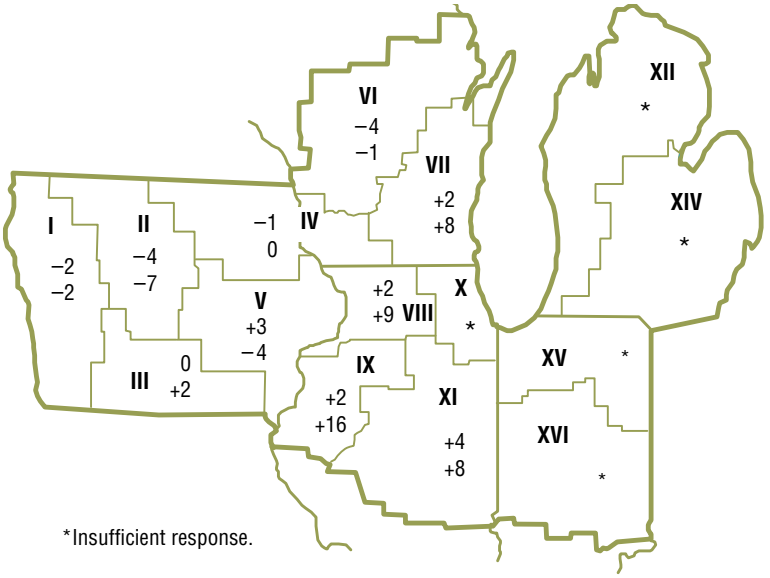
Farmland values
The District's annual increase of 5 percent in "good" farmland values for 2013 was the smallest gain since 2009 and the second-lowest gain of the past decade (see chart 1 on next page). Moreover, the 5 percent year-over-year increase in farmland values in the fourth quarter of 2013 was the smallest for the District since the first quarter of 2010. The index of inflation-adjusted agricultural land values set a new high-water mark for the District, not quite doubling its 1979 peak from the 1970s boom (see chart 2 on next page). In the fourth quarter of 2013, Illinois, Indiana, and Michigan experienced year-over-year gains in agricultural land values exceeding that for the District; in contrast, Wisconsin had a year-over-year increase that was smaller than the District's, and Iowa actually saw lower values for agricultural land than a year earlier (see table and map below).

Overall, the District's crop production bounced back strongly from the 2012 drought, but drought returned to the Midwest in 2013, hitting Iowa the hardest among District states. According to U.S. Department of Agriculture (USDA) data, the District's corn yield surged 42 percent in 2013 from 2012—to 169 bushels per acre (its third-highest level on record). Also, the District's soybean yield moved up 7.5 percent in 2013 from 2012—to 46.9 bushels per acre.

Percent change in dollar value of "good" farmland

Top: October 1, 2013 to January 1, 2014
Bottom: January 1, 2013 to January 1, 2014

	October 1, 2013 to January 1, 2014	January 1, 2013 to January 1, 2014
Illinois	+3	+10
Indiana	+6	+14
Iowa	−1	−2
Michigan	*	+6
Wisconsin	−1	+2
Seventh District	+3	+5



*Insufficient response.

Credit conditions at Seventh District agricultural banks

	Loan demand	Funds availability	Loan repayment rates	Average loan-to-deposit ratio	Interest rates on farm loans: Operating loans[a]	Interest rates on farm loans: Feeder cattle[a]	Interest rates on farm loans: Real estate[a]
	(index)[b]	*(index)*[b]	*(index)*[b]	*(percent)*	*(percent)*	*(percent)*	*(percent)*
2012							
Jan–Mar	72	163	154	66.5	5.34	5.54	5.08
Apr–June	69	164	139	68.1	5.27	5.41	4.94
July–Sept	81	147	128	67.5	5.21	5.37	4.86
Oct–Dec	96	151	135	67.2	5.03	5.24	4.70
2013							
Jan–Mar	67	161	143	63.7	4.91	5.12	4.60
Apr–June	87	142	129	64.6	4.94	5.16	4.65
July–Sept	91	128	115	66.9	4.94	5.14	4.68
Oct–Dec	120	121	91	67.3	4.99	5.10	4.94

[a]At end of period.
[b]Bankers responded to each item by indicating whether conditions during the current quarter were higher, lower, or the same as in the year-earlier period. The index numbers are computed by subtracting the percentage of bankers who responded "lower" from the percentage who responded "higher" and adding 100.
Note: Historical data on Seventh District agricultural credit conditions are available for download from the *AgLetter* webpage, www.chicagofed.org/webpages/publications/agletter/index.cfm.

quarter of 2007. The index of funds availability was down to 121, as 25 percent of the responding bankers indicated that their banks had more funds available than a year ago and 4 percent indicated their banks had fewer. This was the lowest reading of the index of funds availability since the third quarter of 2009. Additionally, at 67.3 percent, the average loan-to-deposit ratio for reporting banks edged up from the level of a year ago, but stood at about 10 percent below the average level desired by survey respondents.

Twenty-seven percent of the reporting banks tightened their credit standards for agricultural loans in the fourth quarter of 2013 relative to the fourth quarter of 2012, and just 1 percent eased their credit standards; thus, credit availability was somewhat more restricted than a year earlier. Moreover, 6 percent of reporting banks required larger amounts of collateral to qualify for non-real-estate farm loans during the October through December period of 2013 relative to the same period of a year earlier, and 1 percent required smaller amounts.

As of January 1, 2014, the average interest rate for farm operating loans edged up to 4.99 percent. Similarly, the average interest rate for agricultural real estate loans rose to 4.94 percent. The farm operating loan interest rate was still below its level of a year ago, whereas the farm real estate interest rate had matched its level of the second quarter of 2012.

Looking forward

According to survey respondents, over 1 percent of their farm customers with operating credit in 2013 were not likely to qualify for new operating credit in 2014. In Wisconsin, over 3 percent were unlikely to qualify again. Survey respondents anticipated non-real-estate agricultural loan volumes (in particular, the volume of operating loans but also those of feeder cattle loans and loans guaranteed by the Farm Service Agency) to be higher in the first quarter of 2014 than in the same quarter of 2013. In contrast, responding bankers expected grain storage and farm machinery loan volumes, as well as the volume of farm real estate loans, to be lower in the January through March period of 2014 than in the same period of a year ago.

In a major reversal from a year ago, farmers' capital expenditures—specifically, expenditures on land or improvements, buildings and facilities, machinery and equipment, and trucks and autos—were expected by survey respondents to be lower in the year ahead. Over half of the responding bankers forecasted lower levels of capital purchases in each of these categories in 2014 than in 2013, and less than 10 percent forecasted higher levels. Fifty-six percent of the responding bankers anticipated farmland values to be stable from January through March of 2014; 41 percent anticipated them to be lower; and just 3 percent anticipated them to be higher. Combined with expectations of diminished farmland purchases by farmers in 2014, these survey responses cast a pall over the spectacular growth in agricultural land values of the past few years.

David B. Oppedahl, *senior business economist*

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The Agricultural Newsletter
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AgLetter

FARMLAND VALUES AND CREDIT CONDITIONS

Summary
Farmland values in the Seventh Federal Reserve District experienced an annual decrease of 3 percent for 2015, matching the yearly decline for 2014. Furthermore, "good" farmland values in the fourth quarter of 2015 were down 1 percent from the third quarter, according to 199 survey respondents representing agricultural banks across the District. Nearly 60 percent of the survey respondents anticipated agricultural land values to decrease during the January through March period of 2016, while none expected agricultural land values to increase in the areas surrounding their respective banks.

In the fourth quarter of 2015, agricultural credit conditions regressed once again. Repayment rates on non-real-estate farm loans were much lower in the October through December period of 2015 versus the same period of 2014, and higher rates of loan renewals and extensions reflected a tightened credit environment. Moreover, for 2016, almost 2 percent of farm loan customers were not expected to qualify for additional operating credit at the banks of the survey respondents. Given that non-real-estate loan demand was well above the level of a year ago and funds available for lending were just above the level of a year earlier, the average loan-to-deposit ratio for the District (72.9 percent) reached its highest level since the third quarter of 2010. Average interest rates on agricultural loans moved up toward the end of 2015.

Farmland values

The District saw an annual decrease of 3 percent in "good" farmland values for 2015, equaling its yearly decrease for 2014 and marking the first consecutive annual decline since the 1980s (see chart 1 on next page). In addition, the final quarter of 2015 was the sixth straight quarter without the District as a whole seeing a year-over-year increase in agricultural land values. In the fourth quarter of 2015, Illinois, Indiana, Iowa, and Michigan experienced year-over-year declines in agricultural land values, whereas Wisconsin experienced a small rise (see table and map below). The District's farmland values decreased 1 percent in the fourth quarter of 2015 relative to the third quarter.

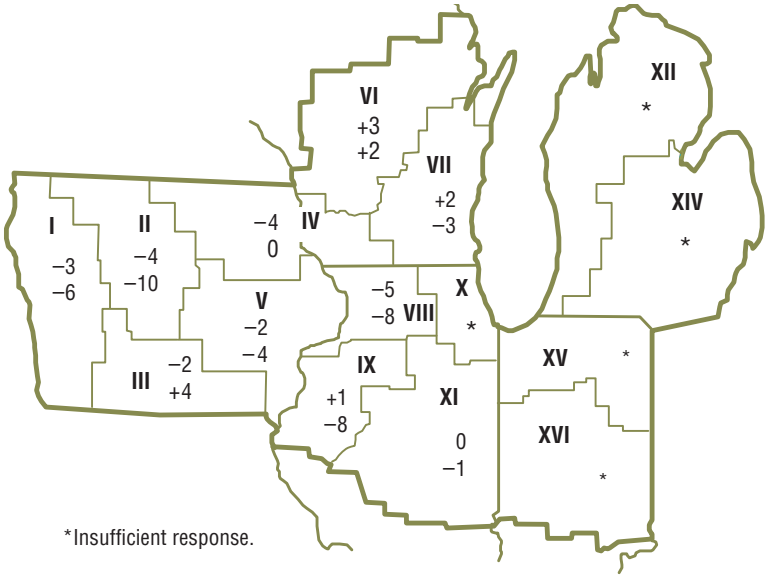
When adjusted for inflation, the District's decrease in farmland values for 2015 was actually smaller than the one for 2014 (because the inflation rate was lower in 2015). Put in real terms, the decrease in the District's farmland values from their peak in 2013 to 2015 was 7.5 percent (see chart 2 on next page). However, in 2015 the index of inflation-adjusted farmland values for the District was still 331 percent higher than at its trough in 1986.

Although agricultural land values fell again in 2015, the five District states' corn harvest was the third largest ever and their soybean harvest was the largest ever (surpassing the previous record level, set in 2014). According to U.S. Department of Agriculture (USDA) data, 2015 production

Percent change in dollar value of "good" farmland

Top: October 1, 2015 to January 1, 2016
Bottom: January 1, 2015 to January 1, 2016

	October 1, 2015 to January 1, 2016	January 1, 2015 to January 1, 2016
Illinois	−1	−4
Indiana	−2	−4
Iowa	−3	−5
Michigan	+1	−2
Wisconsin	+2	+2
Seventh District	−1	−3



*Insufficient response.

Credit conditions at Seventh District agricultural banks

	Loan demand	Funds availability	Loan repayment rates	Average loan-to-deposit ratio	Interest rates on farm loans: Operating loans[a]	Interest rates on farm loans: Feeder cattle[a]	Interest rates on farm loans: Real estate[a]
	(index)[b]	*(index)*[b]	*(index)*[b]	*(percent)*	*(percent)*	*(percent)*	*(percent)*
2014							
Jan–Mar	114	128	96	67.0	4.93	5.07	4.66
Apr–June	110	123	93	67.3	4.86	4.98	4.67
July–Sept	123	106	85	69.5	4.89	5.01	4.62
Oct–Dec	137	109	69	70.6	4.87	5.03	4.61
2015							
Jan–Mar	141	105	57	69.0	4.80	4.95	4.57
Apr–June	140	102	64	72.1	4.81	4.97	4.64
July–Sept	125	105	60	72.3	4.82	4.96	4.58
Oct–Dec	134	104	43	72.9	4.96	5.07	4.67

[a]At end of period.
[b]Bankers responded to each item by indicating whether conditions in the current quarter were higher or lower than (or the same as) in the year-earlier quarter. The index numbers are computed by subtracting the percentage of bankers who responded "lower" from the percentage who responded "higher" and adding 100.
Note: Historical data on Seventh District agricultural credit conditions are available for download from the *AgLetter* webpage, https://www.chicagofed.org/publications/agletter/index.

observing an increase in the demand for non-real-estate loans and 16 percent observing a decrease, the index of loan demand was 134 in the fourth quarter of 2015—the ninth quarter in a row above 100. Funds availability during the fourth quarter of 2015 was above the level of a year ago, as it has been in every period since the third quarter of 2006. The index of funds availability edged down to 104, with funds availability higher at 9 percent of the survey respondents' banks and lower at 5 percent of them. The District's average loan-to-deposit ratio rose to 72.9 percent—8.1 percentage points below the average level desired by the responding bankers.

Tighter credit standards compared with a year ago reinforced a pattern of agricultural credit deterioration. Forty-three percent of the survey respondents noted their banks had tightened credit standards for agricultural loans in the fourth quarter of 2015 relative to the fourth quarter of 2014, 57 percent noted their banks had left credit standards essentially unchanged, and none noted their banks had eased credit standards. Credit tightening was evident from the survey responses: 20 percent of responding bankers reported that their banks required larger amounts of collateral for customers to qualify for non-real-estate farm loans during the October through December period of 2015 relative to the same period of a year ago, and none required smaller amounts. Finally, as of January 1, 2016, the average interest rates for farm operating loans (4.96 percent), feeder cattle loans (5.07 percent), and agricultural real estate loans (4.67 percent) had all moved up from their all-time lows (established early in 2015).

Looking forward

Given reports of subpar cash flows and too much spending by farm operations, survey respondents projected 1.9 percent of their farm customers with operating credit in 2015 were not likely to qualify for new operating credit in 2016 (half of a percentage point above the level reported a year ago). Responding bankers expected volumes for non-real-estate agricultural loans (in particular, those for operating loans and loans guaranteed by the Farm Service Agency) to be higher during the January through March period of 2016 relative to the same period of 2015. Volumes for grain storage loans, farm machinery loans, feeder cattle loans, dairy loans, and farm real estate loans were forecasted to be down in the first quarter of 2016 relative to the same quarter of a year earlier.

There was a strong sentiment among survey respondents that the downward trend for capital spending on farmland or land improvements, buildings and facilities, machinery and equipment, and trucks and autos would continue into 2016. Moreover, 59 percent of the responding bankers anticipated farmland values to decline further in the first quarter of 2016, and none anticipated them to rise. So, no improvements in the short-term prospects of the farm sector were anticipated by the survey respondents; they noted that controlling costs and utilizing risk-management tools would be critical to the health of farms in the coming year.

David B. Oppedahl, *senior business economist*

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Income Approach: November, Annual Average, & Marketing Year Average Prices **January 1, 2016**

Line #		A	B	C	D	E	F	G	H	I	J	K	L	
		2010		2011		2012		2013		2014		2015		Source or Formula:
		Corn	Beans	Corn	Beans	Corn	Beans	Corn	Beans	Corn	Beans	Corn	Beans	
1	Yield	157	48.5	146	45.5	99	44	177	51.5	188	55.5	150	50	Nat'l Agricultural Stats Service
2	Price - November	4.82	11.50	5.94	11.80	7.43	14.60	4.17	12.70	3.50	10.20	3.99	8.77	Nat'l Agricultural Stats Service
3	Price - Annual Avg.	3.98	10.32	6.24	12.81	6.96	14.23	6.22	14.36	4.19	12.74	3.88	9.70	DLGF Calculation
4	Price - Market Avg.	3.66	9.80	5.38	11.50	6.31	12.70	7.23	14.70	4.47	13.20	3.60	10.20	Nat'l Agricultural Stats Service
5	GI - November	756.74	557.75	867.24	536.90	735.57	642.40	738.09	654.05	658.00	566.10	598.50	438.50	Line 1 times Line 2
6	GI - Annual Avg.	624.86	500.52	911.04	582.86	689.04	626.12	1,100.94	739.54	787.72	707.07	582.00	485.00	Line 1 times Line 3
7	GI - Market Avg.	574.62	475.30	785.48	523.25	624.69	558.80	1,279.71	757.05	840.36	732.60	540.00	510.00	Line 1 times Line 4
8	AA v Nov	(131.88)	(57.23)	43.80	45.96	(46.53)	(16.28)	362.85	85.49	129.72	140.97	(16.50)	46.50	Line 6 minus Line 5
9	MA v Nov	(182.12)	(82.45)	(81.76)	(13.65)	(110.88)	(83.60)	541.62	103.00	182.36	166.50	(58.50)	71.50	Line 7 minus Line 5
10	NRTL - November	249		255		160		159		67		(46)		DLGF Calculation
11	NRTL - Annual Avg.	154		300		129		383		202		(31)		Line 10 + or - Avg. Line 8
12	NRTL - Market Avg.	117		207		63		481		241		(40)		Line 10 + or - Avg. Line 9
13	NRTL Average	173		254		117		341		170		(39)		Average Lines 10, 11, & 12
14	FRBC RE Rate	0.0589		0.0550		0.0490		0.0472		0.0464		0.0462		Fed. Res. Bank of Chicago
15	FRBC OP Rate	0.0604		0.0572		0.0521		0.0495		0.0489		0.0485		Fed. Res. Bank of Chicago
16	Avg. FRBC Rate	0.0597		0.0561		0.0506		0.0484		0.0477		0.0474		Average Lines 14 & 15
17	Operating Market Value in Use	2,898		4,528		2,312		7,045		3,564		(823)		Line 13/Line 16

NRTL = Net Return To Land
FRBC = Federal Reserve Bank of Chicago

Sources: (page references within this packet)

		2010	2011	2012	2013	2014	2015
1	Yield	P-35	P-35	P-35	P-35	P-35	P-35
2	Price - November	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39
3	Price - Annual Avg.	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39
4	Price - Market Avg.	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39
10	NRTL - November	P-34	P-34	P-34	P-34	P-34	P-34
14	FRBC RE Rate	P-26 & 28	P-26 & 28	P-26 & 30	P-26 & 30	P-26 & 32	P-26 & 32
15	FRBC OP Rate	P-26 & 28	P-26 & 28	P-26 & 30	P-26 & 30	P-26 & 32	P-26 & 32
16	Avg. FRBC Rate	P-26 & 28	P-26 & 28	P-26 & 30	P-26 & 30	P-26 & 32	P-26 & 32

	Doster/Huie - Table 1	A	B	C	D	E	F	G	H	I	J	K	L	Source of
	Updated - April, 2016	2010		2011		2012		2013		2014		2015		Information
Line #		Corn	Beans	Corn	Beans	Corn	Beans	Corn	Beans	Corn	Beans	Corn	Beans	
1	Yield per Acre	157	48.5	146	45.5	99	44	177	51.5	188	55.5	150	50	Nat'l Agricultural Stats Service
2	Price per Bu. - Nov.	4.82	11.50	5.94	11.80	7.43	14.60	4.17	12.70	3.50	10.20	3.99	8.77	Nat'l Agricultural Stats Service
3	Sales	757	558	867	537	736	642	738	654	658	566	599	439	Line 1 times Line 2
4	Less Variable Costs	342	183	397	200	461	243	462	239	432	227	446	222	Purdue Crop Guide
5	Contribution Margin	415	375	470	337	275	399	276	415	226	339	153	217	Line 3 minus Line 4
6	Plus Government Pymt.	29		24		25		26		8		23		USDA Economic Research Service
7	Total Contribution Margin	410		416		350		359		287		197		(Lines 5 + 6)/2
	Less Overhead:													
8	Annual Machinery	77		76		102		111		115		119		Purdue Crop Guide
9	Drying/Handling	12		12										Purdue Crop Guide
10	Family/Hired Labor	52		52		65		64		78		93		Purdue Crop Guide
11	Real Estate Tax	20		21		23		25		27		31		DLGF Study
12	Net Return to Land - Nov.	249		255		160		159		67		(46)		Line 7 minus Lines 8, 9, 10 and 11

Sources: (page references within this packet)

		2010	2011	2012	2013	2014	2015
1	Yield per Acre	P-35	P-35	P-35	P-35	P-35	P-35
2	Price per Bu. - Nov.	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39	P-38 & P-39
4	Less Variable Costs	P-43	P-46	P-49	P-52	P-55	P-58
6	Plus Government Pymt.	P-61	P-61	P-61	P-61	P-61	P-61
8	Annual Machinery	P-45	P-48	P-51	P-54	P-57	P-60
9	Drying/Handling	P-45	P-48				
10	Family/Hired Labor	P-45	P-48	P-51	P-54	P-57	P-60
11	Real Estate Tax	P-25	P-25	P-25	P-25	P-25	P-25

Foundation for Calculation: Doster/Huie Publication titled "A Method for Assessing Indiana Cropland - An Income Approach to Value", dated June 24, 1999.
(See P-1- through P-14 with emphasis on Table 1 found on P-13.)

Indiana Corn Yields:

1985	123	
1986	122	
1987	135	
1988	83	
1989	133	
1990	129	
1991	92	
1992	147	
1993	132	
1994	144	
1995	113	
1996	123	
1997	122	
1998	137	
1999	132	
2000	146	
2001	156	
2002	121	
2003	146	
2004	168	
2005	154	
2006	157	
2007	154	
2008	160	
2009	171	
2010	157	P-36
2011	146	P-36
2012	99	P-36
2013	177	P-36
2014	188	P-36
2015	150	P-36

Indiana Soybean Yields:

1985	41.5	
1986	37	
1987	40	
1988	27.5	
1989	36.5	
1990	41	
1991	39	
1992	43	
1993	46	
1994	47	
1995	39.5	
1996	38	
1997	43.5	
1998	42	
1999	39	
2000	46	
2001	49	
2002	41.5	
2003	38	
2004	51.5	
2005	49	
2006	50	
2007	46	
2008	45	
2009	49	
2010	48.5	P-37
2011	45.5	P-37
2012	44	P-37
2013	51.5	P-37
2014	55.5	P-37
2015	50	P-37

Source: National Agricultural Statistics Service.

United States Department of Agriculture
National Agricultural Statistics Service

2007 CENSUS OF AGRICULTURE

Quick Stats

Program	Year	Period	Week Ending	Geo Level	State	State ANSI	Ag District	Ag District Code	County	County ANSI	Zip Code	Region	watershed_code	Watershed	Commodity	Data Item	Domain	Domain Category	Value	CV (%)
SURVEY	2015	YEAR		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	150	
SURVEY	2014	YEAR		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	188	
SURVEY	2013	YEAR		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	177	
SURVEY	2012	YEAR		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	99	
SURVEY	2011	YEAR		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	146	
SURVEY	2010	YEAR		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	157	

United States Department of Agriculture
National Agricultural Statistics Service

2007 CENSUS OF AGRICULTURE

Quick Stats

Program	Year	Period	Week Ending	Geo Level	State	State ANSI	Ag District	Ag District Code	County	County ANSI	Zip Code	Region	watershed_code	Watershed	Commodity	Data Item	Domain	Domain Category	Value	CV (%)
SURVEY	2015	YEAR		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	50	
SURVEY	2014	YEAR		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	55.5	
SURVEY	2013	YEAR		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	51.5	
SURVEY	2012	YEAR		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	44	
SURVEY	2011	YEAR		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	45.5	
SURVEY	2010	YEAR		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - YIELD, MEASURED IN BU / ACRE	TOTAL	NOT SPECIFIED	48.5	

Corn Prices
Source: National Agricultural Statistics Service

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Average (1)	Marketing Average	
1990	2.46	2.43	2.49	2.68	2.81	2.85	2.81	2.75	2.44	2.21	2.18	2.25	2.53	2.47	
1991	2.35	2.37	2.43	2.42	2.46	2.37	2.34	2.41	2.37	2.36	2.36	2.44	2.39	2.31	
1992	2.55	2.55	2.61	2.58	2.55	2.55	2.36	2.18	2.18	1.92	1.95	1.96	2.33	2.45	
1993	2.06	2.04	2.17	2.23	2.20	2.17	2.31	2.37	2.26	2.26	2.52	2.73	2.28	2.09	
1994	2.73	2.78	2.76	2.67	2.63	2.66	2.27	2.12	2.18	1.98	1.93	2.12	2.40	2.51	
1995	2.25	2.27	2.34	2.41	2.45	2.56	2.76	2.73	2.76	2.85	3.11	3.33	2.65	2.25	
1996	3.20	3.42	3.81	4.31	4.52	4.70	4.70	4.55	3.63	2.80	2.69	2.64	3.75	3.38	
1997	2.77	2.73	2.86	2.96	2.86	2.73	2.59	2.60	2.60	2.62	2.60	2.61	2.71	2.78	
1998	2.66	2.62	2.61	2.46	2.36	2.29	2.17	1.91	1.96	1.97	2.06	2.23	2.28	2.53	
1999	2.26	2.20	2.22	2.24	2.15	2.12	1.94	1.97	1.82	1.74	1.75	1.89	2.03	2.11	
2000	1.97	2.06	2.08	2.15	2.15	1.95	1.65	1.63	1.67	1.75	1.83	2.06	1.91	1.88	
2001	2.03	2.01	2.02	1.98	1.95	1.84	1.97	2.01	1.93	1.83	1.83	1.92	1.94	1.90	
2002	1.98	1.99	1.91	1.91	2.05	2.07	2.25	2.58	2.55	2.38	2.41	2.43	2.21	1.98	
2003	2.42	2.44	2.44	2.47	2.49	2.44	2.28	2.25	2.27	2.15	2.25	2.46	2.36	2.41	
2004	2.50	2.75	2.96	3.07	3.08	2.80	2.57	2.44	2.07	1.88	1.81	1.95	2.49	2.53	
2005	2.09	2.01	2.01	1.96	2.02	2.07	2.20	1.97	1.80	1.72	1.71	2.04	1.97	1.99	
2006	2.09	2.07	2.15	2.20	2.26	2.21	2.31	2.08	2.32	2.70	3.03	3.23	2.39	2.00	
2007	3.16	3.53	3.64	3.54	3.65	3.73	3.36	3.27	3.32	3.34	3.68	4.07	3.52	3.17	
2008	4.23	4.67	4.96	5.49	5.82	5.89	5.92	5.67	4.73	4.15	4.04	4.14	4.98	4.39	
2009	4.46	4.06	3.92	4.11	4.12	4.14	3.64	3.45	3.31	3.70	3.66	3.62	3.85	4.10	
2010	3.79	3.69	3.62	3.51	3.65	3.55	3.69	3.80	4.24	4.50	4.82	4.94	3.98	3.66	(2)
2011	4.95	5.78	5.80	6.71	6.62	6.82	7.04	7.18	6.14	5.89	5.94	6.02	6.24	5.38	(2)
2012	6.21	6.46	6.59	6.56	6.52	6.55	7.43	7.92	7.37	7.22	7.43	7.27	6.96	6.31	(2)
2013	7.26	7.38	7.48	7.12	7.16	7.15	6.71	6.38	5.11	4.34	4.17	4.37	6.22	7.23	(2)
2014	4.49	4.48	4.68	4.86	4.91	4.63	4.07	3.88	3.54	3.44	3.50	3.80	4.19	4.47	(2)
2015	3.86	3.93	3.94	3.84	3.74	3.67	4.03	3.90	3.85	3.87	3.99	3.88	3.88	3.60	(3)

(1) DLGF Calculation.
(2) Source: P-40
(3) Source: P-40 & P-41

Soybean Prices
Source: National Agricultural Statistics Service

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Average (1)	Marketing Average	
1990	5.95	5.75	5.77	5.98	6.14	6.08	6.16	6.13	6.08	5.91	5.77	5.74	5.96	5.79	
1991	5.76	5.78	5.76	5.82	5.74	5.57	5.40	5.66	5.76	5.52	5.52	5.51	5.65	5.81	
1992	5.60	5.69	5.81	5.75	5.96	6.05	5.69	5.52	5.44	5.25	5.37	5.52	5.64	5.68	
1993	5.66	5.65	5.77	5.87	5.94	6.03	6.82	6.84	6.17	5.97	6.42	6.75	6.16	5.61	
1994	6.67	6.76	6.82	6.70	6.89	6.74	6.19	5.70	5.49	5.33	5.34	5.54	6.18	6.31	
1995	5.54	5.50	5.66	5.68	5.70	5.86	6.10	5.98	6.07	6.24	6.61	6.98	5.99	5.53	
1996	6.91	7.16	7.13	7.65	7.95	7.72	7.82	8.10	8.02	6.94	6.90	6.98	7.44	6.73	
1997	7.31	7.34	7.94	8.38	8.60	8.22	7.71	7.18	6.54	6.62	6.88	6.68	7.45	7.34	
1998	6.80	6.73	6.57	6.37	6.41	6.42	6.38	5.74	5.24	5.23	5.49	5.51	6.07	6.59	
1999	5.41	4.94	4.71	4.77	4.63	4.50	4.28	4.55	4.54	4.58	4.56	4.56	4.67	5.05	
2000	4.65	4.90	5.06	5.18	5.27	5.11	4.62	4.63	4.71	4.51	4.57	4.93	4.85	4.71	
2001	4.74	4.53	4.52	4.25	4.43	4.62	4.98	5.15	4.60	4.17	4.18	4.25	4.54	4.61	
2002	4.29	4.34	4.56	4.63	4.79	5.05	5.51	5.67	5.53	5.24	5.53	5.61	5.06	4.42	
2003	5.62	5.69	5.70	5.92	6.28	6.15	5.87	5.84	6.49	6.90	7.25	7.44	6.26	5.55	
2004	7.38	8.38	9.43	9.76	9.62	9.45	8.89	7.18	5.51	5.24	5.22	5.47	7.63	7.67	
2005	5.57	5.46	6.02	5.99	6.32	6.76	6.93	6.29	5.76	5.60	5.58	6.01	6.02	5.66	
2006	6.06	5.83	5.76	5.69	5.83	5.80	5.85	5.53	5.40	5.63	6.13	6.38	5.82	5.78	
2007	6.44	6.95	7.17	7.13	7.36	7.83	7.97	8.03	8.49	8.81	9.65	10.30	8.01	6.53	
2008	10.10	12.30	11.70	12.30	12.80	14.50	14.50	13.50	11.00	9.78	9.47	9.70	11.80	10.20	
2009	10.30	9.88	9.49	10.10	11.10	11.90	11.10	11.00	9.97	9.49	9.63	10.20	10.35	10.20	
2010	10.00	9.82	9.70	9.79	9.77	9.79	10.10	10.50	10.10	10.60	11.50	12.20	10.32	9.80	(2)
2011	11.70	13.00	12.80	13.30	13.70	13.40	13.70	13.70	12.90	11.80	11.80	11.90	12.81	11.50	(2)
2012	12.20	12.50	13.10	14.00	14.10	14.10	15.90	16.40	14.80	14.50	14.60	14.50	14.23	12.70	(2)
2013	14.60	14.80	15.00	14.70	15.10	15.60	15.80	14.90	13.40	12.60	12.70	13.10	14.36	14.70	(2)
2014	13.20	13.40	13.90	14.60	14.80	14.70	13.70	12.90	11.00	10.00	10.20	10.50	12.74	13.20	(2)
2015	10.50	10.20	10.10	9.94	9.91	9.91	10.30	10.00	9.00	8.80	8.77	8.95	9.70	10.20	(3)

(1) DLGF Calculation.
(2) Source: P-40
(3) Source: P-40 & P-42

CROP PRICES

MONTHLY PRICES RECEIVED BY FARMERS CROPS, INDIANA, 2008-2015 [1]

Year	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Marketing Year Avg.
Corn (Dollars per Bushel)													
2008-09	4.73	4.15	4.04	4.14	4.46	4.06	3.92	4.11	4.12	4.14	3.64	3.45	4.10
2009-10	3.31	3.70	3.66	3.62	3.79	3.69	3.62	3.51	3.65	3.55	3.69	3.80	3.66
2010-11	4.24	4.50	4.82	4.94	4.95	5.78	5.80	6.71	6.62	6.82	7.04	7.18	5.38
2011-12	6.14	5.89	5.94	6.02	6.21	6.46	6.59	6.56	6.52	6.55	7.43	7.92	6.31
2012-13	7.37	7.22	7.43	7.27	7.26	7.38	7.48	7.12	7.16	7.15	6.71	6.38	7.23
2013-14	5.11	4.34	4.17	4.37	4.49	4.48	4.68	4.86	4.91	4.63	4.07	3.88	4.47
2014-15	**3.54**	**3.44**	**3.50**	**3.80**	**3.86**	**3.93**	**3.94**	**3.84**	**3.74**	**3.67**	**4.03**	**3.90**	**3.60**
Soybeans (Dollars per Bushel)													
2008-09	11.00	9.78	9.47	9.70	10.30	9.88	9.49	10.10	11.10	11.90	11.10	11.00	10.20
2009-10	9.97	9.49	9.63	10.20	10.00	9.82	9.70	9.79	9.77	9.79	10.10	10.50	9.80
2010-11	10.10	10.60	11.50	12.20	11.70	13.00	12.80	13.30	13.70	13.40	13.70	13.70	11.50
2011-12	12.90	11.80	11.80	11.90	12.20	12.50	13.10	14.00	14.10	14.10	15.90	16.40	12.70
2012-13	14.80	14.50	14.60	14.50	14.60	14.80	15.00	14.70	15.10	15.60	15.80	14.90	14.70
2013-14	13.40	12.60	12.70	13.10	13.20	13.40	13.90	14.60	14.80	14.70	13.70	12.90	13.20
2014-15	**11.00**	**10.00**	**10.20**	**10.50**	**10.50**	**10.20**	**10.10**	**9.94**	**9.91**	**9.91**	**10.30**	**10.00**	**10.20**

Year	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Marketing Year Avg.
Wheat (Dollars per Bushel)													
2008-09	6.18	6.32	6.43	5.10	4.14	3.82	4.93	5.46	5.23	5.79	4.52	5.10	5.91
2009-10	4.47	4.33	3.91	3.35	3.77	3.79	4.24	4.22	4.30	4.17	4.27	4.99	4.27
2010-11	4.49	5.06	5.88	6.31	5.17	5.81	6.14	6.83	7.78	7.58	7.71	7.55	5.12
2011-12	6.03	6.51	7.05	6.71	6.08	5.69	6.72	7.38	7.04	7.06	6.52	6.60	6.53
2012-13	6.62	8.25	8.56	8.88	8.97	8.63	8.56	8.12	7.80	7.27	7.23	7.08	7.28
2013-14	6.75	6.54	6.15	6.29	6.05	6.44	6.22	6.11	6.09	6.07	6.33	6.24	6.42
2014-15	**5.64**	**5.20**	**4.88**	**4.54**	**4.83**	**4.19**	**5.42**	**5.42**	**5.48**	**5.47**	**4.83**	**4.72**	**5.22**

[1] Weighted monthly average for market year. 2013 and 2014 are preliminary.

United States Department of Agriculture
National Agricultural Statistics Service

2007 CENSUS OF AGRICULTURE

Quick Stats

Program	Year	Period	Week Ending	Geo Level	State	State ANSI	Ag District	Ag District Code	County	County ANSI	Zip Code	Region	watershed_code	Watershed	Commodity	Data Item	Domain	Domain Category	Value	CV (%)
SURVEY	2015	JAN		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.86	
SURVEY	2015	FEB		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.93	
SURVEY	2015	MAR		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.94	
SURVEY	2015	APR		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.84	
SURVEY	2015	MAY		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.74	
SURVEY	2015	JUN		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.67	
SURVEY	2015	JUL		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	4.03	
SURVEY	2015	AUG		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.9	
SURVEY	2015	SEP		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.85	
SURVEY	2015	OCT		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.87	
SURVEY	2015	NOV		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.99	
SURVEY	2015	DEC		STATE	INDIANA	18							00000000		CORN	CORN, GRAIN - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	3.88	

United States Department of Agriculture
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Quick Stats

Program	Year	Period	Week Ending	Geo Level	State	State ANSI	Ag District	Ag District Code	County	County ANSI	Zip Code	Region	watershed_code	Watershed	Commodity	Data Item	Domain	Domain Category	Value	CV (%)
SURVEY	2015	JAN		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	10.5	
SURVEY	2015	FEB		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	10.2	
SURVEY	2015	MAR		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	10.1	
SURVEY	2015	APR		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	9.94	
SURVEY	2015	MAY		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	9.91	
SURVEY	2015	JUN		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	9.91	
SURVEY	2015	JUL		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	10.3	
SURVEY	2015	AUG		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	10	
SURVEY	2015	SEP		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	9	
SURVEY	2015	OCT		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	8.8	
SURVEY	2015	NOV		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	8.77	
SURVEY	2015	DEC		STATE	INDIANA	18							00000000		SOYBEANS	SOYBEANS - PRICE RECEIVED, MEASURED IN $ / BU	TOTAL	NOT SPECIFIED	8.95	

2010 Purdue Crop Cost & Return Guide

January 2010 Estimates

Both product prices and input prices may have significantly changed since these estimates were prepared.

Table 1. Estimated per Acre Crop Budgets for Low, Average, and High Productivity Indiana Soils

	Crop Budgets for Three Yield Levels[1]														
	Low Productivity Soil					Average Productivity Soil					High Productivity Soil				
	Cont. Corn	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**
Expected yield per acre[2]	119	127	39	62	23	149	159	49	70	29	180	191	59	84	35
Harvest price[3]	$4.20	$4.20	$9.60	$4.90	$9.60	$4.20	$4.20	$9.60	$4.90	$9.60	$4.20	$4.20	$9.60	$4.90	$9.60
Market revenue	$500	$533	$374	$304	$221	$626	$668	$470	$343	$278	$756	$802	$566	$412	$336
Less variable costs[4]															
Fertilizer[5]	$103	$96	$44	$63	$30	$111	$104	$53	$73	$35	$119	$112	$63	$90	$41
Seed[6]	78	78	52	34	60	94	94	52	34	60	94	94	52	34	60
Pesticides[7]	37	37	29	7	26	37	37	29	7	26	37	37	29	7	26
Dryer fuel[8]	24	19	N/A	N/A	4	30	24	N/A	N/A	4	37	29	N/A	N/A	5
Machinery fuel @ $2.70	20	20	9	12	9	20	20	9	12	9	20	20	9	12	9
Machinery repairs[9]	14	14	10	10	10	14	14	10	10	10	14	14	10	10	10
Hauling[10]	11	11	4	6	2	13	14	4	6	3	16	17	5	8	3
Interest[11]	9	8	5	4	5	10	9	5	4	5	5	5	6	5	5
Insurance/misc.[12]	26	26	21	3	4	26	26	21	3	4	28	28	21	3	4
Total variable cost	$322	$309	$174	$139	$150	$355	$342	$183	$149	$156	$370	$356	$195	$169	$163
Contribution margin[13] (Revenue - variable costs) per acre	$178	$224	$200	$165	$71	$271	$326	$287	$194	$122	$386	$446	$371	$243	$173

[1]Estimated yields and costs are for yields with average management for three different soils representing low, average, and high productivity. The high productivity soils represent soils capable of producing corn and soybeans with yields about 20% higher than average soils. Low productivity soils represent soils capable of producing corn and soybeans with yields about 20% lower than the average soils.

[2]These yields assume average weather conditions and timely plant/harvest date, except soybean double-crop yield, which is based on a July 1 planting date. Continuous corn, soybean, and wheat yields are a percent of rotation corn yield: continuous corn 94%; rotation soybeans 31%; wheat 49% on low productivity soil, 44% on average and high productivity soils; and double-crop soybeans 18%. Continuous corn yields assume a chisel plow tillage system. Double-crop soybean yields apply to central and southern Indiana. Rotation corn yields for average soils are based on the twenty-year trend in state average yields reported by the Indiana office of the National Agricultural Statistics Service.

[3]Harvest corn price is December 2010 CME Group futures price less $0.30 basis. Harvest soybean price is November 2010 CME Group futures price less $0.40 basis. Harvest wheat price is July 2010 CME Group futures price less $1.00 basis. The prices shown were estimated using closing prices on January 8, 2010. These prices will change.

Table 1 (Continued)

[4]Input prices for variable costs reflect expected prices for 2010. These prices will vary by location and time of the year. Users need to adjust these prices to reflect their own expectations and price situation.

[5] Phosphate, potash, and lime applications are based on Tri-State Fertilizer Recommendations (Source: Michigan Extension Bulletin E-2567, July 1995). Lime amounts represent the pounds of standard ag lime needed to neutralize the acidity from the nitrogen supplied from sources other than ammonium sulfate. Nitrogen application rate for corn is based on research from the Department of Agronomy, Purdue University. Anhydrous ammonia is used as the nitrogen source for corn. Urea is used as the nitrogen source for wheat. Pounds of N, P_20_5, K_20, and lime by crop and soil were as follows: continuous corn, 190-44-52-570, 190-55-60-570, 190-67-69-570; rotation corn, 160-47-54-480, 160-59-63-480, 160-71-72-480; rotation beans, 0-31-75-0, 0-39-88-0, 0-47-103-0; wheat, 61-39-43-183, 75-44-46-225, 100-53-51-299; double crop beans, 0-18-52-0, 0-23-61-0, 0-28-69-0. Fertilizer prices per lb.: NH_3 @ $0.30; urea @ $0.45; P_20_5 @ $0.39; K_20 @ $0.43; lime @ $18/ton spread on the field. 5-10% more nitrogen might be needed on poorly drained soils. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

[6]Corn seed prices assume a biotech variety with multiple traits. A 20%-refuge is planted with varieties that do not contain insect resistant traits, but do include herbicide tolerance. According to the USDA's Agricultural Prices report for April 2009, biotech corn seed prices averaged 69% more than non-biotech corn seed, which was up from 60% more a year earlier. Seeding rates for corn are 29,000 seeds per acre on low productivity soils and 35,000 seeds per acre on average and high productivity soils. Soybean seed prices include Round-Up Ready® varieties. Rotation soybeans are drilled with a seeding rate of 169,000 seeds per acre with a 90% germination rate. Double-crop soybeans are drilled with a seeding rate of 195,000 seeds per acre. The seeding rate for wheat is two bushels per acre.

[7]Includes insecticides and herbicides. For corn, rootworm insecticide is applied to the refuge acres. In some areas of Indiana, this may not be required. These costs do not include the application of fungicide to corn. If fungicide is applied, this will add an additional $28 to $32 per acre for material and application. Pesticide costs can vary widely based on herbicides selected, required rate of application, and product pricing.

[8]Fuel used to dry crop to a safe moisture level for storage. For double-crop soybeans, the drying charge represents the drying of wheat in order to allow an earlier planting of soybeans.

[9]Repairs are based on approximately 5-year-old machinery. For older machinery, per acre repairs and downtime cost will be higher.

[10]Hauling charge represents moving grain from field to storage. (Based on Machinery Cost Estimates: Harvesting, University of Illinois, Farm Business Management Handbook, May 2008.)

[11]Interest is based on 5% annual rate for 9 months for seed, fertilizer, and chemicals, and for 6 months for half the machinery fuel and repairs, and all miscellaneous expenses.

[12]The cost of crop insurance represents the premium for a Crop Revenue Coverage (CRC) policy at the 75% level. Since rates for the 2010 crop year are not available, estimates were based on rates in 2009. These revenue insurance rates contain a base price of $4.04 per bushel for corn and $8.80 per bushel for soybeans. Per acre rates will change based on the price guarantees, volatility parameters, and level of protection selected for the 2010 crop year. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

[13]Contribution margin is the return to labor and management, machinery services, and land resources.

Table 2. Estimated per Acre Indirect Charges for Low, Average, and High Productivity Indiana Soils

	Low Productivity Soil				Average Productivity Soil				High Productivity Soil			
Farm Acres	900	1000	2700	3000	900	1000	2700	3000	900	1000	2700	3000
Rotation[1]	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b
Crop contribution margin[2]	$178	$212	$178	$212	$271	$307	$271	$307	$386	$409	$386	$409
Government payment[3]	$17	$17	$17	$17	$20	$20	$20	$20	$25	$25	$25	$25
Total contribution margin	$195	$229	$195	$229	$291	$327	$291	$327	$411	$434	$411	$434
Annual overhead costs:												
Machinery replacement[4]	$85	$77	$63	$57	$85	$77	$68	$61	$94	$84	$70	$63
Drying/handling	$17	$12	$17	$12	$17	$12	$17	$12	$17	$12	$17	$12
Family and hired labor[5]	$60	$52	$43	$38	$60	$52	$43	$38	$60	$52	$43	$38
Land[6]	$131	$131	$131	$131	$167	$167	$167	$167	$208	$208	$208	$208
Earnings or (losses)	-$99	-$43	-$59	-$8	-$38	$19	-$4	$50	$32	$77	$74	$114

[1]Rotations are as follows: c-c = all of the farm acres in continuous corn; c-b = one-half of the farm acres in rotation corn and one-half in rotation soybeans.

[2]Crop's contribution margin is the per acre contribution margin from Table 1.

[3]Government payment includes only the direct payment with no participation in ACRE. The per bushel direct payment rate is $0.28 for corn and $0.44 for soybeans. These are the payment rates for 2010. Direct payment yields for corn were 94.5, 110.5, 136.6 on low, average, and high soils. Direct payment yields for soybeans were 31.7, 37.0, and 45.8 for low, average, and high soils. Base acres for the farm are assumed half corn and half soybeans. Federal regulations pertaining to payment limits may limit this payment to a smaller amount than is shown here. If a producer participates in the ACRE program, direct payment rates are reduced 20%. The decision about participating in the ACRE program will likely need to be made by June 1, 2010. An advantage of participating in ACRE is the possibility of receiving a more stable revenue for corn, soybeans, and wheat if crop prices decline. As grain prices decline, both the possibility of a payment and the size of the payment increases. Producers will need to review their revenue estimates for the state and their farms as the ACRE signup deadline approaches. Tools that can be used to estimate the potential payments from ACRE can be found at http://www.ag.purdue.edu/agecon/Pages/agpolicy.aspx.

[4]The same basic machinery set, which is timely for each rotation, is used for both the c-c and c-b rotation. The larger farm size requires larger, more expensive machinery. Corn production utilizes a chisel plow tillage system, and soybeans utilize no-till. Average annual replacement costs for the larger farm size were calculated using the Purdue Machinery Cost Calculator for a timely machinery set. Seven-year trading policy is assumed for combine and planter, 10-year policy for other field machinery. On livestock farms where fewer hours each day are available for crops, or on small farms, machinery costs and/or labor costs will be higher. On well-drained soils where more days are suitable for spring field work, machinery costs could be lower. The machinery costs for the smaller farm size were estimated using a machinery complement and cost estimates adapted from budgets published by The Ohio State University. A 10-year trading policy was assumed for all machinery on the smaller acreages. Machinery ownership costs are likely to vary widely from farm to farm.

[5]For the larger acreages, labor expense includes a family living withdrawal of $57,543 ($72,686 of family living expenses less $30,913 in net nonfarm income plus $15,770 in income and self-employment taxes) and a full-time employee with total compensation of $41,314. The balance is used for part-time hired labor. Family living withdrawal is from Farm Income & Production Costs for 2009, University of Illinois Extension, AE-4566, April 2008. Employee compensation is based on Wages and Benefits for Farm Employees, Iowa State University, University Extension FM 1862, July 2006 and adjusted for increases in wage rates. For the smaller acreages, labor expense includes the same operator costs plus part-time employee(s). The c-c rotation requires more total labor. Labor costs are likely to vary widely from farm to farm.

[6]Based on 2009 cash rent per bushel of corn yield reported in Indiana Farmland Values & Cash Rent: Relative Calm in a Turbulent Economy, Purdue Agricultural Economics Report, August, 2009.

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Date: 1/2010

2011 Purdue Crop Cost & Return Guide

January 2011 Estimates

Both product prices and input prices may have significantly changed since these estimates were prepared.

Table 1. Estimated per Acre Crop Budgets for Low, Average, and High Productivity Indiana Soils

	Crop Budgets for Three Yield Levels[1]														
	Low Productivity Soil					Average Productivity Soil					High Productivity Soil				
	Cont. Corn	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**
Expected yield per acre[2]	121	129	39	62	23	151	161	49	70	29	181	193	59	84	35
Harvest price[3]	$5.54	$5.54	$13.12	$8.21	$13.12	$5.54	$5.54	$13.12	$8.21	$13.12	$5.54	$5.54	$13.12	$8.21	$13.12
Market revenue	$670	$715	$512	$509	$302	$837	$892	$643	$575	$380	$1,003	$1,069	$774	$690	$459
Less variable costs[4]															
Fertilizer[5]	$151	$138	$57	$84	$38	$162	$151	$69	$97	$45	$174	$163	$81	$120	$52
Seed[6]	82	82	59	39	68	99	99	59	39	68	99	99	59	39	68
Pesticides[7]	35	35	27	7	25	35	35	27	7	25	35	35	27	7	25
Dryer fuel[8]	26	21	N/A	N/A	4	33	26	N/A	N/A	4	39	31	N/A	N/A	5
Machinery fuel @ $3.10	23	23	10	14	10	23	23	10	14	10	23	23	10	14	10
Machinery repairs[9]	14	14	10	10	10	14	14	10	10	10	14	14	10	10	10
Hauling[10]	11	12	4	6	2	14	15	5	6	3	17	18	5	8	3
Interest[11]	11	10	6	5	5	12	11	6	5	5	6	6	7	6	6
Insurance/misc.[12]	24	23	14	3	4	23	23	14	3	4	24	24	14	3	4
Total variable cost	$377	$358	$187	$168	$166	$415	$397	$200	$181	$174	$431	$413	$213	$207	$183
Contribution margin[13] (Revenue - variable costs) per acre	$293	$357	$325	$341	$136	$422	$495	$443	$394	$206	$572	$656	$561	$483	$276

[1]Estimated yields and costs are for yields with average management for three different soils representing low, average, and high productivity. The high productivity soils represent soils capable of producing corn and soybeans with yields about 20% higher than average soils. Low productivity soils represent soils capable of producing corn and soybeans with yields about 20% lower than the average soils.

[2]These yields assume average weather conditions and timely plant/harvest date, except soybean double-crop yield, which is based on a July 1 planting date. Continuous corn, soybean, and wheat yields are a percent of rotation corn yield: continuous corn 94%; rotation soybeans 30%; wheat 48% on low productivity soil, 43% on average and high productivity soils; and double-crop soybeans 18%. Continuous corn yields assume a chisel plow tillage system. Double-crop soybean yields apply to central and southern Indiana. Rotation corn yields for average soils are based on the twenty-year trend in state average yields reported by the Indiana office of the National Agricultural Statistics Service.

[3]Harvest corn price is December 2011 CME Group futures price less $0.35 basis. Harvest soybean price is November 2011 CME Group futures price less $0.40 basis. Harvest wheat price is July 2011 CME Group futures price less $.80 basis. Harvest prices were based on closing prices on January 26, 2011. Wheat prices rose sharply this year because of drought conditions outside the U.S. Corn and soybean prices rose sharply in October because of lowered yield forecasts for the 2010 corn crop in the US. These prices will change.

Table 1 (Continued)

[4]Input prices for variable costs reflect expected prices for 2011. These prices will vary by location and time of the year. Users need to adjust these prices to reflect their own expectations and price situation.

[5] Phosphate, potash, and lime applications are based on Tri-State Fertilizer Recommendations (Source: Michigan Extension Bulletin E-2567, July 1995). Lime amounts represent the pounds of standard ag lime needed to neutralize the acidity from the nitrogen supplied from sources other than ammonium sulfate. Nitrogen application rate for corn is based on research from the Department of Agronomy, Purdue University. Anhydrous ammonia is used as the nitrogen source for corn. Urea is used as the nitrogen source for wheat. Pounds of N, P_20_5, K_20, and lime by crop and soil were as follows: continuous corn, 190-45-53-570, 190-56-61-570, 190-67-69-570; rotation corn, 160-48-55-480, 160-60-63-480, 160-71-72-480; rotation beans, 0-31-75-0, 0-39-89-0, 0-47-103-0; wheat, 61-39-43-183, 75-44-46-225, 100-53-51-299; double crop beans, 0-18-52-0, 0-23-61-0, 0-28-69-0. Fertilizer prices per lb.: NH_3 @ $0.49; urea @ $0.57; P_20_5 @ $0.68; K_20 @ $0.48; lime @ $19.00/ton spread on the field. 5-10% more nitrogen might be needed on poorly drained soils. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

[6]Corn seed prices assume a biotech variety with multiple traits. A 20%-refuge is planted with varieties that do not contain insect resistant traits, but do include herbicide tolerance. According to the USDA's Agricultural Prices report for April 2010, biotech corn seed prices averaged 54% more than non-biotech corn seed, which was down from 69% more a year earlier. Seeding rates for corn are 29,000 seeds per acre on low productivity soils and 35,000 seeds per acre on average and high productivity soils. Soybean seed prices include Round-Up Ready® varieties. Rotation soybeans are drilled with a seeding rate of 169,000 seeds per acre with a 90% germination rate. Double-crop soybeans are drilled with a seeding rate of 195,000 seeds per acre. The seeding rate for wheat is two bushels per acre.

[7]Includes insecticides and herbicides. For corn, rootworm insecticide is applied to the refuge acres. In some areas of Indiana, this may not be required. These costs do not include the application of fungicide to corn. If fungicide is applied, this will add an additional $28 to $32 per acre for material and application. Pesticide costs can vary widely based on herbicides selected, required rate of application, and product pricing.

[8]Fuel used to dry crop to a safe moisture level for storage. For double-crop soybeans, the drying charge represents the drying of wheat in order to allow an earlier planting of soybeans.

[9]Repairs are based on approximately 5-year-old machinery. For older machinery, per acre repairs and downtime cost will be higher.

[10]Hauling charge represents moving grain from field to storage. (Based on Machinery Cost Estimates: Harvesting, University of Illinois, Farm Business Management Handbook, May 2008.)

[11]Interest is based on 5% annual rate for 9 months for seed, fertilizer, and chemicals, and for 6 months for half the machinery fuel and repairs, and all miscellaneous expenses.

[12]The cost of crop insurance represents the premium for a Crop Revenue Coverage (CRC) policy at the 75% level. Since rates for the 2011 crop year are not available, estimates were based on rates in 2010. These revenue insurance rates contain a base price of $3.99 per bushel for corn and $9.23 per bushel for soybeans. Per acre rates will change based on the price guarantees, volatility parameters, and level of protection selected for the 2011 crop year. Since the base price for corn and soybeans is expected to be much higher for the 2011 revenue protection products, 2011 premiums will be higher. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

[13]Contribution margin is the return to labor and management, machinery services, and land resources.

Table 2. Estimated per Acre Government Payments, Overhead Costs & Earnings for Low, Average, and High Productivity Indiana Soils

	Low Productivity Soil				Average Productivity Soil				High Productivity Soil			
Farm Acres	900	1000	2700	3000	900	1000	2700	3000	900	1000	2700	3000
Rotation[1]	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b
Crop contribution margin[2]	$293	$341	$293	$341	$422	$469	$422	$469	$572	$609	$572	$609
Government payment[3]	$17	$17	$17	$17	$20	$20	$20	$20	$25	$25	$25	$25
Total contribution margin	$311	$358	$311	$358	$442	$489	$442	$489	$597	$634	$597	$634
Annual overhead costs:												
Machinery replacement[4]	$84	$76	$62	$56	$84	$76	$67	$60	$92	$83	$69	$62
Drying/handling	$17	$12	$17	$12	$17	$12	$17	$12	$17	$12	$17	$12
Family and hired labor[5]	$60	$52	$43	$38	$60	$52	$43	$38	$60	$52	$43	$38
Land[6]	$138	$138	$138	$138	$167	$167	$167	$167	$208	$208	$208	$208
Earnings or (losses)	$11	$81	$51	$115	$114	$182	$149	$212	$219	$279	$261	$315

[1]Rotations are as follows: c-c = all of the farm acres in continuous corn; c-b = one-half of the farm acres in rotation corn and one-half in rotation soybeans.

[2]Crop's contribution margin is the per acre contribution margin from Table 1.

[3]Government payment includes only the direct payment with no participation in ACRE. The per bushel direct payment rate is $0.28 for corn and $0.44 for soybeans. These are the payment rates for 2010. Direct payment yields for corn were 94.5, 110.5, 136.6 on low, average, and high soils. Direct payment yields for soybeans were 31.7, 37.0, and 45.8 for low, average, and high soils. Base acres for the farm are assumed half corn and half soybeans. Federal regulations pertaining to payment limits may limit this payment to a smaller amount than is shown here. If a producer participates in the ACRE program, direct payment rates are reduced 20%. The decision about participating in the ACRE program will likely need to be made by June 1, 2011. An advantage of participating in ACRE is the possibility of receiving a more stable revenue for corn, soybeans, and wheat if crop prices decline. As grain prices decline, both the possibility of a payment and the size of the payment increases. Producers will need to review their revenue estimates for the state and their farms as the ACRE signup deadline approaches. Tools that can be used to estimate the potential payments from ACRE can be found at http://www.ag.purdue.edu/agecon/Pages/agpolicy.aspx.

[4]The same basic machinery set, which is timely for each rotation, is used for both the c-c and c-b rotation. The larger farm size requires larger, more expensive machinery. Corn production utilizes a chisel plow tillage system, and soybeans utilize no-till. Average annual replacement costs for the larger farm size were calculated using the Purdue Machinery Cost Calculator for a timely machinery set. Seven-year trading policy is assumed for combine and planter, 10-year policy for other field machinery. On livestock farms where fewer hours each day are available for crops, or on small farms, machinery costs and/or labor costs will be higher. On well-drained soils where more days are suitable for spring field work, machinery costs could be lower. The machinery costs for the smaller farm size were estimated using a machinery complement and cost estimates adapted from budgets published by The Ohio State University. A 10-year trading policy was assumed for all machinery on the smaller acreages. Machinery ownership costs are likely to vary widely from farm to farm.

[5]For the larger acreages, labor expense includes a family living withdrawal of $57,543 ($72,686 of family living expenses less $30,913 in net nonfarm income plus $15,770 in income and self-employment taxes) and a full-time employee with total compensation of $41,314. The balance is used for part-time hired labor. Family living withdrawal is from Farm Income & Production Costs for 2009, University of Illinois Extension, AE-4566, April 2008. Employee compensation is based on Wages and Benefits for Farm Employees, Iowa State University, University Extension FM 1862, July 2006 and adjusted for increases in wage rates. For the smaller acreages, labor expense includes the same operator costs plus part-time employee(s). The c-c rotation requires more total labor. Labor costs are likely to vary widely from farm to farm.

[6]Based on 2010 cash rent per bushel of corn yield reported in Indiana Farmland Values & Cash Rent: Renewed Strength in a Weak Economy, Purdue Agricultural Economics Report, August, 2010. With the large estimated contribution margins for 2011, this will place upward pressure on 2011 cash rents.

Prepared by: Craig L. Dobbins, W. Alan Miller, and Bruce Erickson, Department of Agricultural Economics, Bob Nielsen and Tony J. Vyn, Department of Agronomy, and Bill Johnson and Kiersten Wise, Department of Botany and Plant Pathology, Purdue University.

Date: 1/27/2011

2012 Purdue Crop Cost & Return Guide

January 2012 Estimates

Both product prices and input prices may have significantly changed since these estimates were prepared.

Table 1. Estimated per Acre Crop Budgets for Low, Average, and High Productivity Indiana Soils

	Crop Budgets for Three Yield Levels[1]														
	Low Productivity Soil					Average Productivity Soil					High Productivity Soil				
	Cont. Corn	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**
Expected yield per acre[2]	122	130	43	56	30	153	163	54	70	38	184	196	65	84	46
Harvest price[3]	$5.60	$5.60	$11.90	$6.40	$11.90	$5.60	$5.60	$11.90	$6.40	$11.90	$5.60	$5.60	$11.90	$6.40	$11.90
Market revenue	$683	$728	$512	$358	$357	$857	$913	$643	$448	$452	$1,030	$1,098	$774	$538	$547
Less variable costs[4]															
Fertilizer[5]	$182	$162	$68	$79	$51	$194	$175	$83	$104	$62	$207	$189	$98	$129	$72
Seed[6]	87	87	62	41	72	107	107	62	41	72	107	107	62	41	72
Pesticides[7]	38	38	29	8	26	38	38	29	8	26	38	38	29	8	26
Dryer fuel[8]	32	26	N/A	N/A	3	40	32	N/A	N/A	4	49	39	N/A	N/A	5
Machinery fuel @ $3.60	27	27	16	16	12	27	27	16	16	12	27	27	16	16	12
Machinery repairs[9]	21	21	18	18	15	21	21	18	18	15	21	21	18	18	15
Hauling[10]	11	12	4	5	3	14	15	5	6	4	17	18	6	8	4
Interest[11]	12	12	7	5	6	13	13	7	6	6	7	7	8	7	7
Insurance/misc.[12]	32	33	23	3	4	32	33	23	3	4	32	33	23	3	4
Total variable cost	$442	$418	$227	$175	$192	$486	$461	$243	$202	$205	$505	$479	$260	$230	$217
Contribution margin[13] (Revenue - variable costs) per acre	$241	$310	$285	$183	$165	$371	$452	$400	$246	$247	$525	$619	$514	$308	$330

[1]Estimated yields and costs are for yields with average management for three different soils representing low, average, and high productivity. The high productivity soils represent soils capable of producing corn and soybeans with yields about 20% higher than average soils. Low productivity soils represent soils capable of producing corn and soybeans with yields about 20% lower than the average soils.

[2]These yields assume average weather conditions and timely plant/harvest date, except soybean double-crop yield, which is based on a July 1 planting date. Continuous corn, full-season soybean, and wheat yields are a percent of rotation corn yield: continuous corn 94%; rotation soybeans 33%; and wheat 43%. Double-crop soybean yields are 70% of full-season soybean yields. Continuous corn yields assume a chisel plow tillage system. Double-crop soybean yields apply to central and southern Indiana. Rotation corn yields for average soils are based on the 20 year trend in state average yields reported by the Indiana office of the National Agricultural Statistics Service.

[3]Harvest corn price is December 2012 CME Group futures price less $0.25 basis. Harvest soybean price is November 2012 CME Group futures price less $0.35 basis. Harvest wheat price is July 2012 CME Group futures price less $.35 basis. Harvest prices were based on closing prices on January 9, 2012. These prices will change.

Table 1 (Continued)

[4]Input prices for variable costs reflect expected prices for 2012. These prices will vary by location and time of the year. Users need to adjust these prices to reflect their own expectations and price situation.

[5]Phosphate, potash, and lime applications are based on Tri-State Fertilizer Recommendations (Source: Michigan Extension Bulletin E-2567, July 1995). Lime amounts represent the pounds of standard ag lime needed to neutralize the acidity from the nitrogen supplied from sources other than ammonium sulfate. Nitrogen application rate for corn is based on research from the Department of Agronomy, Purdue University. Anhydrous ammonia is used as the nitrogen source for corn. Urea is used as the nitrogen source for wheat. Pounds of N, P_20_5, K_20, and lime by crop and soil were as follows: continuous corn, 220-45-53-660, 220-56-61-660, 220-67-69-660; rotation corn, 180-48-55-540, 180-60-63-540, 180-71-72-540; rotation beans, 0-34-80-0, 0-43-96-0, 0-52-111-0; wheat, 58-38-42-172, 84-47-48-251, 110-57-53-330; double crop beans, 0-24-62-0, 0-30-73-0, 0-37-84-0. Fertilizer prices per lb.: NH_3 @ $0.54; urea @ $0.62; P_20_5 @ $0.66; K_20 @ $0.57; lime @ $19.00/ton spread on the field. 5-10% more nitrogen might be needed on poorly drained soils. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range. The economically optimal nitrogen rate for corn has been increased in this estimate relative to the 2011 crop costs and returns (published in January 2011).

[6]Corn seed prices assume a biotech variety with multiple traits. A 20%-refuge is planted with varieties that do not contain insect resistant traits, but do include herbicide tolerance. According to the USDA's Agricultural Prices report for April 2010, biotech corn seed prices averaged 54% more than non-biotech corn seed, which was down from 69% more a year earlier. Seeding rates for corn are 27,000 seeds per acre on low productivity soils and 33,000 seeds per acre on average and high productivity soils. Soybean seed prices include Round-Up Ready® varieties. Rotation soybeans are drilled with a seeding rate of 169,000 seeds per acre with a 90% germination rate. Double-crop soybeans are drilled with a seeding rate of 195,000 seeds per acre. The seeding rate for wheat is two bushels per acre.

[7]Includes insecticides and herbicides. For corn, rootworm insecticide is applied to the refuge acres. In some areas of Indiana, this may not be required. These costs do not include the application of fungicide to corn. If fungicide is applied, this will add an additional $28 to $32 per acre for material and application. Pesticide costs can vary widely based on herbicides selected, required rate of application, and product pricing.

[8]Fuel used to dry crop to a safe moisture level for storage. For double-crop soybeans, the drying charge represents the drying of wheat in order to allow an earlier planting of soybeans.

[9]Repairs are based on approximately 5-year-old machinery. For older machinery, per acre repairs and downtime cost will be higher.

[10]Hauling charge represents moving grain from field to storage. (Based on Machinery Cost Estimates: Harvesting, University of Illinois, Farm Business Management Handbook, April 2010.)

[11]Interest is based on 6% annual rate for 9 months for seed, fertilizer, and chemicals, and for 6 months for half the machinery fuel and repairs, and all miscellaneous expenses.

[12]The cost of crop insurance represents the premium estimated for a Revenue Coverage (RP) policy at the 75% level. Since rates for the 2012 crop year are not available, estimates were based on rates in 2011. These revenue insurance rates contain a base price of $6.01 per bushel for corn and $13.49 per bushel for soybeans, which were the base prices for the 2011 crops. Per acre rates will change based on the price guarantees, volatility parameters, and level of protection selected for the 2012 crop year. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans. Revenue Protection coverage was new for 2011.

[13]Contribution margin is the return to labor and management, machinery services, land resources, and risk.

Table 2. Estimated per Acre Government Payments, Overhead Costs & Earnings for Low, Average, and High Productivity Indiana Soils

	Low Productivity Soil				Average Productivity Soil				High Productivity Soil			
Farm Acres	900	1000	2700	3000	900	1000	2700	3000	900	1000	2700	3000
Rotation[1]	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b
Crop contribution margin[2]	$241	$298	$241	$298	$371	$426	$371	$426	$525	$567	$525	$567
Government payment[3]	$17	$17	$17	$17	$20	$20	$20	$20	$25	$25	$25	$25
Total contribution margin	$258	$315	$258	$315	$391	$446	$391	$446	$550	$592	$550	$592
Annual overhead costs:												
Machinery ownership[4]	$111	$96	$91	$77	$118	$102	$96	$82	$121	$104	$98	$84
Family and hired labor[5]	$74	$65	$50	$45	$74	$65	$50	$45	$74	$65	$50	$45
Land[6]	$146	$146	$146	$146	$189	$189	$189	$189	$239	$239	$239	$239
Earnings or (losses)	-$73	$8	-$29	$47	$10	$90	$55	$130	$116	$184	$162	$224

[1]Rotations are as follows: c-c = all of the farm acres in continuous corn; c-b = one-half of the farm acres in rotation corn and one-half in rotation soybeans.

[2]Crop's contribution margin is the per acre contribution margin from Table 1.

[3]Government payment includes only the direct payment with no participation in ACRE. The per bushel direct payment rate is $0.28 for corn and $0.44 for soybeans. These are the payment rates for 2012. Direct payment yields for corn were 94.5, 110.5, 136.6 on low, average, and high soils. Direct payment yields for soybeans were 31.7, 37.0, and 45.8 for low, average, and high soils. Base acres for the farm are assumed half corn and half soybeans. Federal regulations pertaining to payment limits may limit this payment to a smaller amount than is shown here. If a producer participates in the ACRE program, direct payment rates are reduced 20%. The decision about participating in the ACRE program will likely need to be made by June 1, 2012. An advantage of participating in ACRE is the possibility of receiving a more stable revenue for corn, soybeans, and wheat if crop prices decline. As grain prices decline, both the possibility of a payment and the size of the payment increases. Producers will need to review their revenue estimates for the state and their farms as the ACRE signup deadline approaches. Tools that can be used to estimate the potential payments from ACRE can be found at http://www.ag.purdue.edu/agecon/Pages/agpolicy.aspx.

[4]The same basic machinery set, which is timely for each rotation, is used for both the c-c and c-b rotation. The larger farm size requires larger, more expensive machinery. Corn production utilizes a chisel plow tillage system, and soybeans utilize no-till. Average annual replacement costs for the larger farm size were calculated using the Purdue Machinery Cost Calculator for a timely machinery set. Seven-year trading policy is assumed for combine and planter, 10-year policy for other field machinery. On livestock farms where fewer hours each day are available for crops, or on small farms, machinery costs and/or labor costs will be higher. On well-drained soils where more days are suitable for spring field work, machinery costs could be lower. The machinery costs for the smaller farm size were estimated using a machinery complement and cost estimates adapted from budgets published by The Ohio State University. A 10-year trading policy was assumed for all machinery on the smaller acreages. Machinery ownership costs are likely to vary widely from farm to farm.

[5]For the larger acreages, labor expense includes a family living withdrawal of $58,297 ($74,209 of family living expenses less $35,976 in net nonfarm income plus $20,064 in income and self-employment taxes) and a full-time employee with total compensation of $41,612. The balance is used for part-time hired labor. Family living withdrawal is from Farm Income & Production Costs for 2010, University of Illinois Extension, AE-4566, April 2011. Employee compensation is based on Wages and Benefits for Farm Employees, Iowa State University, University Extension FM 1862, July 2006 and adjusted for increases in wage rates. For the smaller acreages, labor expense includes the same operator costs plus part-time employee(s). The c-c rotation requires more total labor. Labor costs are likely to vary widely from farm to farm.

[6]Based on 2011 cash rent per bushel of corn yield reported in the artcile entitled "Indiana Farmland Market Continues to Sizzle," Purdue Agricultural Economics Report, August, 2011. The relatively large estimated contribution margins for 2012 will likely place upward pressure on 2012 cash rents.

Prepared by: Craig L. Dobbins and W. Alan Miller, Department of Agricultural Economics; Bob Nielsen, Tony J. Vyn, and Shaun Casteel, Department of Agronomy; Bill Johnson and Kiersten Wise, Department of Botany and Plant Pathology, Purdue University; and Bruce Erickson, Agronomic Education Manager, American Society of Agronomy and Adjunct Assistant Professor, Department of Agronomy, Purdue University.

Date: 01/16/2012

2013 Purdue Crop Cost & Return Guide

November 2012 Estimates

Both product prices and input prices may have significantly changed since these estimates were prepared.

Table 1. Estimated per Acre Crop Budgets for Low, Average, and High Productivity Indiana Soils

	Crop Budgets for Three Yield Levels[1]														
	Low Productivity Soil					Average Productivity Soil					High Productivity Soil				
	Cont. Corn	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**
Expected yield per acre[2]	122	130	43	56	30	153	163	54	70	38	184	196	65	84	46
Harvest price[3]	$5.80	$5.80	$12.40	$8.20	$12.40	$5.80	$5.80	$12.40	$8.20	$12.40	$5.80	$5.80	$12.40	$8.20	$12.40
Market revenue	$708	$754	$533	$459	$372	$887	$945	$670	$574	$471	$1,067	$1,137	$806	$689	$570
Less variable costs[4]															
Fertilizer[5]	$184	$164	$64	$78	$48	$195	$176	$77	$103	$58	$207	$188	$91	$127	$68
Seed[6]	94	94	69	41	80	115	115	69	41	80	115	115	69	41	80
Pesticides[7]	38	38	24	10	23	38	38	24	10	23	38	38	24	10	23
Dryer fuel[8]	23	19	N/A	N/A	3	29	23	N/A	N/A	4	35	28	N/A	N/A	5
Machinery fuel @ $3.45	26	26	16	16	11	26	26	16	16	11	26	26	16	16	11
Machinery repairs[9]	22	22	18	18	15	22	22	18	18	15	22	22	18	18	15
Hauling[10]	12	13	4	6	3	15	16	5	7	4	18	20	7	8	5
Interest[11]	13	12	6	5	6	14	13	7	6	6	7	7	8	7	7
Insurance/misc.[12]	32	33	23	3	4	32	33	23	3	4	32	33	23	3	4
Total variable cost	$444	$421	$224	$177	$193	$486	$462	$239	$204	$205	$500	$477	$256	$230	$218
Contribution margin[13] (Revenue - variable costs) per acre	$264	$333	$309	$282	$179	$401	$483	$431	$370	$266	$567	$660	$550	$459	$352

[1]Estimated yields and costs are for yields with average management for three different soils representing low, average, and high productivity. The high productivity soils represent soils capable of producing corn and soybeans with yields about 20% higher than average soils. Low productivity soils represent soils capable of producing corn and soybeans with yields about 20% lower than the average soils.

[2]These yields assume average weather conditions and timely plant/harvest date, except soybean double-crop yield, which is based on a July 1 planting date. Continuous corn, full-season soybean, and wheat yields are a percent of rotation corn yield: continuous corn 94%; rotation soybeans 31%; and wheat 43%. Double-crop soybean yields are 70% of full-season soybean yields. Continuous corn yields assume a chisel plow tillage system. Double-crop soybean yields apply to central and southern Indiana. Rotation corn yields for average soils are based on the long-run trends in state average yields reported by the Indiana office of the National Agricultural Statistics Service.

[3]Harvest corn price is December 2013 CME Group futures price less $0.25 basis. Harvest soybean price is November 2013 CME Group futures price less $0.35 basis. Harvest wheat price is July 2013 CME Group futures price less $.35 basis. Harvest prices were based on closing prices on November 15, 2012. These prices will change.

Table 1 (Continued)

[4]Input prices for variable costs reflect expected prices for 2013. These prices will vary by location and time of the year. Users need to adjust these prices to reflect their own expectations and price situation.

[5]Phosphate, potash, and lime applications are based on Tri-State Fertilizer Recommendations (Source: Michigan Extension Bulletin E-2567, July 1995). Lime amounts represent the pounds of standard ag lime needed to neutralize the acidity from the nitrogen supplied from sources other than ammonium sulfate. Nitrogen application rate for corn is based on research from the Department of Agronomy, Purdue University. Anhydrous ammonia is used as the nitrogen source for corn. Urea is used as the nitrogen source for wheat. Pounds of N, P_20_5, K_20, and lime by crop and soil were as follows: continuous corn, 220-45-53-660, 220-56-61-660, 220-67-69-660; rotation corn, 180-48-55-540, 180-60-63-540, 180-71-72-540; rotation beans, 0-34-80-0, 0-43-96-0, 0-52-111-0; wheat, 58-38-42-172, 84-47-48-251, 110-57-53-330; double crop beans, 0-24-62-0, 0-30-73-0, 0-37-84-0. Fertilizer prices per lb.: NH_3 @ $0.55; urea @ $0.65; P_20_5 @ $0.62; K_20 @ $0.53; lime @ $19.00/ton spread on the field. 5-10% more nitrogen might be needed on poorly drained soils. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

[6]Corn seed prices assume a biotech variety with multiple traits. A 20%-refuge is planted with varieties that do not contain insect resistant traits, but do include herbicide tolerance. Seeding rates for corn are 27,000 seeds per acre on low productivity soils and 33,000 seeds per acre on average and high productivity soils. Soybean seed prices include Round-Up Ready® varieties. Rotation soybeans are drilled with a seeding rate of 169,000 seeds per acre with a 90% germination rate. Double-crop soybeans are drilled with a seeding rate of 195,000 seeds per acre. The seeding rate for wheat is two bushels per acre.

[7]Includes insecticides and herbicides. For corn, rootworm insecticide is applied to the refuge acres. In some areas of Indiana, this may not be required. These costs do not include the application of fungicide to corn. If fungicide is applied, this will add an additional $28 to $32 per acre for material and application. Pesticide costs can vary widely based on herbicides selected, required rate of application, and product pricing.

[8]Fuel used to dry crop to a safe moisture level for storage. For double-crop soybeans, the drying charge represents the drying of wheat in order to allow an earlier planting of soybeans.

[9]Repairs are based on approximately 5-year-old machinery. For older machinery, per acre repairs and downtime cost will be higher.

[10]Hauling charge represents moving grain from field to storage.

[11]Interest is based on 5% annual rate for 9 months for seed, fertilizer, and chemicals, and for 6 months for half the machinery fuel and repairs, and all miscellaneous expenses.

[12]The cost of crop insurance represents the premium estimated for a Revenue Coverage (RP) policy at the 75% level. Estimates were based on rates in 2012. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

[13]Contribution margin is the return to labor and management, machinery services, land resources, and risk.

Table 2. Estimated per Acre Government Payments, Overhead Costs & Earnings for Low, Average, and High Productivity Indiana Soils

	Low Productivity Soil				Average Productivity Soil				High Productivity Soil			
Farm Acres	900	1000	2700	3000	900	1000	2700	3000	900	1000	2700	3000
Rotation[1]	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b
Crop contribution margin[2]	$264	$321	$264	$321	$401	$457	$401	$457	$567	$605	$567	$605
Government payment[3]	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total contribution margin	$264	$321	$264	$321	$401	$457	$401	$457	$567	$605	$567	$605
Annual overhead costs:												
Machinery ownership[4]	$123	$111	$99	$89	$123	$111	$99	$89	$123	$111	$99	$89
Family and hired labor[5]	$71	$64	$38	$34	$71	$64	$38	$34	$71	$64	$38	$34
Land[6]	$164	$164	$164	$164	$214	$214	$214	$214	$270	$270	$270	$270
Earnings or (losses)	-$95	-$18	-$37	$34	-$7	$68	$50	$120	$103	$160	$160	$212

[1]Rotations are as follows: c-c = all of the farm acres in continuous corn; c-b = one-half of the farm acres in rotation corn and one-half in rotation soybeans.

[2]Crop's contribution margin is the per acre contribution margin from Table 1.

[3]It is assumed that the upcoming farm bill will not contain a provision for direct payments or ACRE payments.

[4]The same basic machinery set, which is timely for each rotation, is used for both the c-c and c-b rotation. The larger farm size requires larger, more expensive machinery. Corn production utilizes a chisel plow tillage system, and soybeans utilize no-till. Average annual replacement costs for the larger farm size were calculated using the Purdue Machinery Cost Calculator for a timely machinery set. Seven-year trading policy is assumed for combine and planter, 10-year policy for other field machinery. On livestock farms where fewer hours each day are available for crops, or on small farms, machinery costs and/or labor costs will be higher. On well-drained soils where more days are suitable for spring field work, machinery costs could be lower. A 10-year trading policy was assumed for all machinery on the smaller acreages. Machinery ownership costs are likely to vary widely from farm to farm.

[5]For the larger acreages, labor expense includes a family living withdrawal of $63,930 ($79,658 of family living expenses less $35,454 in net nonfarm income plus $19,726 in income and self-employment taxes); a full-time employee with total compensation of $35,762; and a part-time employee with compensation of $3,085. Family living withdrawal information is obtained from Illinois FBFM summary information. Employee compensation is based on Employee Wage Rates and Compensation Packages on Kansas Farms, Kansas State University, August 2012. For the smaller acreages, labor expense includes the same family living withdrawal and no hired labor. Labor costs are likely to vary widely from farm to farm.

[6]Based on 2012 cash rent per bushel of corn yield reported in the artcile entitled "Indiana's Farmland Market Continues Moving Higher," Purdue Agricultural Economics Report, August, 2012. The relatively large estimated contribution margins for 2013 will likely place upward pressure on 2013 cash rents.

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Date: 11/15/2012

2014 Purdue Crop Cost & Return Guide

March 2014 Estimates

Both product prices and input prices may have significantly changed since these estimates were prepared.

Table 1. Estimated per Acre Crop Budgets for Low, Average, and High Productivity Indiana Soils

	Crop Budgets for Three Yield Levels[1]														
	Low Productivity Soil					Average Productivity Soil					High Productivity Soil				
	Cont. Corn	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**
Expected yield per acre[2]	122	130	43	56	30	153	163	54	70	38	184	196	65	84	46
Harvest price[3]	$4.60	$4.60	$11.40	$6.50	$11.40	$4.60	$4.60	$11.40	$6.50	$11.40	$4.60	$4.60	$11.40	$6.50	$11.40
Market revenue	$561	$598	$490	$364	$342	$704	$750	$616	$455	$433	$846	$902	$741	$546	$524
Less variable costs[4]															
Fertilizer[5]	$141	$127	$48	$64	$36	$151	$136	$58	$85	$43	$160	$146	$69	$106	$51
Seed[6]	96	96	71	44	81	118	118	71	44	81	118	118	71	44	81
Pesticides[7]	44	44	29	12	27	44	44	29	12	27	44	44	29	12	27
Dryer fuel[8]	24	19	N/A	N/A	3	30	24	N/A	N/A	4	36	29	N/A	N/A	5
Machinery fuel @ $3.66	27	27	16	17	12	27	27	16	17	12	27	27	16	17	12
Machinery repairs[9]	22	22	18	18	15	22	22	18	18	15	22	22	18	18	15
Hauling[10]	12	13	4	6	3	15	16	5	7	4	18	20	7	8	5
Interest[11]	11	11	6	5	6	12	12	7	6	6	7	6	7	7	6
Insurance/misc.[12]	32	33	23	3	4	32	33	23	3	4	32	33	23	3	4
Total variable cost	$409	$392	$215	$169	$187	$451	$432	$227	$192	$196	$464	$445	$240	$215	$206
Contribution margin[13] (Revenue - variable costs) per acre	$152	$206	$275	$195	$155	$253	$318	$389	$263	$237	$382	$457	$501	$331	$318

[1]Estimated yields and costs are for yields with average management for three different soils representing low, average, and high productivity. The high productivity soils represent soils capable of producing corn and soybeans with yields about 20% higher than average soils. Low productivity soils represent soils capable of producing corn and soybeans with yields about 20% lower than the average soils.

[2]These yields assume average weather conditions and timely plant/harvest date, except soybean double-crop yield, which is based on a July 1 planting date. Continuous corn, full-season soybean, and wheat yields are a percent of rotation corn yield: continuous corn 94%; rotation soybeans 31%; and wheat 43%. Double-crop soybean yields are 70% of full-season soybean yields. Continuous corn yields assume a chisel plow tillage system. Double-crop soybean yields apply to central and southern Indiana. Rotation corn yields for average soils are based on the long-run trends in state average yields reported by the Indiana office of the National Agricultural Statistics Service.

[3]Harvest corn price is December 2014 CME Group futures price less $0.25 basis. Harvest soybean price is November 2014 CME Group futures price less $0.35 basis. Harvest wheat price is July 2014 CME Group futures price less $.35 basis. Harvest prices were based on closing prices on March 12, 2014. These prices will change.

Table 1 (Continued)

[4]Input prices for variable costs reflect expected prices for 2014. These prices will vary by location and time of the year. Users need to adjust these prices to reflect their own expectations and price situation.

[5]Phosphate, potash, and lime applications are based on Tri-State Fertilizer Recommendations (Source: Michigan Extension Bulletin E-2567, July 1995). Lime amounts represent the pounds of standard ag lime needed to neutralize the acidity from the nitrogen supplied from sources other than ammonium sulfate. Nitrogen application rate for corn is based on research from the Department of Agronomy, Purdue University. Anhydrous ammonia is used as the nitrogen source for corn. Urea is used as the nitrogen source for wheat. Pounds of N, P_20_5, K_20, and lime by crop and soil were as follows: continuous corn, 220-45-53-660, 220-56-61-660, 220-67-69-660; rotation corn, 180-48-55-540, 180-60-63-540, 180-71-72-540; rotation beans, 0-34-80-0, 0-43-96-0, 0-52-111-0; wheat, 58-38-42-172, 84-47-48-251, 110-57-53-330; double crop beans, 0-24-62-0, 0-30-73-0, 0-37-84-0. Fertilizer prices per lb.: NH_3 @ $0.42; urea @ $0.46; P_20_5 @ $0.47; K_20 @ $0.40; lime @ $19.00/ton spread on the field. 5-10% more nitrogen might be needed on poorly drained soils. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

[6]Corn seed prices assume a biotech variety with multiple traits. A 20%-refuge is planted with varieties that do not contain insect resistant traits, but do include herbicide tolerance. Seeding rates for corn are 27,000 seeds per acre on low productivity soils and 33,000 seeds per acre on average and high productivity soils. Soybean seed prices include Round-Up Ready® varieties. Rotation soybeans are drilled with a seeding rate of 169,000 seeds per acre with a 90% germination rate. Double-crop soybeans are drilled with a seeding rate of 195,000 seeds per acre. The seeding rate for wheat is two bushels per acre.

[7]Includes insecticides and herbicides. For corn, rootworm insecticide is applied to the refuge acres. In some areas of Indiana, this may not be required. These costs do not include the application of fungicide to corn. If fungicide is applied, this will add an additional $28 to $32 per acre for material and application. Pesticide costs can vary widely based on herbicides selected, required rate of application, and product pricing.

[8]Fuel used to dry crop to a safe moisture level for storage. For double-crop soybeans, the drying charge represents the drying of wheat in order to allow an earlier planting of soybeans.

[9]Repairs are based on approximately 5-year-old machinery. For older machinery, per acre repairs and downtime cost will be higher.

[10]Hauling charge represents moving grain from field to storage.

[11]Interest is based on 5% annual rate for 9 months for seed, fertilizer, and chemicals, and for 6 months for half the machinery fuel and repairs, and all miscellaneous expenses.

[12]The cost of crop insurance represents the premium estimated for a Revenue Coverage (RP) policy at the 75% level. Estimates were based on rates in 2013. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

[13]Contribution margin is the return to labor and management, machinery services, land resources, and risk.

Table 2. Estimated per Acre Government Payments, Overhead Costs & Earnings for Low, Average, and High Productivity Indiana Soils

	Low Productivity Soil				Average Productivity Soil				High Productivity Soil			
Farm Acres	900	1000	2700	3000	900	1000	2700	3000	900	1000	2700	3000
Rotation[1]	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b
Crop contribution margin[2]	$152	$241	$152	$241	$253	$354	$253	$354	$382	$479	$382	$479
Government payment[3]	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total contribution margin	$152	$241	$152	$241	$253	$354	$253	$354	$382	$479	$382	$479
Annual overhead costs:												
Machinery ownership[4]	$128	$115	$102	$92	$128	$115	$102	$92	$128	$115	$102	$92
Family and hired labor[5]	$86	$78	$44	$39	$86	$78	$44	$39	$86	$78	$44	$39
Land[6]	$178	$178	$178	$178	$233	$233	$233	$233	$298	$298	$298	$298
Earnings or (losses)	-$240	-$130	-$172	-$68	-$194	-$72	-$126	-$10	-$130	-$12	-$62	$50

[1]Rotations are as follows: c-c = all of the farm acres in continuous corn; c-b = one-half of the farm acres in rotation corn and one-half in rotation soybeans.

[2]Crop's contribution margin is the per acre contribution margin from Table 1.

[3]It is assumed that the upcoming farm bill will not contain a provision for direct payments or ACRE payments.

[4]The same basic machinery set, which is timely for each rotation, is used for both the c-c and c-b rotation. The larger farm size requires larger, more expensive machinery. Corn production utilizes a chisel plow tillage system, and soybeans utilize no-till. Average annual replacement costs for the larger farm size were calculated using the Purdue Machinery Cost Calculator for a timely machinery set. Seven-year trading policy is assumed for combine and planter, 10-year policy for other field machinery. On livestock farms where fewer hours each day are available for crops, or on small farms, machinery costs and/or labor costs will be higher. On well-drained soils where more days are suitable for spring field work, machinery costs could be lower. A 10-year trading policy was assumed for all machinery on the smaller acreages. Machinery ownership costs are likely to vary widely from farm to farm.

[5]For the larger acreages, labor expense includes a family living withdrawal of $77,965 ($88,430 of family living expenses less $38,257 in net nonfarm income plus $27,792 in income and self-employment taxes); a full-time employee with total compensation of $37,388; and a part-time employee with compensation of $3,225. Family living withdrawal information is based on Illinois FBFM summary information. Employee compensation is based on Employee Wage Rates and Compensation Packages on Kansas Farms, Kansas State University, August 2012. For the smaller acreages, labor expense includes the same family living withdrawal and no hired labor. Labor costs are likely to vary widely from farm to farm.

[6]Based on 2013 cash rent per bushel of corn yield reported in the artcile entitled "Up Again: Indiana's Farmland Market in 2013," Purdue Agricultural Economics Report, August, 2013. The relatively large estimated contribution margins for 2014 will likely place upward pressure on 2014 cash rents.

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Date: 3/12/14

2015 Purdue Crop Cost & Return Guide

March 2015 Estimates

Both product prices and input prices may have significantly changed since these estimates were prepared.

Table 1. Estimated per Acre Crop Budgets for Low, Average, and High Productivity Indiana Soils

	Crop Budgets for Three Yield Levels[1]														
	Low Productivity Soil					Average Productivity Soil					High Productivity Soil				
	Cont. Corn	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**	**Cont. Corn**	**Rot. Corn**	**Rot. Beans**	**Wheat**	**DC Beans**
Expected yield per acre[2]	124	132	40	57	28	155	165	50	71	35	186	198	60	85	42
Harvest price[3]	$3.90	$3.90	$9.40	$4.70	$9.40	$3.90	$3.90	$9.40	$4.70	$9.40	$3.90	$3.90	$9.40	$4.70	$9.40
Market revenue	$484	$515	$376	$268	$263	$605	$644	$470	$334	$329	$725	$772	$564	$400	$395
Less variable costs[4]															
Fertilizer[5]	$153	$137	$47	$63	$35	$163	$147	$57	$82	$42	$172	$156	$67	$102	$49
Seed[6]	100	100	74	44	85	123	123	74	44	85	123	123	74	44	85
Pesticides[7]	43	43	28	12	26	43	43	28	12	26	43	43	28	12	26
Dryer fuel[8]	31	24	N/A	N/A	3	38	30	N/A	N/A	4	46	37	N/A	N/A	5
Machinery fuel @ $2.50	19	19	11	11	8	19	19	11	11	8	19	19	11	11	8
Machinery repairs[9]	22	22	18	18	15	22	22	18	18	15	22	22	18	18	15
Hauling[10]	12	13	4	6	3	16	17	5	7	4	19	20	6	9	4
Interest[11]	12	11	6	5	6	13	12	6	6	6	6	6	7	6	6
Insurance/misc.[12]	32	33	23	3	4	32	33	23	3	4	32	33	23	3	4
Total variable cost	$424	$402	$211	$162	$185	$469	$446	$222	$183	$194	$482	$459	$234	$205	$202
Contribution margin[13] (Revenue - variable costs) per acre	$60	$113	$165	$106	$78	$136	$198	$248	$151	$135	$243	$313	$330	$195	$193

[1]Estimated yields and costs are for yields with average management for three different soils representing low, average, and high productivity. The high productivity soils represent soils capable of producing corn and soybeans with yields about 20% higher than average soils. Low productivity soils represent soils capable of producing corn and soybeans with yields about 20% lower than the average soils.

[2]These yields assume average weather conditions and timely plant/harvest date, except soybean double-crop yield, which is based on a July 1 planting date. Continuous corn, full-season soybean, and wheat yields are a percent of rotation corn yield: continuous corn 94%; rotation soybeans 30%; and wheat 43%. Double-crop soybean yields are 70% of full-season soybean yields. Continuous corn yields assume a chisel plow tillage system. Double-crop soybean yields apply to central and southern Indiana. Rotation corn yields for average soils are based on the long-run trends in state average yields reported by the Indiana office of the National Agricultural Statistics Service.

[3]Harvest corn price is December 2015 CME Group futures price less $0.25 basis. Harvest soybean price is November 2015 CME Group futures price less $0.35 basis. Harvest wheat price is July 2015 CME Group futures price less $.35 basis. Harvest prices were based on closing prices on March 11, 2015. These prices will change.

Table 1 (Continued)

[4]Input prices for variable costs reflect expected prices for 2015. These prices will vary by location and time of the year. Users need to adjust these prices to reflect their own expectations and price situation.

[5]Phosphate, potash, and lime applications are based on Tri-State Fertilizer Recommendations (Source: Michigan Extension Bulletin E-2567, July 1995). Lime amounts represent the pounds of standard ag lime needed to neutralize the acidity from the nitrogen supplied from sources other than ammonium sulfate. Nitrogen application rate for corn is based on research from the Department of Agronomy, Purdue University. Anhydrous ammonia is used as the nitrogen source for corn. Urea is used as the nitrogen source for wheat. Pounds of N, P_20_5, K_20, and lime by crop and soil were as follows: continuous corn, 220-45-53-660, 220-56-61-660, 220-67-69-660; rotation corn, 180-48-55-540, 180-60-63-540, 180-71-72-540; rotation beans, 0-34-80-0, 0-43-96-0, 0-52-111-0; wheat, 58-38-42-172, 84-47-48-251, 110-57-53-330; double crop beans, 0-24-62-0, 0-30-73-0, 0-37-84-0. Fertilizer prices per lb.: NH_3 @ $0.43; urea @ $0.52; P_20_5 @ $0.53; K_20 @ $0.40; lime @ $19.00/ton spread on the field. 5-10% more nitrogen might be needed on poorly drained soils. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

[6]Corn seed prices assume a biotech variety with multiple traits. A 20%-refuge is planted with varieties that do not contain insect resistant traits, but do include herbicide tolerance. Seeding rates for corn are 27,000 seeds per acre on low productivity soils and 33,000 seeds per acre on average and high productivity soils. Soybean seed prices include Round-Up Ready® varieties. Rotation soybeans are drilled with a seeding rate of 169,000 seeds per acre with a 90% germination rate. Double-crop soybeans are drilled with a seeding rate of 195,000 seeds per acre. The seeding rate for wheat is two bushels per acre.

[7]Includes insecticides and herbicides. For corn, rootworm insecticide is applied to the refuge acres. In some areas of Indiana, this may not be required. These costs do not include the application of fungicide to corn. If fungicide is applied, this will add an additional $28 to $32 per acre for material and application. Pesticide costs can vary widely based on herbicides selected, required rate of application, and product pricing.

[8]Fuel used to dry crop to a safe moisture level for storage. For double-crop soybeans, the drying charge represents the drying of wheat in order to allow an earlier planting of soybeans.

[9]Repairs are based on approximately 5-year-old machinery. For older machinery, per acre repairs and downtime cost will be higher.

[10]Hauling charge represents moving grain from field to storage.

[11]Interest is based on 5% annual rate for 9 months for seed, fertilizer, and chemicals, and for 6 months for half the machinery fuel and repairs, and all miscellaneous expenses.

[12]The cost of crop insurance represents the premium estimated for a Revenue Coverage (RP) policy at the 75% level. Estimates were based on rates in 2014. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

[13]Contribution margin is the return to labor and management, machinery services, land resources, and risk.

Table 2. Estimated per Acre Government Payments, Overhead Costs & Earnings for Low, Average, and High Productivity Indiana Soils

	Low Productivity Soil				Average Productivity Soil				High Productivity Soil			
Farm Acres	900	1000	2700	3000	900	1000	2700	3000	900	1000	2700	3000
Rotation[1]	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b	c-c	c-b
Crop contribution margin[2]	$60	$139	$60	$139	$136	$223	$136	$223	$243	$322	$243	$322
Government payment[3]	$60	$50	$60	$50	$60	$50	$60	$50	$60	$50	$60	$50
Total contribution margin	$120	$189	$120	$189	$196	$273	$196	$273	$303	$372	$303	$372
Annual overhead costs:												
Machinery ownership[4]	$133	$119	$106	$96	$133	$119	$106	$96	$133	$119	$106	$96
Family and hired labor[5]	$104	$93	$50	$45	$104	$93	$50	$45	$104	$93	$50	$45
Land[6]	$180	$180	$180	$180	$234	$234	$234	$234	$295	$295	$295	$295
Earnings or (losses)	-$297	-$204	-$216	-$131	-$274	-$174	-$194	-$101	-$228	-$136	-$148	-$63

[1]Rotations are as follows: c-c = all of the farm acres in continuous corn; c-b = one-half of the farm acres in rotation corn and one-half in rotation soybeans.

[2]Crop's contribution margin is the per acre contribution margin from Table 1.

[3]It is assumed that the upcoming farm bill will provide ARC-County payments in 2015.

[4]The same basic machinery set, which is timely for each rotation, is used for both the c-c and c-b rotation. The larger farm size requires larger, more expensive machinery. Corn production utilizes a chisel plow tillage system, and soybeans utilize no-till. Average annual replacement costs for the larger farm size were calculated using the Purdue Machinery Cost Calculator for a timely machinery set. Seven-year trading policy is assumed for combine and planter, 10-year policy for other field machinery. On livestock farms where fewer hours each day are available for crops, or on small farms, machinery costs and/or labor costs will be higher. On well-drained soils where more days are suitable for spring field work, machinery costs could be lower. A 10-year trading policy was assumed for all machinery on the smaller acreages. Machinery ownership costs are likely to vary widely from farm to farm.

[5]For the larger acreages, labor expense includes a family living withdrawal of $79,095 ($89,711 of family living expenses less $38,811 in net nonfarm income plus $28,195 in income and self-employment taxes); a full-time employee with total compensation of $37,930; and a part-time employee with compensation of $3,272. Family living withdrawal information is based on Illinois FBFM summary information. Employee compensation is based on Employee Wage Rates and Compensation Packages on Kansas Farms, Kansas State University, August 2012. For the smaller acreages, labor expense includes the same family living withdrawal and no hired labor. Labor costs are likely to vary widely from farm to farm.

[6]Based on 2014 cash rent per bushel of corn yield reported in the artcile entitled "A Time of Change: Indiana's Farmland Market in 2014," Purdue Agricultural Economics Report, August, 2014. The relatively low estimated contribution margins for 2015 will likely place downward pressure on 2015 cash rents.

Prepared by: Craig L. Dobbins, Michael R. Langemeier, and W. Alan Miller, Department of Agricultural Economics; Bob Nielsen, Tony J. Vyn, and Shaun Casteel, Department of Agronomy; and Bill Johnson and Kiersten Wise, Department of Botany and Plant Pathology, Purdue University.

Date: 3/12/15

Calculation of Average Government Payments per Acre

Line #		2010	2011	2012	2013	2014	Source of Information
1	Total Government Payment	372,486,000	300,460,000	322,962,000	329,792,000	106,856,000	USDA Economic Research Service
2	Milk Income Loss Payment	781,000	4,000	7,377,000	3,373,000	-	USDA Economic Research Service
3	Net Government Payment	371,705,000	300,456,000	315,585,000	326,419,000	106,856,000	Line 1 minus Line 2
4	Cropland Acres	12,716,037	12,716,037	12,716,037	12,716,037	12,590,633	Nat'l Agricultural Stats Service
5	Payment Per Acre	29	24	25	26	8	Line 3 divided by Line 5

Sources: (page references within this packet)

		2010	2011	2012	2013	2014
1	Total Government Payment	P-62	P-62	P-62	P-62	P-62
2	Less Milk Income Loss Payment	P-62	P-62	P-62	P-62	P-62
4	Cropland Acres	P-63	P-63	P-63	P-63	P-64

Data for 2015 is not currently available. The Department has estimated the Government Payment per Acre for 2015 in the following way.

Average Total Government Payment (2010 - 2014)	286,511,200
Average Milk Income Loss Payment (2010 - 2014)	2,307,000
Estimated Net Government Payment	284,204,200
Cropland Acres	12,590,633
Estimated Payment Per Acre	23

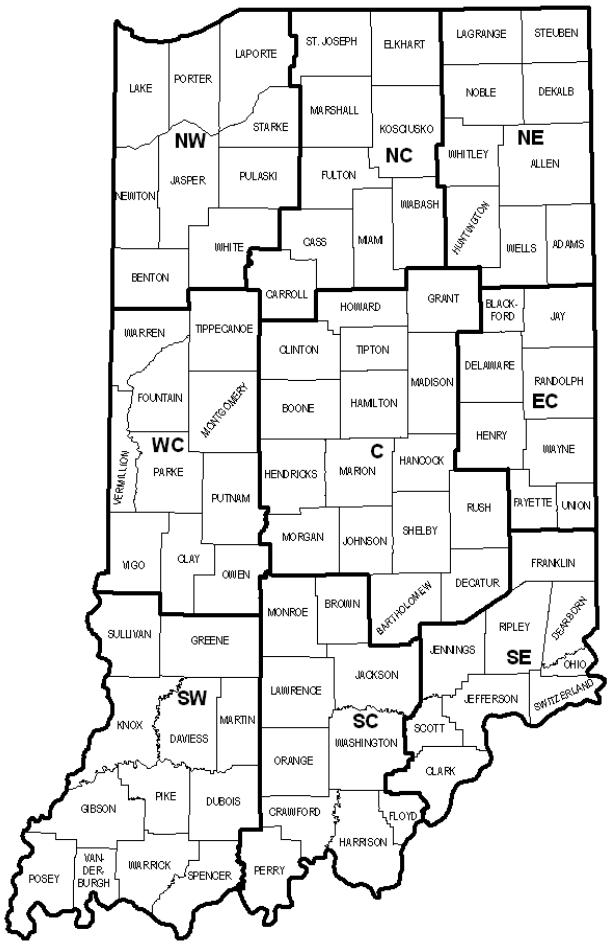
Federal Government direct farm program payments, 2010-2016F
Nominal (current dollars)

Indiana	2010	2011	2012	2013	2014
	$1,000	*$1,000*	*$1,000*	*$1,000*	*$1,000*
Federal Government direct farm program payments	372,486	300,460	322,962	329,792	106,856
Fixed direct payments	213,977	210,287	212,023	197,342	526
Cotton Transition Assistance Payments (CTAP)	NA	NA	NA	NA	0
Average Crop Revenue Election Program (ACRE)	3,104	577	6	-22	-4
Counter-cyclical payments	3	0	0	-3	0
Loan deficiency payments	14	7	0	-5	0
Marketing loan gains	0	0	0	0	0
Certificate exchange gains	0	0	NA	NA	NA
Milk income loss payments	781	4	7,377	3,373	0
Tobacco Transition Payment Program	5,454	5,433	5,435	5,417	5,402
Conservation	69,808	77,439	79,211	75,644	70,838
Biomass Crop Assistance Program (BCAP)	145	0	0	0	0
Supplemental and ad hoc disaster assistance	79,193	6,713	18,912	48,047	30,093
Miscellaneous programs	7	2	0	0	0

Footnotes
Data as of February 9, 2016
F = Forecast values.
NA = Data are not available/applicable.
Values are rounded to the nearest thousand.
U.S. government direct payments by program are net payments reflecting: (1) gross payments from the U.S. government to the farm sector; (2) payments returned to the U.S. government by the farm sector; and (3) accounting adjustments. A negative value indicates payments returned exceeded gross payments during the calendar year.

USDA/ERS Farm Income and Wealth Statistics

COUNTY HIGHLIGHTS



COUNTY HIGHLIGHTS

The following pages of county statistics represent the results of a survey of over 15,000 farm operators following the 2012 harvest season. In addition to these data are selected items of interest from the U.S. Population Census, 2007 Census of Agriculture, and 2011 Cash Receipts information from the Bureau of Economics Analysis. The County Highlights section summarizes the importance of agriculture to each and every Indiana county while comparing the magnitude of importance across counties.

Planted acreage for hay is represented by three dashes because this category is not estimated, planted acreage and yield for popcorn are represented by three dashes because these categories are not surveyed; in all other places the three dashes represent zero for that county. An asterisk signifies that the county has data for this item, but it cannot be disclosed for confidentiality purposes. The 2007 Chicken data from Census includes only layers twenty weeks old and older.

Below is a list of comparable items at the state level.

STATE DATA

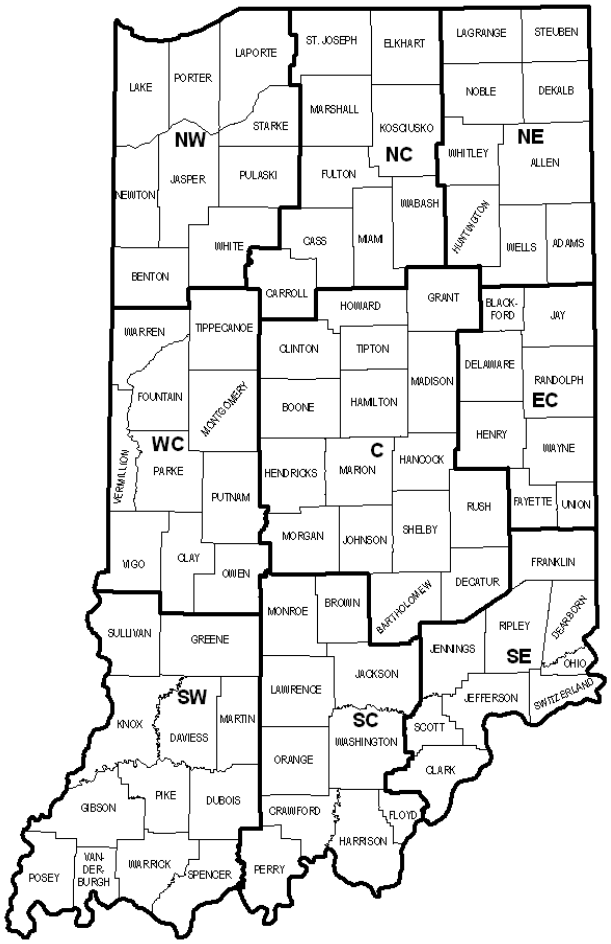
2007 Census Population	6,335,862
2007 Total Land Area (acres)	22,924,685
2007 Number of Farms	60,938
2007 Land in Farms (acres)	14,773,184
2007 Average Size of Farm (acres)	242
2007 Value of Land & Bldgs (avg/acre)	$3,583
2007 Cropland (acres)	12,716,037
2007 Harvested Cropland (acres)	12,108,940
2007 Pastureland, all types (acres)	986,522
2007 Woodland (acres)	1,020,287

2011 Cash Receipts	$12,320,006,000
Crop Receipts	$8,593,088,000
Livestock Receipts	$3,726,918,000
2011 Other Income	$772,664,000
Government Payments	$300,460,000
Imputed Income/Rent Received	$472,204,000
2011 Total Income	$13,092,670,000
Less: Production Expenses	$9,337,128,000
Realized Net Income	$3,755,542,000

2012 CROPS	PLTD	HARV	YLD	UNIT	PROD
Corn	6,250,000	6,030,000	99.0	Bu	596,970,000
Soybeans	5,150,000	5,140,000	43.5	Bu	223,590,000
Wheat	350,000	300,000	67.0	Bu	20,100,000
Alfalfa Hay	---	280,000	2.90	Ton	812,000
Other Hay	---	350,000	1.90	Ton	665,000
2007 Popcorn	---	55,768	---	Lbs	220,971,578

LIVESTOCK	NUMBER HEAD
Jan 2013 All Cattle	810,000
Beef Cows	191,000
Milk Cows	174,000
2007 All Hogs	3,669,057
2007 All Sheep	49,021
2007 Chickens	24,238,513
2007 Turkeys	5,971,548

COUNTY HIGHLIGHTS



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Below is a list of comparable items at the state level.

STATE DATA

2013 Census Population	6,570,902
2012 Total Land Area (acres)	22,928,756
2012 Number of Farms	58,695
2012 Land in Farms (acres)	14,720,396
2012 Average Size of Farm (acres)	251
2012 Value of Land & Bldgs (avg/acre)	$5,354
2012 Cropland (acres)	12,590,633
2012 Harvested Cropland (acres)	12,146,538
2012 Pastureland, all types (acres)	762,619
2012 Woodland (acres)	1,048,632

2013 Cash Receipts	$12,756,127,000
Crop Receipts	$8,697,566,000
Livestock Receipts	$4,058,561,000
2013 Other Income	$2,019,770,000
Government Payments	$328,436,000
Imputed Income/Rent Received	$1,691,334,000
2013 Total Income	$14,775,897,000
Less: Production Expenses	$10,630,120,000
Realized Net Income	$4,145,777,000

2014 CROPS	PLTD	HARV	YLD	UNIT	PROD
Corn	5,900,000	5,770,000	188.0	Bu	1,084,760,000
Soybeans	5,500,000	5,490,000	56.0	Bu	307,440,000
Wheat	390,000	335,000	76.0	Bu	25,460,000
Alfalfa Hay	---	240,000	4.00	Ton	960,000
Other Hay	---	360,000	2.75	Ton	990,000
2012 Popcorn	---	61,092	---	Lbs	151,728,996

LIVESTOCK	NUMBER HEAD
Jan 2015 All Cattle	870,000
Beef Cows	199,000
Milk Cows	181,000
2012 All Hogs	3,747,352
2012 All Sheep	52,169
2012 Chickens	25,587,222
2012 Turkeys	5,084,794