
STATE OF INDIANA

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REFERENCE MATERIALS FOR VALUING AGRICULTURAL LAND FOR JANUARY 1, 2023

BASE RATE - \$1,900

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**General Notes for the Agricultural Land Market
Value in Use for January 1, 2023, Rate of \$1,900**

December 2022

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 the Department of Local Government Finance's ("Department") calculations can be found in Chapter 2 of those guidelines, in Table 2-18. For the 2002 reassessment, the base rate for agricultural land was calculated to be \$1,050 and remained unchanged for 2003 and 2004.

Pursuant to 50 IAC 27-6-1(a), the Department issued the annual rate for March 1, 2005, to be \$880. In the 2005 legislative session, SEA 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. SEA 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 (Ind. Code 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). SEA 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 reinstated 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, & 2009 data, adding the 2013, 2014, & 2015 data, excluding the highest year (2013) of the six-year average, and adjusting the capitalization rates per SEA 308-2016 to arrive at a final base rate of \$1,960.
- The base rate for January 1, 2017, was updated by removing the 2010 data, adding the 2016 data, excluding the highest year (2013) of the six-year average, and adjusting the capitalization rates per SEA 308-2016 to arrive at a final base rate of \$1,850.
- The base rate for January 1, 2018, was updated by removing the 2011 data, adding the 2017 data, excluding the highest year (2013) of the six-year average, and adjusting the capitalization rates per SEA 308-2016 to arrive at a final base rate of \$1,610.
- The base rate for January 1, 2019, was updated by removing the 2012 data, adding the 2018 data, excluding the highest year (2013) of the six-year average, and adjusting the capitalization rates per SEA 308-2016 to arrive at a final base rate of \$1,560.
- The base rate for January 1, 2020, was updated by removing the 2013 data, adding the 2019 data, excluding the highest year (2014) of the six-year average, and adjusting the capitalization rates per SEA 308-2016 to arrive at a final base rate of \$1,280.
- The base rate for January 1, 2021, was updated by removing the 2014 data, adding the 2020 data, excluding the highest year (2020) of the six-year average, and adjusting the capitalization rates per SEA 308-2016 to arrive at a final base rate of \$1,290.
- The base rate for January 1, 2022, was updated by removing the 2015 data, adding the 2021 data, revising last year's worksheets with current data, excluding the highest year (2021) of the six-year average, and adjusting the capitalization rates per SEA 308-2016 to arrive at a final base rate of \$1,500.
- The base rate for January 1, 2023, was updated by removing the 2016 data, adding the 2022 data, revising last year's worksheets with current data, excluding the highest year (2021) of the six-year average, and adjusting the capitalization rates per SEA 308-2016 to arrive at a final base rate of \$1,900.

SEA 308 – The New Calculation of the Ag Land Base Rate Beginning January 1, 2016

Ind. Code 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 not later than March 1 of each year 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, 2023

Table 2-18 – Years:

For January 1, 2023, the six years of data used in the calculations were: 2017, 2018, 2019, 2020, 2021, and 2022.

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 Department's calculation.

The data for cash rents came from three Purdue Agricultural Economics Reports (PAER). For the 2017 and 2018 rents, go to Table 4 of the August 2018 report. For the 2019 and 2020 rents, go to Table 4 of the August 2020 report. For the 2021 and 2022 rents, go to Table 3 of the August 2022 report. From these tables, the Department 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 an annual 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 of the June 24, 1999, Doster/Huie report.

Doster/Huie Report – Table 1-Years:

This report used the years 1996, 1997, 1998, & 1999. The year 1999 was removed from the Department's 2002 calculations since the Department's calculations were based on January 1, 1999. Information for 1995 was obtained and added to the Department's 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 be found in IASS publications for that time period. Note: The Department adjusted 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 (ID-166). The dollar amount for each crop type can be found in the section titled "Estimated XXXX (year) Per Acre Production Costs in the column for Corn/Soybean Rotation for Average Soil. See the line for "Total direct cost per acre at harvest". The costs include labor, 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 in the Purdue Crop Guide (ID-166). The dollar amount for each crop type can be found in the 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 equal 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 the Department adopted comes from Table 1 of June 24, 1999, Doster/Huie report, the Department did make some alterations to it.

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

Years:

The Department added the statistics for 1995 which were available and deleted the estimates for 1999 since interest rates and income data were not available.

Price:

The Department 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 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, the Department chose to use the quarterly farm loan rates published by the Federal Reserve Bank of Chicago. The FRBC publishes an agricultural newsletter quarterly 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, 2023, Base Rate:

The Department first calculated the Table 2-18 Base Rate with data for the years 2017, 2018, 2019, 2020, 2021, and 2022. Current data was used and last year's worksheets were updated for this year's calculation when needed. Next, the highest market value-in-use for one of the years (2021) in the six-year rolling average was eliminated from the calculation. Then the implementation of Senate Enrolled Act 308-2016 determined the capitalization rate of 8% which lowered the Preliminary Table 2-18 Base Rate of \$2,900 to a Final Base Rate of \$1,900.

Note: A simple explanation for the increase from last year's base rate of \$1,500 to this year's rate of \$1,900 is that the data for 2016 dropped off of the six-year rolling average this year and the data for 2022 was added. The 2016 data used in last year's calculation was considerably lower than the 2022 data used in this year's calculation. The market value in use per acre for 2016 was \$2,594 and was replaced with the 2022 market value in use per acre of \$4,982.

- 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

Agricultural Land Base Rate Value

The 2019 general reassessment agricultural land value utilizes the land's current market value, 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 of agricultural land is calculated by dividing the net income of each acre by the appropriate capitalization rate.

$$\text{Market value} = \text{Net Income} \div \text{Capitalization Rate}$$

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 of both methods in determining the market value 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.

Table 2-18 Agricultural Land Value

| Year | NET INCOMES | | | MARKET VALUE IN USE | | |
|------|-------------|-----------|-----------|---------------------|-----------|---------|
| | Cash Rent | Operating | Cap. Rate | Cash Rent | Operating | Average |
| 2013 | 204 | 341 | 8.00% | 2,550 | 4,263 | 3,406 |
| 2014 | 205 | 171 | 8.00% | 2,563 | 2,138 | 2,350 |
| 2015 | 198 | -39 | 8.00% | 2,475 | -488 | 994 |
| 2016 | 173 | 75 | 8.00% | 2,163 | 938 | 1,550 |
| 2017 | 175 | 30 | 8.00% | 2,188 | 375 | 1,281 |
| 2018 | 181 | 79 | 8.00% | 2,263 | 988 | 1,625 |

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.

Indiana Code section 6-1.1-4-13(a) declares, “**In assessing or reassessing land, the land shall be assessed as agricultural land *only when it is devoted to agricultural use***” [emphasis added]. Indiana Code section 6-1.1-4-13(e) states, “This section does not apply to land purchased for industrial or commercial uses.”

Pursuant to Indiana Code section 6-1.1-4-13, land “devoted to agricultural use” shall be assessed as agricultural land. However, land “*purchased for*” an industrial or commercial uses shall not be assessed as agricultural land. Additionally, all land *utilized* for agricultural purposes is valued as agricultural land -- using a statewide base rate and a soil productivity index system. Unless provided elsewhere in the law, the Manual, or Guidelines, the parcel's size does not determine the property classification or pricing method for the parcel. Rather, the property classification and pricing method are determined by the property's use or zoning. For example, some commercial and industrial zoned acreage tracts devote a portion of the parcel to an agricultural use. The assessing official must classify these parcels as either commercial or industrial. However, the portions of land devoted to agricultural use are to be valued using the agricultural land assessment formula. Portions not used for agricultural purposes are to be valued using the commercial and industrial acreage guidelines. To illustrate:

- (1) A major industrial corporation purchased a 40 acre cornfield to locate a corn processing facility in Indiana. After undergoing the local zoning process, the entire parcel was re-zoned from agricultural zoning to industrial zoning. The corporation has utilized 15 acres of the parcel by constructing a manufacturing and warehouse facility with the idea that the remaining 25 acres would be

available for future expansion, if necessary. The 25 acres in reserve is currently being cash rented to a local agricultural producer, who row-crops the acreage.

Conclusion: The assessor should assign a property classification of 310 - Food and Drink Processing Facility - to the 40 acre parcel. The 15 acre portion of the acreage that is utilized for industrial purposes should be assigned land use codes representing the industrial acreage base rates for that particular area of the jurisdiction. The 25 acre portion of the parcel that is being row-cropped by the local farmer should be priced using the agricultural productivity method of pricing. The 25 acres would have the soil types delineated by soil type, have each type soil analyzed for its land cover class, and have its assessment calculated using the agricultural base rate.

(2) The ACME Development Company purchased a 30 acre parcel of land that was being used for agricultural purposes. ACME appeared before the local zoning officials and received a zoning change for the front 10 acres as to be commercial retail, and the rear 20 acres, which has access from an adjoining state highway, was zoned for a commercial office. ACME immediately began constructing a retail shopping complex on the front 10 acres of the parcel. The 20 acres is being cash rented to a local farmer, but is offered for sale by a local real estate broker.

Conclusion: The 30 acre parcel should have a property class designation of 326 -- Neighborhood Shopping Center assigned to it. The front 10 acre commercial portion of the parcel should be valued using the commercial acreage base rate for this area of the jurisdiction. The rear 20 acres that is being farmed should be priced using the agricultural productivity method of pricing. The 20 acres should have the soil types delineated by soil type, have each type soil analyzed for its land cover class, and have its assessment calculated using the agricultural base rate for that particular year.

(3) The Good Development (GDC) purchased a 20 acre parcel that was being used for agricultural purposes and had a property class code of 100 – Vacant land. The agricultural productivity method of calculating an assessment valued the parcel at \$22,800 at the time of the purchase in October 2018. GDC purchased the land for the purpose of platting and developing a 40 lot residential subdivision. Once the local Area Planning Commission granted approval for the subdivision and changed the zoning from agricultural to residential, GDC did all the necessary paperwork and filed the plat with the county recorder's office in February 2008.

Conclusion: For January 1, 2019, the county auditor follows Indiana Code section 6-1.1-5-3 and assigns parcel numbers to the 40 lots indicated on the plat of the subdivision and notifies the assessing official that the 20 acre parcel has become 40 lots, which need to be assessed for January 1, 2019. The assessing official acknowledges that GDC is the developer by reviewing the plat and, based

on Indiana Code section 6-1.1-4-12(i), knows that the overall assessment cannot be increased because the acreage has become 40 platted lots. However, the agricultural base rate within the agricultural productivity formula has increased from \$1,140 to \$1,200 for January 1, 2019. Before removing the 20 acre parcel from the computer system, the assessor recalculates an assessment for that parcel using the new 2008 rate of \$1,200. The True Tax Value for this particular 20 acre parcel would equal \$24,000, if not platted into the 40 lots. Based on the language of Indiana Code section 6-1.1-4-12(i), each of the 40 parcels would have an assessed value of \$600 ($\$24,000 / 40 \text{ lots} = \600 per lot). The application of this True Tax Value can be achieved in either of two ways:

- (a) a flat value amount of \$600 can be applied to each of the 40 property record cards; or
- (b) the assessing official can calculate the assessment by determining the lots size of each parcel, applying a front foot or acreage base rate that calculates the applicable 2019 value of improved land in the extended value area of the land summary section of the property record card, and granting influence factor adjustments to each parcel that makes the value of each parcel equal to \$600 per lot.

Land purchased and used for an agricultural purpose qualifies for all land use types associated with the agricultural classification and agricultural soil productivity method of pricing. This includes cropland or pasture land (i.e., tillable land) as well as woodlands

Indiana Code section 6-1.1-4-12 states that if land assessed on an acreage basis (i.e., agricultural land) is subdivided into lots; or land is rezoned for, or put to, a different use, the land shall be reassessed on the basis of its new classification. If improvements are added to real property, the improvements shall be assessed. Such an assessment or reassessment is effective on the next assessment date. For example, a corporation that purchased farmland, subdivided it into residential lots, and sold all but one lot, retaining ownership and converting that vacant lot into an income-producing shopping center, was not entitled to retain the lot's agricultural classification for property tax purposes. The land was properly re-classified from "agricultural" to "commercial" to reflect the land's change in use. *See Aboite Corp. v. State Bd. of Tax Com'rs*, 762 N.E.2d 254 (Ind. Tax Ct. 2001); *see also Howser Development LLC v. Vienna Twp Assessor*, 833 N.E.2d 1108 (Ind. Tax Ct. 2005).

However, Indiana Code section 6-1.1-4-12(i) and (j), added by Public Law 154-2006, clarifies the "developer's discount" for assessments. The "developer's discount" is designed to encourage developers to buy farmland, subdivide into lots, and resell the lots. A lot, or a tract that has not been subdivided into lots, to which a land developer holds title in the ordinary course of its business, may *not* be reassessed until the next assessment date following the earliest of:

- (1) the date on which title to the land is transferred by the land developer (or successor land developer) to a person that is not a land developer; or
- (2) the date on which construction of a structure begins on the land; or
- (3) the date on which a building permit is issued for construction of a building or structure on the land.

The “developer’s discount” applies regardless of whether the lot or tract is rezoned while a land developer holds title to the land. Thus, until one of the aforementioned events occurs, the land developer “reaps the benefit” of the lower agricultural land assessment.

Therefore, the controlling factors that determine whether land is to be assessed as agricultural land are whether the land was purchased for a non-agricultural use, and whether the land is currently used or zoned for an agricultural purpose; however, in some instances, the “developer’s discount” may apply and reassessment of the land may not occur until transfer of title to a non-developer, the start of construction of a building, or the issuance of a construction permit.

The definition of “agricultural land” provides ample basis for the vast majority of assessor decisions. These guidelines were adopted as directed in IC 6-1.1-4-13(d) and incorporated by reference into 50 IAC 2.4-1-2.

IC 6-1.1-4-13

Agricultural land; assessment

Sec. 13. (a) In assessing or reassessing land, the land shall be assessed as agricultural land only when it is devoted to agricultural use.

(b) For purposes of this section, and in addition to any other land considered devoted to agricultural use, any:

- (1) land enrolled in:
 - (A) a land conservation or reserve program administered by the United States Department of Agriculture;
 - (B) a land conservation program administered by the United States Department of Agriculture's Farm Service Agency; or
 - (C) a conservation reserve program or agricultural easement program administered by the United States Department of Agriculture's National Resources Conservation Service;
- (2) land enrolled in the department of natural resources' classified forest and wildlands program (or any similar or successor program);
- (3) land classified in the category of other agriculture use, as provided in the department of local government finance's real property assessment guidelines; or
- (4) land devoted to the harvesting of hardwood timber;

is considered to be devoted to agricultural use. Agricultural use for purposes of this section includes but is not limited to the uses included in the definition of

“agricultural use” in IC 36-7-4-616(b), such as the production of livestock or livestock products, commercial aquaculture, equine or equine products, land designated as a conservation reserve plan, pastureland, poultry or poultry products, horticultural or nursery stock, fruit, vegetables, forage, grains, timber, trees, bees and apiary products, tobacco, other agricultural crops, general farming operation purposes, native timber lands, or land that lays fallow. Agricultural use may not be determined by the size of a parcel or size of a part of the parcel. This subsection does not affect the assessment of any real property assessed under IC 6-1.1-6 (assessment of certain forest lands), IC 6-1.1-6.2 (assessment of certain windbreaks), or IC 6-1.1-6.7 (assessment of filter strips).

(c) The department of local government finance shall give written notice to each county assessor of:

(1) the availability of the United States Department of Agriculture's soil survey data; and

(2) the appropriate soil productivity factor for each type or classification of soil shown on the United States Department of Agriculture's soil survey map.

All assessing officials and the property tax assessment board of appeals shall use the data in determining the true tax value of agricultural land. However, notwithstanding the availability of new soil productivity factors and the department of local government finance's notice of the appropriate soil productivity factor for each type or classification of soil shown on the United States Department of Agriculture's soil survey map for the March 1, 2012, assessment date, the soil productivity factors used for the March 1, 2011, assessment date shall be used for the January 1, 2016, assessment date and each assessment date thereafter.

(d) The department of local government finance shall by rule provide for the method for determining the true tax value of each parcel of agricultural land.

(e) This section does not apply to land purchased for industrial or commercial uses.

There is a subtle distinction between residential acreage tracts and land valued using the agricultural soil productivity method. The basis for this distinction is the different valuation methods used to determine land value for the two types of land. “Agricultural land” is valued using a statewide base rate and a soil productivity index system. All land utilized for agricultural purposes is valued in this manner. “Residential land” is land that is utilized or zoned for residential purposes.

Other References

a. Assessors are further directed that all acres enrolled in programs of the United States Department of Agriculture (USDA), Farm Services Agency, and Natural Resources Conservation Service and have received a “farm number” are eligible for classification as “agricultural.” Those acres have been determined by those administering federal programs to be a part of an “agricultural operation.” This applies to non-homestead acreage.

- b.** As further evidence of the proper classification of woodlands as agricultural land, the Indiana State Department of Agriculture (ISDA) considers the growing of timber as an agricultural activity by identifying the need to “increase Indiana’s competitiveness in the hardwood sector” as one of its eight major strategies. The Department’s practices and rules support the assertion that the growing of timber is a viable Indiana agricultural crop and should be assessed as such.
- c.** The Department recognizes that certain circumstances may blur the line between the residential property class designation and the agricultural designation when wooded areas are involved. In the preparation of this memorandum, the Department has consulted with the Department of Natural Resources (DNR). The DNR monitors Indiana’s timberland and classified forest programs. In its implementation of the Classified Forest and Wildland Certification Program authorized in IC 6-1.1-6, participating woodland owners with 10 acres or more automatically qualify for the American Tree Farm System’s certification benefits, which include marketing the forest’s products as “green certified.” The Classified Forest and Wildland Program materials also state that timber harvest is not required to qualify for the classification program. The Department believes that the guidelines used for the classified program are applicable when distinguishing agricultural use from non-agricultural use, but other agricultural uses may qualify a parcel for the productivity method of valuation.

Parcel Size

As stated above, the issue of parcel size has no bearing on the appropriate classification or pricing method of agricultural land, whether the parcel is wooded or used for other agricultural activities.

Other Agricultural Uses

- a.** A 40 acre parcel, which at one time was a small farm, has since become a mixture of small, scattered trees and brush with less than 50% canopy cover. The assessor classified this parcel as residential excess acreage; the effect of which created a higher assessed value and tax burden than the agricultural soil productivity method.

Conclusion: The current owner purchased the parcel as an agricultural property many years ago. The land is currently uncultivated or fallow, but has not changed use nor been re-zoned. This parcel should continue to be classified as agricultural as it was purchased for agricultural use and is used as “non-tillable land” as defined in the *Guidelines*.

- b.** A five acre parcel has a one acre homesite and cattle grazing on the remaining four acres. The assessor classified the four acres using the residential excess acreage rate and refuses to acknowledge the presence of grazing cattle as an agricultural activity because the parcel is less than 10 acres. The county has an

unofficial policy of denying agricultural classification to parcels of less than 10 acres.

Conclusion: The grazing of cattle is an agricultural activity; thus, the parcel should be assessed using the agricultural productivity method as it meets the definition of “agricultural operation” in IC 32-30-6-1 and in the *Guidelines*, which define agricultural “tillable land” as land used “for cropland or pasture that has no impediments to routine tillage.” The size of the parcel has no bearing on the determination of agricultural classification.

c. A five acre parcel has a one acre home site and the remaining four acres is devoted to hay production. The county classified the hay field using the residential excess acre rate. The owner has a signed statement from a neighboring dairy farmer that the neighbor harvests the hay from the field for his cattle.

Conclusion: The acreage meets the criteria of agricultural “tillable land” as defined in the *Guidelines*. The four acres should be priced using the agricultural soil productivity method. The size of the parcel has no bearing on the determination of agricultural classification.

STATE OF INDIANA

DEPARTMENT OF LOCAL GOVERNMENT FINANCE



INDIANA GOVERNMENT CENTER NORTH
100 NORTH SENATE AVENUE N1058(B)
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PHONE (317) 232-3777
FAX (317) 974-1629

Certification of Agricultural Land Base Rate Value for Assessment Year 2023

This memorandum hereby serves to notify assessing officials of the agricultural base rate to be used for the January 1, 2023, assessment date: **\$1,900 per acre**.

Land used for agricultural purposes shall be adjusted consistent with the guideline methodology that was in effect on January 1, 2005, 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 Table 2-18 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 2023 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.

$$\text{Market value in use} = \text{Net Income} \div \text{Capitalization Rate}$$

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 (2017 to 2022) 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

| Year | <u>NET INCOMES</u> | | | <u>MARKET VALUE IN USE</u> | | |
|------|--------------------|-----------|-----------|------------------------------------|-----------|----------------|
| | Cash Rent | Operating | Cap. Rate | Cash Rent | Operating | Average |
| 2017 | 175 | 30 | 8.00% | 2,188 | 375 | 1,281 |
| 2018 | 181 | 51 | 8.00% | 2,263 | 638 | 1,450 |
| 2019 | 181 | 6 | 8.00% | 2,263 | 75 | 1,169 |
| 2020 | 192 | 141 | 8.00% | 2,400 | 1,763 | 2,081 |
| 2021 | 206 | 340 | 8.00% | 2,575 | 4,250 | 3,413 |
| 2022 | 230 | 331 | 8.00% | 2,875 | 4,138 | 3,506 |
| | | | | Average Market Value in Use | | \$1,900 |

The statewide agricultural land base rate value for the 2023 assessment year will be \$1,900 per acre.

Dated this 30 day of December 2022.



Wesley R. Bennett, Commissioner
 Department of Local Government Finance

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/} | <u>\$2.69</u> | <u>\$6.90</u> | <u>\$2.60</u> | <u>\$6.88</u> | <u>\$2.06</u> | <u>\$5.49</u> | <u>\$2.04</u> | <u>\$5.40</u> |
| Sales | \$331 | \$262 | \$317 | \$299 | \$282 | \$231 | \$274 | \$232 |
| Less variable costs ^{2/} | <u>134</u> | <u>94</u> | <u>137</u> | <u>96</u> | <u>148</u> | <u>85</u> | <u>145</u> | <u>86</u> |
| Crops contribution margin | \$197 | \$168 | \$180 | \$203 | \$134 | \$146 | \$129 | \$146 |
| Plus government payment ^{3/} | <u>\$23</u> | | <u>\$45</u> | | <u>\$53</u> | | <u>\$34</u> | |
| 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/} | <u>10</u> | | <u>10</u> | | <u>10</u> | | <u>10</u> | |
| 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/} | <u>\$2.69</u> | <u>\$6.90</u> | <u>\$2.60</u> | <u>\$6.88</u> | <u>\$2.06</u> | <u>\$5.49</u> | <u>\$2.04</u> | <u>\$5.40</u> |
| Sales | \$407 | \$323 | \$390 | \$369 | \$348 | \$280 | \$337 | \$285 |
| Less variable costs ^{2/} | <u>153</u> | <u>103</u> | <u>157</u> | <u>106</u> | <u>170</u> | <u>91</u> | <u>167</u> | <u>92</u> |
| Crops contribution margin | \$254 | \$220 | \$233 | \$263 | \$178 | \$189 | \$170 | \$193 |
| Plus government payment ^{3/} | <u>\$29</u> | | <u>\$56</u> | | <u>\$64</u> | | <u>\$42</u> | |
| 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/} | <u>14</u> | | <u>14</u> | | <u>14</u> | | <u>14</u> | |
| 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, 2023

Senate Enrolled Act 308 - Assignment of Capitalization Rate To Determine Final Base Rate Per IC 6-1.1-4-4.5 (e)

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

| Year | NET INCOMES PER ACRE | | RATE | MARKET VALUE IN USE PER ACRE | | AVERAGE MARKET VALUE IN USE PER ACRE |
|------|----------------------|----------------|------------------|------------------------------|------------------|--------------------------------------|
| | Cash Rent | Owner-Operated | | Cash Rent | Owner-Operated | |
| 2017 | 175 | 30 | 5.04% | 3,472 | 595 | 2,034 |
| 2018 | 181 | 51 | 5.58% | 3,244 | 914 | 2,079 |
| 2019 | 181 | 6 | 5.53% | 3,273 | 108 | 1,691 |
| 2020 | 192 | 141 | 4.50% | 4,267 | 3,133 | 3,700 |
| 2021 | 206 | 340 | 4.21% | 4,893 | 8,076 | 6,485 |
| 2022 | 230 | 331 | 5.63% | 4,085 | 5,879 | 4,982 |

2,900

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

Determination of SEA 308 Capitalization Rate:

Prior Year's Final Base Rate 1,500
 Current Year's Preliminary Base Rate 2,900
 Percent Difference 93.3%

SEA 308 Capitalization Rate To Use: 8%

IC 6-1.1-4-4.5 (e) (4) (See statute for exact language)
 (A.) If there is an increase of 10% or more, the rate will be 8%.
 (B.) If there is a decrease of 10% or more, the rate will be 6%.
 (C.) If neither (A.) or (B.) applies, the rate will be 7%.

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

| Year | NET INCOMES PER ACRE | | RATE | MARKET VALUE IN USE PER ACRE | | AVERAGE MARKET VALUE IN USE PER ACRE |
|------|----------------------|----------------|------------------|------------------------------|------------------|--------------------------------------|
| | Cash Rent | Owner-Operated | | Cash Rent | Owner-Operated | |
| 2017 | 175 | 30 | 8.00% | 2,188 | 375 | 1,281 |
| 2018 | 181 | 51 | 8.00% | 2,263 | 638 | 1,450 |
| 2019 | 181 | 6 | 8.00% | 2,263 | 75 | 1,169 |
| 2020 | 192 | 141 | 8.00% | 2,400 | 1,763 | 2,081 |
| 2021 | 206 | 340 | 8.00% | 2,575 | 4,250 | 3,413 |
| 2022 | 230 | 331 | 8.00% | 2,875 | 4,138 | 3,506 |

1,900

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

Table 2-18 - Updated for January 1, 2023
Source: Real Property Assessment Guidelines

| | Column A | Column B | Column C | Column D | Column E | Column F |
|------|-----------|---------------------------|-------------------------|---------------------------------|---------------------------------|---|
| Year | Cash Rent | NET INCOMES PER ACRE | RATE | MARKET VALUE IN USE PER ACRE | MARKET VALUE IN USE PER ACRE | AVERAGE MARKET VALUE IN USE PER ACRE |
| 2017 | 175 | Owner-Operated P-17 30 | Cap. Rate 5.04% P-33 | Cash Rent 3,472 P-26 | Owner-Operated 595 | 2,034 (1) |
| 2018 | 181 | P-17 51 | 5.58% P-33 | 3,244 P-26 | 914 | 2,079 (1) |
| 2019 | 181 | P-17 6 | 5.53% P-33 | 3,273 P-26 | 108 | 1,691 (1) |
| 2020 | 192 | P-17 141 | 4.50% P-33 | 4,267 P-26 | 3,133 | 3,700 (1) |
| 2021 | 206 | P-17 340 | 4.21% P-33 | 4,893 P-26 | 8,076 | 6,485 (1) |
| 2022 | 230 | P-17 331 | 5.63% P-33 | 4,085 P-26 | 5,879 | 4,982 (1) |

Base Rate 2,900 (2)
(Average - 5 Lowest Years)

Formula: Gross Cash Rent Less Property Taxes
Gross Income Less Expenses
Property Taxes

Source: Purdue Ag. Econ. Reports (PAER)
Indiana Ag. Statistics Service and Purdue Crop Guide
Federal Reserve Bank of Chicago
Average of Qtly. Farm Loan Rates

The average of Columns D and E
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)]

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.

$$\text{Market Value In Use} = \frac{\text{Net Income}}{\text{Capitalization Rate}}$$

**Table 2-18 - Updated for January 1, 2023
Calculation for Net Income-Cash Rent Column**

| <u>Year</u> | Gross Cash <u>Rent</u> | Less Property <u>Taxes</u> | Net Cash <u>Rent</u> | Cap. <u>Rate</u> | Cash Rent <u>Value</u> |
|-------------|------------------------------|----------------------------------|----------------------------|---------------------|------------------------------|
| 2017 | 205 | -30 | 175 | 5.04% | 3,472 |
| 2018 | 210 | -29 | 181 | 5.58% | 3,244 |
| 2019 | 207 | -26 | 181 | 5.53% | 3,273 |
| 2020 | 217 | -25 | 192 | 4.50% | 4,267 |
| 2021 | 227 | -21 | 206 | 4.21% | 4,893 |
| 2022 | 252 | -22 | 230 | 5.63% | 4,085 |

PURDUE AGRICULTURAL ECONOMICS REPORT

YOUR SOURCE FOR IN-DEPTH AGRICULTURAL
NEWS STRAIGHT FROM THE EXPERTS

AUGUST 2018

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2018 INDIANA FARMLAND VALUES - UP, DOWN, & SIDEWAYS

CRAIG DOBBINS, PROFESSOR OF AGRICULTURAL ECONOMICS

The direction of change in Midwest farmland value has been a challenge to discern. In [Iowa, the December 2017 report](#) indicated the average value of farmland had stopped declining and increased 2% from 2016. The [March 2018 Nebraska report](#) indicated the average market value of farmland declined by 3% compared to the year earlier value. The [February 2018 Minnesota report](#) showed a statewide farmland sales prices declined by 8%. The [quarterly report by the Chicago Federal Reserve Bank issued May 2018](#) indicated a 1% decline in Illinois for the period of April 1, 2017 to April 1, 2018. This survey reported a 3% increase for this period in Indiana, a 2% increase in Iowa, and a 3% increase in Wisconsin. For the entire district, farmland values were stable.

These reports illustrate your experience with changes in farmland values is likely to depend on where you are located. The 2018 Purdue Farmland Value Sur-

vey¹ also indicates a mixture of increases and decreases in Indiana farmland values and cash rents.

On a statewide basis, June year-to-year farmland value comparisons indicate an uptick for top, average, and poor quality farmland. For the state as a whole, the strongest percent increase was for poor land, increasing 2.4%. Top and average quality farmland rose by 1.6% and 2.1%, respectively (Table 1). Rounding these changes to the nearest percent indicates a 2% statewide increase for each land quality. If one is willing to associate the word modest with these increases, these results indicate the downward adjustment in farmland values may be over.

The 2018 changes in farmland values across regions of the state and quality of farmland was a mixture of increases and decreases. Statewide top quality land had a value of \$8,668 per acre, average quality land

¹This information is a summary of data collected June 2018 as part of the Purdue Farmland Value Survey.

Northeast, Central, Southwest, and Southeast regions were a combination of increases and decreases.

The difference in cash rent per bushel across land quality continues to be small. For the state as a whole, the difference across farmland quality is only \$0.09 per bushel.

The largest regional difference in cash rent per bushel across land quality was \$0.14 in the Southwest region and \$0.13 in the Northeast. The smallest was \$0.05 and \$0.06 in the Central and North region, respectively.

On a statewide basis, rent as a percent of land value remains around 3% (Table 4 and Figure 4). This is

Table 4. Average estimated Indiana cash rent per acre, (tillable, bare land) 2017 and 2018, Purdue Land Value Survey, June 2018

| Area | Land Class | Corn bu./A | Rent/Acre | | Change '17-'18 % | Rent/bu. of Corn | | Rent as % of June Land Value | |
|------------|------------|------------|-----------|-----------|------------------|------------------|-------------|------------------------------|--------|
| | | | 2017 \$/A | 2018 \$/A | | 2017 \$/bu. | 2018 \$/bu. | 2017 % | 2018 % |
| | | | | | | | | | |
| North | Top | 208 | 249 | 263 | 5.6% | 1.23 | 1.26 | 3.0 | 3.1 |
| | Average | 174 | 205 | 210 | 2.4% | 1.20 | 1.21 | 3.0 | 2.9 |
| | Poor | 139 | 159 | 167 | 5.0% | 1.14 | 1.20 | 3.2 | 3.2 |
| Northeast | Top | 192 | 228 | 233 | 2.2% | 1.16 | 1.21 | 2.7 | 2.8 |
| | Average | 166 | 187 | 192 | 2.7% | 1.11 | 1.16 | 2.6 | 2.8 |
| | Poor | 142 | 150 | 153 | 2.0% | 1.12 | 1.08 | 2.6 | 2.8 |
| W. Central | Top | 212 | 279 | 297 | 6.5% | 1.35 | 1.40 | 2.8 | 3.1 |
| | Average | 185 | 235 | 245 | 4.3% | 1.30 | 1.32 | 2.9 | 3.1 |
| | Poor | 154 | 193 | 199 | 3.1% | 1.25 | 1.29 | 3.0 | 3.2 |
| Central | Top | 204 | 273 | 273 | 0.0% | 1.39 | 1.34 | 3.1 | 3.0 |
| | Average | 175 | 220 | 228 | 3.6% | 1.32 | 1.30 | 2.9 | 3.0 |
| | Poor | 146 | 179 | 188 | 5.0% | 1.28 | 1.29 | 3.1 | 3.0 |
| Southwest | Top | 212 | 257 | 263 | 2.3% | 1.24 | 1.24 | 2.8 | 3.0 |
| | Average | 172 | 194 | 196 | 1.0% | 1.18 | 1.14 | 2.8 | 3.2 |
| | Poor | 130 | 140 | 143 | 2.1% | 1.11 | 1.10 | 3.0 | 3.5 |
| Southeast | Top | 192 | 178 | 186 | 4.5% | 0.97 | 0.97 | 3.1 | 2.7 |
| | Average | 153 | 142 | 139 | -2.1% | 0.93 | 0.91 | 3.2 | 2.6 |
| | Poor | 115 | 106 | 102 | -3.8% | 0.85 | 0.89 | 3.2 | 2.7 |
| Indiana | Top | 204 | 253 | 261 | 3.2% | 1.27 | 1.28 | 3.0 | 3.0 |
| | Average | 173 | 205 | 210 | 2.4% | 1.21 | 1.21 | 2.9 | 3.0 |
| | Poor | 141 | 163 | 168 | 3.1% | 1.17 | 1.19 | 3.0 | 3.1 |

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 than is contained in this report. You may also want to obtain advice from a professional that manages agricultural properties.

JULY 2020

PURDUE AGRICULTURAL ECONOMICS REPORT

your source for in-depth agricultural news straight from the experts

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Indiana farmland values increase but signal concern of potential COVID-19 slump

Todd H. Kuethe, Associate Professor and Schrader Endowed Chair in Farmland Economics

Craig L. Dobbins, Professor of Agricultural Economics

The COVID-19 pandemic will be the defining economic event of 2020. As documented in the previous *Purdue Agricultural Economics Report*, the pandemic has had a profound impact on the Indiana food and agriculture sector. Land is the farm sector’s largest input, and as a result, farmland values generally reflect broad trends in the costs and returns of agricultural production. The 2020 *Purdue Land Values and Cash Rents Survey* suggests that farmland prices across the State generally improved on a year-to-year basis. However, the survey suggests that these gains primarily occurred between June and December 2019, and since December, farmland prices have declined modestly. Survey respondents expect these recent declines to continue throughout the remainder of 2020 and expressed concern over the long-run impacts of COVID-19 on Indiana farmland markets.

One survey respondent stated, “Fear of long-term COVID-19 market impacts are real among Southeast Indiana farmers. Despite good economic conditions prior to March 2020, with other factors (trade, policy, etc.), there is little optimism.” However, at least one respondent reported “land prices high during this COVID-19 pandemic, at levels not seen for several years, which was not expected.” While another stated that “sales in March were higher than we expected them to be, but due to the pandemic, we feel like they have decreased to levels similar to last year.”

Statewide, the strongest year-to-year increase was for poor quality land which increased by 6.3% to \$5,746 (Table 1). Top quality land increased by 4.5% to \$8,579, and average quality land increased by 3.2% to \$7,236. The year-to-year increases were driven by positive price movements between June and December 2019. Over this period, top, average,

Cash Rents

Statewide cash rental rates increased across all land quality classes in 2020. The largest increase was in low quality land which increased by 5.4% to \$175 per acre. This was followed by a 4.8% and 4.0% increase in average and top quality land, respectively. The rental rate increases offset the reduction in rents that occurred between 2018 and 2019.

At the regional level, cash rental rates increased across all land qualities and regions, with the

exception of low quality land in the North region which fell by 2.9%. Similar to farmland values, the West Central region had the highest cash rental rates for top (\$293), average (\$252), and poor (\$212) quality land. The largest price increases for each quality class were found in the Southwest region. Top quality land increased by 15.5% to \$269. Average quality land increased by 19.3% to \$216, and poor quality land increased by 20.1% to \$161. The West Central region also had the highest cash rental rates in a per bushel of corn basis, ranging from \$1.30 to \$1.35 per bushel.

Table 4. Average estimated Indiana cash rent per acre, (tillable, bare land) 2019 and 2020, Purdue Land Value Survey, June 2020

| Area | Land Class | Corn bu./A | Rent/Acre | | Change '19-'20 % | Rent/bu. of Corn | | Rent as % of June Land Value | |
|------------|------------|------------|-----------|-----------|------------------|------------------|-------------|------------------------------|--------|
| | | | 2019 \$/A | 2020 \$/A | | 2019 \$/bu. | 2020 \$/bu. | 2019 % | 2020 % |
| North | Top | 208 | 263 | 272 | 3.4% | 1.25 | 1.31 | 3.3 | 3.2 |
| | Average | 179 | 214 | 219 | 2.3% | 1.18 | 1.22 | 3.1 | 3.3 |
| | Poor | 150 | 170 | 165 | -2.9% | 1.13 | 1.10 | 3.4 | 3.4 |
| Northeast | Top | 201 | 226 | 242 | 7.1% | 1.12 | 1.20 | 3.0 | 2.8 |
| | Average | 176 | 189 | 205 | 8.5% | 1.07 | 1.16 | 2.8 | 2.7 |
| | Poor | 152 | 152 | 174 | 14.5% | 1.00 | 1.14 | 2.9 | 2.7 |
| W. Central | Top | 217 | 284 | 293 | 3.2% | 1.31 | 1.35 | 3.1 | 3.1 |
| | Average | 189 | 241 | 252 | 4.6% | 1.28 | 1.33 | 3.1 | 3.1 |
| | Poor | 163 | 195 | 212 | 8.7% | 1.20 | 1.30 | 3.1 | 3.2 |
| Central | Top | 211 | 251 | 261 | 4.0% | 1.21 | 1.24 | 2.9 | 3.0 |
| | Average | 184 | 219 | 222 | 1.4% | 1.19 | 1.21 | 2.9 | 2.9 |
| | Poor | 157 | 180 | 185 | 2.8% | 1.15 | 1.18 | 2.9 | 3.0 |
| Southwest | Top | 211 | 233 | 269 | 15.5% | 1.10 | 1.27 | 2.9 | 2.9 |
| | Average | 179 | 181 | 216 | 19.3% | 1.01 | 1.21 | 2.7 | 3.0 |
| | Poor | 148 | 134 | 161 | 20.1% | 0.91 | 1.09 | 3.0 | 3.2 |
| Southeast | Top | 188 | 189 | 200 | 5.8% | 1.01 | 1.06 | 3.2 | 3.3 |
| | Average | 162 | 151 | 171 | 13.2% | 0.93 | 1.06 | 3.3 | 3.5 |
| | Poor | 132 | 116 | 131 | 12.9% | 0.88 | 0.99 | 3.5 | 3.6 |
| Indiana | Top | 204 | 249 | 259 | 4.0% | 1.22 | 1.27 | 3.0 | 3.0 |
| | Average | 175 | 207 | 217 | 4.8% | 1.18 | 1.24 | 3.0 | 3.0 |
| | Poor | 147 | 166 | 175 | 5.4% | 1.13 | 1.19 | 3.1 | 3.0 |

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.

PURDUE **AGRICULTURAL ECONOMICS REPORT**

| | |
|-------------------|---|
| Article title: | Indiana Farmland Prices Grow at Record Pace in 2022 |
| Author: | Todd H. Kuethe |
| Article ID: | PAER-2022-22 |
| Publication date: | August 10, 2022 |

Indiana farmland prices grew at a record pace between June 2021 and June 2022, according to the recent *Indiana Farmland Value and Cash Rent Survey*. Statewide, the average per acre price for top quality farmland increased by 30.9% to \$12,808 (Table 1). The average per acre price of average quality farmland similarly increased by 30.1% to \$10,598. Poor quality farmland prices exhibited the largest increase of 34.0% to \$8,631. Across all quality grades, farmland prices exceeded the previous highs set in 2021. In addition, the price appreciation rates surpassed the previous record growth rates observed in 2011.

High farmland price growth was observed in almost all regions across Indiana (Figure 1). The average price for top quality farmland in the North region grew by 39.3%. In the Northeast region, average quality farmland prices increased by 38.5%, and in the Southeast region poor quality farmland prices increased by 41.9%. The highest average prices by land quality class included top quality land in the Southwest region (\$13,825 per acre), average quality land in the Central region (\$11,278 per acre), and poor quality land in the Northeast region (\$9,418 per acre).

Respondents generally expect continued price growth through the remainder of 2022 but at a more muted pace. Statewide, respondents expect prices to increase by 1.1 to 2.7% through December 2022. However, respondents expect prices to decline by about one percentage point across some regions and quality grades.

The survey also found very high appreciation rates for farmland transitioning out of agricultural production or sold for recreational purposes. Statewide, the average price of transitional land was up 36.5% from June 2021, with an average price per acre of \$24,240. Recreational land prices grew by 21.8% to an average per acre price of \$9,121. For the remainder of 2022, respondents expect transitional land to increase modestly by 2.3%, while the value of recreational land is expected to hold relatively stable.

Table 3: Average estimated Indiana cash rent per acre, (tillable, bare land) 2021 and 2022, Purdue Land Value Survey, June 2022

| Area | Land Class | Corn bu/A | Rent/Acre | | Change 21-22 % | Rent/bu. of corn | | Rent as % of June Land Value | |
|------------|------------|-----------|-----------|-----------|----------------|------------------|------------|------------------------------|--------|
| | | | 2021 \$/A | 2022 \$/A | | 2021 \$/bu | 2022 \$/bu | 2021 % | 2022 % |
| North | Top | 225 | 273 | 280 | 2.4 | 1.28 | 1.24 | 3.0 | 2.2 |
| | Average | 185 | 222 | 225 | 1.5 | 1.25 | 1.22 | 3.1 | 2.3 |
| | Poor | 152 | 174 | 179 | 3.0 | 1.19 | 1.18 | 3.1 | 2.4 |
| Northeast | Top | 215 | 242 | 293 | 21.3 | 1.18 | 1.36 | 2.6 | 2.3 |
| | Average | 187 | 211 | 239 | 13.2 | 1.19 | 1.27 | 2.6 | 2.1 |
| | Poor | 157 | 181 | 190 | 5.1 | 1.19 | 1.21 | 2.7 | 2.0 |
| W. Central | Top | 229 | 302 | 329 | 9.0 | 1.39 | 1.44 | 2.8 | 2.5 |
| | Average | 200 | 262 | 289 | 10.3 | 1.36 | 1.44 | 2.8 | 2.6 |
| | Poor | 170 | 222 | 247 | 11.4 | 1.35 | 1.45 | 2.8 | 2.7 |
| Central | Top | 212 | 272 | 295 | 8.4 | 1.28 | 1.39 | 2.7 | 2.2 |
| | Average | 187 | 235 | 249 | 6.1 | 1.26 | 1.34 | 2.6 | 2.2 |
| | Poor | 162 | 192 | 211 | 10.0 | 1.20 | 1.30 | 2.6 | 2.3 |
| Southwest | Top | 236 | 288 | 309 | 7.3 | 1.32 | 1.31 | 2.5 | 2.2 |
| | Average | 199 | 225 | 244 | 8.6 | 1.25 | 1.23 | 2.6 | 2.4 |
| | Poor | 164 | 164 | 194 | 18.6 | 1.13 | 1.19 | 2.7 | 2.4 |
| Southeast | Top | 204 | 223 | 225 | 0.9 | 1.13 | 1.10 | 3.3 | 2.5 |
| | Average | 179 | 182 | 179 | -1.5 | 1.09 | 1.00 | 3.6 | 2.6 |
| | Poor | 137 | 133 | 141 | 6.3 | 1.00 | 1.03 | 3.6 | 2.7 |
| Indiana | Top | 221 | 269 | 300 | 11.5 | 1.27 | 1.36 | 2.7 | 2.3 |
| | Average | 191 | 227 | 252 | 10.8 | 1.25 | 1.32 | 2.8 | 2.4 |
| | Poor | 161 | 183 | 207 | 13.2 | 1.20 | 1.29 | 2.8 | 2.4 |

Looking Ahead

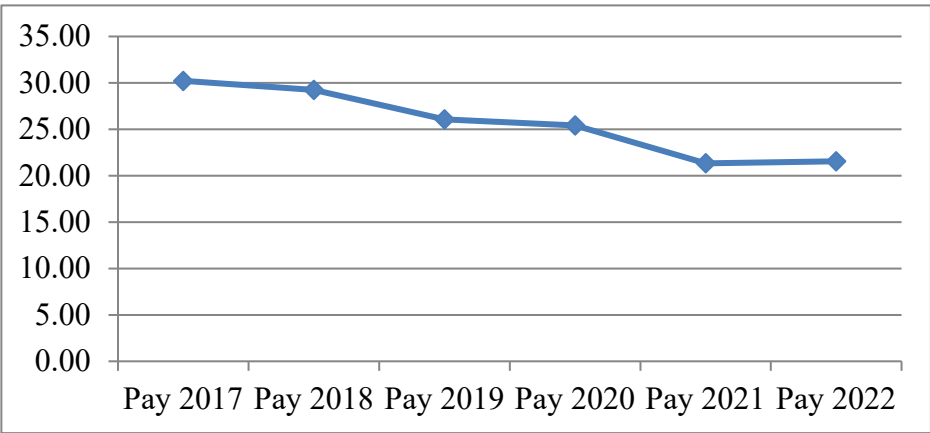
Statewide farmland prices have risen at an increasing rate over the last three years. In 2022, Indiana farmland prices recorded both record high levels and record high growth rates. The pronounced growth in farmland prices has been supported by a combination of high incomes and high farm liquidity. While respondents of the *Purdue Farmland Value and Cash Rent Survey* are optimistic for continued growth for the remainder of 2022, broader economic uncertainty dampens expectations for continued record growth. Respondents are particularly concerned with the potential for high inflation and high interest rates, and the two economic forces are not independent of one another.

Farmland market participants who experienced the 1980s Farm Financial Crisis are reminded of an era when the Federal Reserve increased interest rates rapidly to fight inflationary pressure. The rising interest rates coincided with decrease in commodity prices and farm returns. As one respondent notes, “as a lender in the 1970s, we thought we were making 50% loan to value mortgages which turned out to be 90% in short time because income fell and interest rates spiked.” The respondent adds, “Hold on to your hat!”

Purdue Farmland Value and Cash Rent Survey

The Purdue Farmland Value and Cash Rent Survey is conducted each June. The survey is possible through the cooperation and contribution of numerous professionals knowledgeable of Indiana’s farmland market. These professionals include farm managers, rural appraisers, land

Average Net Tax Bill/Acre of Farmland



January 1, 2023
Average Net Tax Bill/Acre of Farmland

| | |
|----------|-------|
| Pay 2017 | 30.22 |
| Pay 2018 | 29.23 |
| Pay 2019 | 26.05 |
| Pay 2020 | 25.40 |
| Pay 2021 | 21.33 |
| Pay 2022 | 21.55 |

| January 1, 2023 | | Real | Operating | | |
|-----------------|-------------|---------------------|--------------|-------------|----------------|
| | | <u>Estate Loans</u> | <u>Loans</u> | <u>Avg.</u> | <u>Source:</u> |
| 2017 | Jan-Mar | 4.80 | 5.13 | | P-28 |
| | Apr-June | 4.86 | 5.20 | | P-28 |
| | July-Sept | 4.84 | 5.16 | | P-28 |
| | Oct-Dec | 4.93 | 5.34 | | P-28 |
| | Average | 4.86 | 5.21 | 5.04 | |
| 2018 | Jan-Mar | 5.14 | 5.53 | | P-28 |
| | Apr-June | 5.28 | 5.69 | | P-28 |
| | July-Sept | 5.46 | 5.86 | | P-28 |
| | Oct-Dec | 5.61 | 6.07 | | P-28 |
| | Average | 5.37 | 5.79 | 5.58 | |
| 2019 | Jan-Mar | 5.53 | 6.04 | | P-30 |
| | Apr-June | 5.39 | 5.98 | | P-30 |
| | July-Sept | 5.08 | 5.71 | | P-30 |
| | Oct-Dec | 4.97 | 5.49 | | P-30 |
| | Average | 5.24 | 5.81 | 5.53 | |
| 2020 | Jan-Mar | 4.51 | 4.83 | | P-30 |
| | Apr-June | 4.40 | 4.77 | | P-30 |
| | July-Sept | 4.24 | 4.65 | | P-30 |
| | Oct-Dec | 4.10 | 4.49 | | P-30 |
| | Average | 4.31 | 4.69 | 4.50 | |
| 2021 | Jan-Mar | 4.08 | 4.42 | | P-32 |
| | Apr-June | 4.02 | 4.40 | | P-32 |
| | July-Sept | 4.01 | 4.34 | | P-32 |
| | Oct-Dec | 4.03 | 4.34 | | P-32 |
| | Average | 4.04 | 4.38 | 4.21 | |
| 2022 | Jan-Mar | 4.44 | 4.64 | | P-32 |
| | Apr-June | 5.17 | 5.42 | | P-32 |
| | July-Sept | 6.13 | 6.52 | | P-32 |
| | Oct-Dec (1) | 6.13 | 6.52 | | P-32 |
| | Average | 5.47 | 5.78 | 5.63 | |

Source: Federal Reserve Bank of Chicago.
AgLetter (a quarterly newsletter)

(1) - The information for the 4th quarter of 2022 was not available at the time of this publication so the 3rd quarter of 2022 was used.

AgLetter



FARMLAND VALUES AND CREDIT CONDITIONS

Summary

For 2018, annual farmland values in the Seventh Federal Reserve District were steady overall. Yet, values for “good” agricultural land in the fourth quarter of 2018 were up 1 percent from the third quarter, according to 183 survey respondents representing agricultural banks across the District. Although 75 percent of the responding agricultural bankers expected farmland values to be stable during the January through March period of 2019, nearly all of the rest expected farmland values to move down.

Deteriorating agricultural credit conditions continued to affect the District in the fourth quarter of 2018. Repayment rates on non-real-estate farm loans decreased in the October through December period of 2018 relative to the same period of 2017, and rates of loan renewals and extensions increased. Even so, about the same percentage (2.4 percent) of current agricultural borrowers were not likely to qualify for operating credit at the survey respondents’ banks in 2019 as in 2018. Non-real-estate loan demand in the fourth quarter of 2018 climbed from the previous year’s level, while funds available for lending were slightly lower than a year ago. The average loan-to-deposit ratio for the District (79.0 percent) was higher than a year earlier. Average interest rates on farm operating loans and farm real estate loans had moved up by the end of 2018 to levels not seen since 2010 and 2011, respectively.

Farmland values

For 2018, the District saw no annual change in “good” farmland values, on balance. That is, the District’s agricultural land values in the fourth quarter of 2018 were largely the same as a year ago (see table and map below). For the fourth quarter of 2018, there were no year-over-year changes in agricultural land values in Illinois, Indiana, and Wisconsin; Iowa’s farmland values moved down from a year earlier, while Michigan’s apparently moved up (too few Michigan bankers responded to report a numerical change in farmland values). The District’s farmland values were up 1 percent in the fourth quarter of 2018 relative to the third quarter. Illinois’s and Indiana’s agricultural land values rose in the fourth quarter of 2018 from the third quarter, but Wisconsin’s fell and Iowa’s were unchanged.

After accounting for inflation, the District actually experienced a yearly decrease of 2 percent in farmland values for 2018 (see chart 1 on next page). This was the fifth straight annual real decline in District farmland values—the longest downturn since the 1980s. The District’s farmland values fell 13 percent in real terms from their peak in 2013 to the end of 2018. But the decrease in agricultural land values over this span was just 6 percent in nominal terms (see chart 2 on next page).

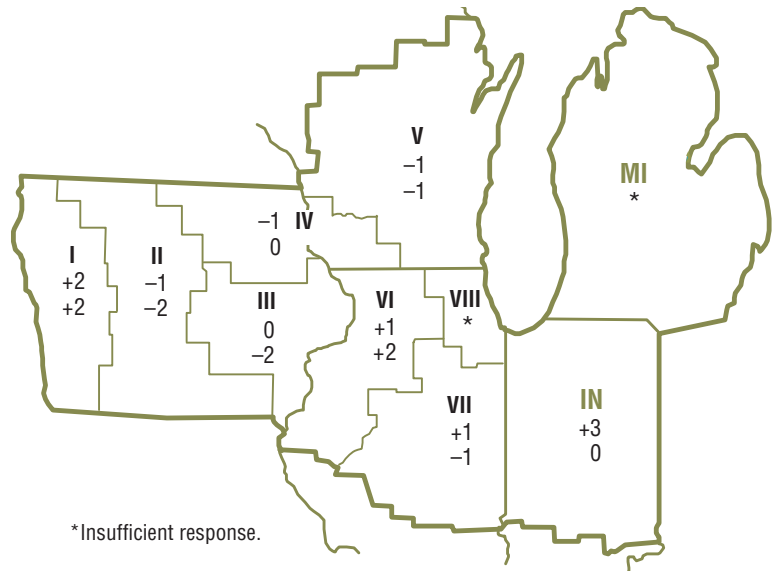
Stellar yields for District cropland supported farmland values in 2018. Based on calculations using U.S. Department of Agriculture (USDA) data, the District states’ corn yield

Percent change in dollar value of “good” farmland

Top: October 1, 2018 to January 1, 2019

Bottom: January 1, 2018 to January 1, 2019

| | October 1, 2018 to January 1, 2019 | January 1, 2018 to January 1, 2019 |
|------------------|--|--|
| Illinois | +1 | 0 |
| Indiana | +3 | 0 |
| Iowa | 0 | -1 |
| Michigan | * | * |
| Wisconsin | -1 | 0 |
| Seventh District | +1 | 0 |



Credit conditions at Seventh District agricultural banks

| | Loan demand (index) ^b | Funds availability (index) ^b | Loan repayment rates (index) ^b | Average loan-to-deposit ratio (percent) | Interest rates on farm loans | | |
|-------------|-------------------------------------|--|--|--|---|---|---------------------------------------|
| | | | | | Operating loans ^a (percent) | Feeder cattle ^a (percent) | Real estate ^a (percent) |
| 2017 | | | | | | | |
| Jan–Mar | 129 | 101 | 57 | 74.4 | 5.13 | 5.27 | 4.80 |
| Apr–June | 119 | 104 | 68 | 74.4 | 5.20 | 5.25 | 4.86 |
| July–Sept | 120 | 95 | 60 | 77.4 | 5.16 | 5.25 | 4.84 |
| Oct–Dec | 128 | 99 | 53 | 76.6 | 5.34 | 5.44 | 4.93 |
| 2018 | | | | | | | |
| Jan–Mar | 130 | 97 | 53 | 75.6 | 5.53 | 5.62 | 5.14 |
| Apr–June | 123 | 91 | 64 | 77.4 | 5.69 | 5.75 | 5.28 |
| July–Sept | 128 | 82 | 63 | 79.4 | 5.86 | 5.93 | 5.46 |
| Oct–Dec | 135 | 88 | 59 | 79.0 | 6.07 | 6.13 | 5.61 |

^aAt end of period.

^bBankers 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>.

relative to a year ago, as 44 percent of the survey respondents reported their banks tightened credit standards for agricultural loans in the fourth quarter of 2018 relative to the fourth quarter of 2017 and 56 percent reported their banks kept credit standards essentially unchanged. Likewise, 23 percent of responding bankers noted 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 2018 relative to the same period of a year ago, and none required smaller amounts.

Respondents indicated that demand for borrowing for farm operations shifted higher during the October through December period of 2018 relative to the same period of 2017. With 44 percent of survey respondents reporting an increase in the demand for non-real-estate loans from a year ago and 9 percent reporting a decrease, the index of loan demand was 135 in the fourth quarter of 2018. Yet, funds availability was below the level of a year ago for the sixth consecutive quarter: The index of funds availability stood at 88 in the final quarter of 2018, with funds availability higher than a year ago at 7 percent of the survey respondents' banks and lower at 19 percent. In line with these results, the District's average loan-to-deposit ratio was higher than a year earlier; but at 79.0 percent, this ratio was still 3.2 percentage points below the average level desired by the responding bankers.

Looking forward

Somewhat surprisingly, at the start of 2019, survey respondents indicated that only 2.4 percent (a bit lower than a year ago) of their farm customers with operating credit in the year just past were not likely to qualify for new operating credit in the year ahead. Given record crop yields in Illinois and Indiana, these states had lower percentages of borrowers not likely to get new operating credit in 2019 (only 1.0 percent in Illinois and 2.2 percent in Indiana); however, this proportion was 2.8 percent in Iowa, 2.8 percent in Michigan, and 4.3 percent in Wisconsin. The struggles of dairies probably

inflated this percentage for Wisconsin. Responding bankers expected non-real-estate agricultural loan volumes to be higher in the first quarter of 2019 relative to the same quarter of a year earlier, as volumes for operating loans and loans guaranteed by the FSA were forecasted to grow. By contrast, volumes for grain storage, farm machinery, feeder cattle, and dairy loans (as well as farm real estate loans to a lesser extent) were forecasted to be lower in the January through March period of 2019 relative to the same period of 2018. Reflecting this expected reduction in lending, as of the start of 2019, the majority of survey respondents anticipated capital expenditures by farmers would be lower in the year ahead compared with the year just ended (for the sixth year in a row).

The bulk of responding bankers (75 percent) expected farmland values to be stable in the first quarter of 2019, while 24 percent expected them to decline and only 1 percent expected them to rise. Hence, District agricultural land values are likely to be little changed in the first quarter of 2019.

David B. Oppedahl, *senior business economist*

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AgLetter



FARMLAND VALUES AND CREDIT CONDITIONS

Summary

Despite the lingering impacts of the Covid-19 pandemic, there was an annual increase of 6 percent in the Seventh Federal Reserve District’s agricultural land values in 2020—the largest such gain since 2012. Moreover, values for “good” farmland in the District were up 4 percent in the fourth quarter of 2020 from the third quarter, according to 137 agricultural bankers who responded to the survey. Fifty-eight percent of the survey respondents expected farmland values to rise during the January through March period of 2021, and 42 percent expected them to be stable; notably, none expected them to decline.

The District also experienced positive changes in its agricultural credit conditions during the fourth quarter of 2020. In the final quarter of 2020, repayment rates for non-real-estate farm loans were higher than a year ago, and loan renewals and extensions were lower than a year earlier. Neither of these farm credit indicators had recorded year-over-year improvements since the third quarter of 2013. Meanwhile, non-real-estate farm loan demand relative to a year ago was lower for the second quarter in a row. Funds available for lending by survey respondents’ banks were significantly higher than a year earlier. So, the average loan-to-deposit ratio for the District drifted down to 73.6 percent

in the fourth quarter of 2020—its lowest reading since the second quarter of 2016. The District’s average interest rates on farm operating, feeder cattle, and farm real estate loans had decreased by the end of 2020 to all-time lows. A smaller share (just 1.4 percent) of current agricultural borrowers were not likely to qualify for operating credit at the survey respondents’ banks in 2021 than in 2020.

Farmland values

For 2020, the District saw a steep annual increase of 6 percent in its farmland values (see table and map below). In the fourth quarter of 2020, Indiana and Wisconsin experienced even larger year-over-year increases in their agricultural land values than the District did overall, whereas Iowa and Michigan experienced slightly smaller increases. (Illinois’s year-over-year gain in farmland values was on par with the District’s.) The District’s farmland values rose 4 percent in the fourth quarter of 2020 relative to the third quarter.

Even with inflation taken into account, District farmland values had an annual increase of almost 5 percent in 2020; this increase in real terms was the first one since 2013 (see chart 1 on next page). In both real and nominal terms, District farmland values peaked in 2013. At the end of 2020, District farmland values were still down 9 percent from their peak in real terms, yet they were nearly back to it in nominal terms (see chart 2 on next page).

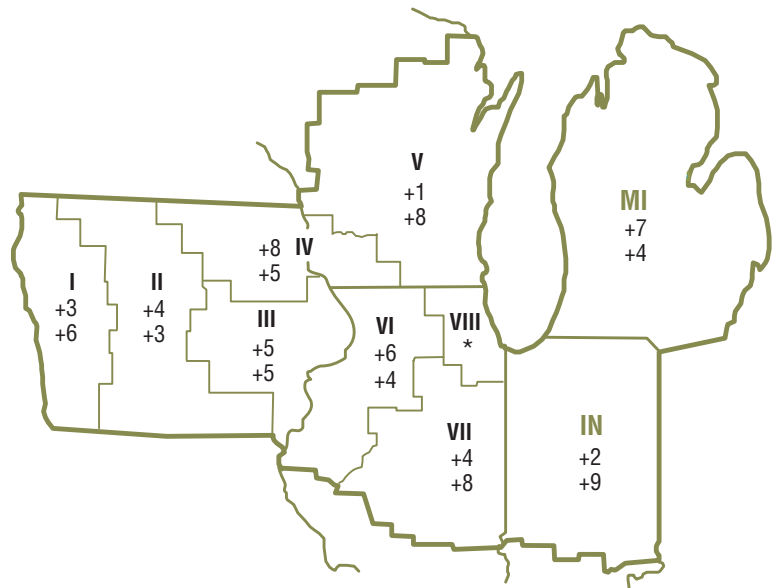
Percent change in dollar value of “good” farmland

Top: October 1, 2020 to January 1, 2021

Bottom: January 1, 2020 to January 1, 2021

| | October 1, 2020 to January 1, 2021 | January 1, 2020 to January 1, 2021 |
|------------------|--|--|
| Illinois | +4 | +6 |
| Indiana | +2 | +9 |
| Iowa | +6 | +5 |
| Michigan | +7 | +4 |
| Wisconsin | +2 | +7 |
| Seventh District | +4 | +6 |

*Insufficient response.



Credit conditions at Seventh District agricultural banks

| | Loan demand (index) ^b | Funds availability (index) ^b | Loan repayment rates (index) ^b | Average loan-to-deposit ratio (percent) | Interest rates on farm loans | | |
|-------------|-------------------------------------|--|--|--|---|---|---------------------------------------|
| | | | | | Operating loans ^a (percent) | Feeder cattle ^a (percent) | Real estate ^a (percent) |
| 2019 | | | | | | | |
| Jan–Mar | 141 | 86 | 52 | 78.6 | 6.04 | 6.11 | 5.53 |
| Apr–June | 119 | 93 | 74 | 80.2 | 5.98 | 6.14 | 5.39 |
| July–Sept | 115 | 103 | 70 | 78.8 | 5.71 | 5.77 | 5.08 |
| Oct–Dec | 117 | 107 | 79 | 78.9 | 5.49 | 5.61 | 4.97 |
| 2020 | | | | | | | |
| Jan–Mar | 117 | 107 | 59 | 78.9 | 4.83 | 5.01 | 4.51 |
| Apr–June | 103 | 119 | 64 | 77.6 | 4.77 | 4.94 | 4.40 |
| July–Sept | 85 | 131 | 93 | 75.0 | 4.65 | 4.79 | 4.24 |
| Oct–Dec | 91 | 148 | 133 | 73.6 | 4.49 | 4.66 | 4.10 |

^aAt end of period.

^bBankers 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 online, <https://www.chicagofed.org/publications/agletter/index>.

tightened credit standards for agricultural loans in the fourth quarter of 2020 from a year ago, while 2 percent reported their banks eased them. Similarly, 6 percent of responding bankers noted their banks required larger amounts of collateral for customers to qualify for non-real-estate farm loans during the final quarter of 2020 relative to a year ago, while 1 percent noted their banks required smaller amounts.

Demand for non-real-estate farm borrowing was lower during the October through December period of 2020 relative to the same period of 2019. With 17 percent of survey respondents reporting an increase in the demand for non-real-estate farm loans from a year ago and 26 percent reporting a decrease, the index of loan demand was 91 in the fourth quarter of 2020 (close to its value of 85 in the third quarter). Funds availability was above the level of a year ago for the sixth quarter in a row. In the final quarter of 2020, the index of funds availability moved up to 148 (its highest value since the first quarter of 2013), with funds availability higher than a year ago at 49 percent of the survey respondents’ banks and lower at 1 percent. Moreover, the District’s average loan-to-deposit ratio kept slipping from its peak in the second quarter of 2019; at 73.6 percent for the fourth quarter of 2020, this ratio was 9.3 percentage points below the average level desired by the responding bankers.

Looking forward

Survey respondents indicated that at the beginning of 2021, only 1.4 percent of their farm customers with operating credit in the year just past were not likely to qualify for new operating credit in the year ahead—this was an improvement from the percentage reported at the start of 2020. Farm real estate and non-real-estate loan volumes were projected to be larger in the first three months of 2021 compared with the same three months of a year ago. Yet the mix of agricultural loan types was expected to change: Farm machinery and grain storage construction loan volumes were anticipated to increase, while the volume for operating loans was

anticipated to be flat. At the start of 2021, survey respondents who forecasted capital expenditures by farmers would be higher in the year ahead compared with the year just ended outnumbered survey respondents who forecasted lower capital expenditures, reversing a trend of the past few years. An Illinois banker stated, “With the surge in commodity prices, I expect increased farmer spending on equipment upgrades.” In addition, responding bankers anticipated higher expenditures by farmers for land purchases and improvements, as well as for buildings and facilities.

For the first time since the first quarter of 2011, a majority of responding bankers (58 percent) predicted farmland values to go up in the next quarter (in this case, the first quarter of 2021). Notably, none of the survey respondents predicted farmland values to go down. The rest of the respondents (42 percent) predicted them to be stable. According to the survey results, the agricultural outlook seemed to be the rosiest in years.

David B. Oppedahl, *senior business economist*

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AgLetter



FARMLAND VALUES AND CREDIT CONDITIONS

Summary

Climbing 20 percent in the third quarter of 2022 from a year ago, agricultural land values for the Seventh Federal Reserve District maintained their upward momentum. In addition, values for “good” farmland in the District overall were 4 percent higher in the third quarter of 2022 than in the second quarter, according to the 160 bankers who responded to the October 1 survey. While just over two-thirds of the survey respondents anticipated the District’s farmland values to be stable during the fourth quarter of 2022, 25 percent anticipated District farmland values to go up again in the final quarter of this year and 7 percent anticipated them to go down.

On balance, the District’s agricultural credit conditions were better in the third quarter of 2022 than a year earlier, despite average interest rates on agricultural loans rising sharply. Repayment rates for non-real-estate farm loans were higher relative to the same quarter of the previous year for the eighth consecutive quarter. Additionally, renewals and extensions of such loans were lower than a year ago. In the third quarter of this year, demand for non-real-estate farm loans was down relative to a year ago for the ninth quarter in a row. Notably, the availability of funds for lending by agricultural banks was lower than in the third quarter of 2021. The average loan-to-deposit ratio for the District edged up to 68.2 percent in the third quarter of 2022.

AGRICULTURE CONFERENCE REMINDER

On November 29, 2022, the Federal Reserve Bank of Chicago will hold a hybrid event to examine the barriers to entry into Midwest farming, as well as some of the issues facing farm family transitions between generations. Registration is available online, <https://www.chicagofed.org/events/2022/ag-conference>.

Farmland values

With farm incomes still robust, the District had a year-over-year gain of 20 percent in its agricultural land values in the third quarter of 2022. This was the fourth year-over-year increase in a row of at least 20 percent for District farmland values. Indiana led the way with a year-over-year surge in farmland values of 29 percent; the other District states also saw double-digit year-over-year growth in farmland values (see map and table below). After being adjusted for inflation with the Personal Consumption Expenditures Price Index (PCEPI), District farmland values were still up 13 percent in the third quarter of 2022 relative to a year ago (see chart 1 on next page); this was the fifth consecutive quarter with at least as large a year-over-year increase in real farmland values. In nominal terms, the District’s agricultural land values in the third quarter of 2022 were 4 percent higher than in the second quarter.

Even though planting delays in the spring and drought over the summer lowered District states’ crop potential, 2022

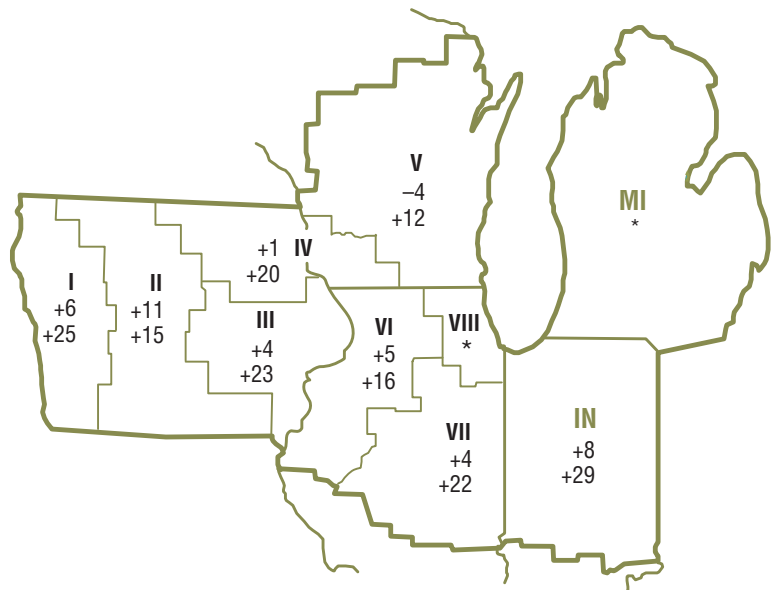
Percent change in dollar value of “good” farmland

Top: July 1, 2022 to October 1, 2022

Bottom: October 1, 2021 to October 1, 2022

| | July 1, 2022 to October 1, 2022 | October 1, 2021 to October 1, 2022 |
|------------------|---------------------------------------|--|
| Illinois | +5 | +20 |
| Indiana | +8 | +29 |
| Iowa | +6 | +22 |
| Michigan | * | * |
| Wisconsin | -3 | +12 |
| Seventh District | +4 | +20 |

*Insufficient response.



Credit conditions at Seventh District agricultural banks

| | Loan demand (index) ^b | Funds availability (index) ^b | Loan repayment rates (index) ^b | Average loan-to-deposit ratio (percent) | Interest rates on farm loans | | |
|-------------|-------------------------------------|--|--|--|---|---|---------------------------------------|
| | | | | | Operating loans ^a (percent) | Feeder cattle ^a (percent) | Real estate ^a (percent) |
| 2021 | | | | | | | |
| Jan–Mar | 79 | 162 | 146 | 69.7 | 4.42 | 4.58 | 4.08 |
| Apr–June | 63 | 160 | 146 | 67.5 | 4.40 | 4.55 | 4.02 |
| July–Sept | 78 | 161 | 143 | 68.8 | 4.34 | 4.51 | 4.01 |
| Oct–Dec | 76 | 152 | 153 | 67.2 | 4.34 | 4.53 | 4.03 |
| 2022 | | | | | | | |
| Jan–Mar | 83 | 148 | 159 | 65.0 | 4.64 | 4.74 | 4.44 |
| Apr–June | 82 | 129 | 133 | 67.0 | 5.42 | 5.53 | 5.17 |
| July–Sept | 91 | 96 | 121 | 68.2 | 6.52 | 6.58 | 6.13 |

^aAt end of period.

^bBankers 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 online, <https://www.chicagofed.org/publications/agletter/index>.

a year ago for the first time since the second quarter of 2019. The index of funds availability dropped to 96 in the third quarter of 2022, as 21 percent of the survey respondents indicated their banks had more funds available to lend than a year earlier and 25 percent indicated their banks had less. The District’s average loan-to-deposit ratio rose to 68.2 percent in the third quarter of 2022. The gap between the average loan-to-deposit ratio and the average level desired by the responding bankers was 12 percentage points; moreover, 78 percent of the survey respondents stated that their respective banks were below their targeted levels.

Looking forward

Sixty-eight percent of survey respondents anticipated District farmland values to stay the same in the final quarter of 2022, 25 percent anticipated them to rise, and 7 percent anticipated them to fall. Also, the survey respondents who expected farmers and nonfarm investors to have stronger demand to acquire farmland this fall and winter compared with a year earlier outnumbered the respondents who expected these groups to have weaker demand. On the whole, respondents anticipated a rise in the volume of farmland transfers during this fall and winter relative to a year ago.

Net cash earnings (which include government payments) for crop, cattle, and hog farmers were expected to be up during the fall and winter from their levels of a year earlier, according to the responding bankers. For crop farmers, 61 percent of survey respondents forecasted net cash earnings to rise over the next three to six months relative to a year ago, and 18 percent forecasted these earnings to fall. For cattle and hog farmers, 28 percent of survey respondents expected net cash earnings to increase over the next three to six months relative to a year ago, and 21 percent expected these earnings to decrease. The District’s dairy industry was expected to do less well, with 17 percent of responding bankers forecasting higher net cash earnings for dairy farmers over the next three to six months relative to a year earlier and 20 percent forecasting lower such earnings.

Twenty-five percent of the responding bankers predicted a higher volume of farm loan repayments over the next three to six months compared with a year earlier, while 7 percent predicted a lower volume. Also, forced sales or liquidations of farm assets owned by financially distressed farmers were expected to decrease in the next three to six months relative to a year ago, according to 30 percent of the responding bankers (only 4 percent expected them to increase). Even in a rising interest rate environment, the non-real-estate farm loan volume of the survey respondents’ banks was generally anticipated to be higher in the October through December period of 2022 than in the same period of 2021; yet their banks’ farm real estate loan volume was generally anticipated to be lower. In regard to the current situation facing Midwest agriculture, one Indiana banker noted: “Inputs are much above norms, and if commodity prices begin to fall, it will not be pretty. We still have good equity on most farms, but that can dissipate quickly.”

David B. Oppedahl, *policy advisor*

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Income Approach: November, Annual Average, & Marketing Year Average Prices

| Line # | Column | A 2017 | | B 2017 | | C 2018 | | D 2018 | | E 2019 | | F 2019 | | G 2020 | | H 2020 | | I 2021 | | J 2021 | | K 2022 | | Source or Formula: | |
|--------|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|---------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------------------|----------------------------|
| | | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | | |
| 1 | Yield | 180 | 54 | 189 | 57.5 | 169 | 51 | 187 | 59 | 195 | 59.5 | 191 | 59 | 187 | 59 | 195 | 59.5 | 191 | 59 | 195 | 59.5 | 191 | 59 | IASS - Crop Summary | |
| 2 | Price - November | 3.32 | 9.41 | 3.49 | 8.60 | 3.92 | 8.94 | 3.82 | 10.30 | 5.37 | 12.20 | 6.46 | 13.60 | 3.82 | 10.30 | 5.37 | 12.20 | 6.46 | 13.60 | 5.37 | 12.20 | 6.46 | 13.60 | IASS - Crop Prices | |
| 3 | Price - Annual Avg. | 3.63 | 9.63 | 3.63 | 9.44 | 3.98 | 8.78 | 3.75 | 9.27 | 5.45 | 13.08 | 6.73 | 14.88 | 3.75 | 9.27 | 5.45 | 13.08 | 6.73 | 14.88 | 5.45 | 13.08 | 6.73 | 14.88 | DLGF Calculation | |
| 4 | Price - Market Avg. | 3.63 | 9.69 | 3.56 | 9.61 | 3.78 | 8.73 | 3.84 | 8.92 | 4.65 | 11.10 | 5.45 | 13.30 | 3.84 | 8.92 | 4.65 | 11.10 | 5.45 | 13.30 | 4.65 | 11.10 | 5.45 | 13.30 | IASS - Crop Prices | |
| 5 | GI - November | 597.60 | 508.14 | 659.61 | 494.50 | 662.48 | 455.94 | 714.34 | 607.70 | 1047.15 | 725.90 | 1233.86 | 802.40 | 714.34 | 607.70 | 1047.15 | 725.90 | 1233.86 | 802.40 | 1047.15 | 725.90 | 1233.86 | 802.40 | Line 1 times Line 2 | |
| 6 | GI - Annual Avg. | 653.40 | 520.02 | 686.07 | 542.80 | 672.62 | 447.78 | 701.25 | 546.93 | 1062.75 | 778.26 | 1285.43 | 877.92 | 701.25 | 546.93 | 1062.75 | 778.26 | 1285.43 | 877.92 | 1062.75 | 778.26 | 1285.43 | 877.92 | Line 1 times Line 3 | |
| 7 | GI - Market Avg. | 653.40 | 523.26 | 672.84 | 552.58 | 638.82 | 445.23 | 718.08 | 526.28 | 906.75 | 660.45 | 1040.95 | 784.70 | 718.08 | 526.28 | 906.75 | 660.45 | 1040.95 | 784.70 | 906.75 | 660.45 | 1040.95 | 784.70 | Line 1 times Line 4 | |
| 8 | AA v Nov | 55.80 | 11.88 | 26.46 | 48.30 | 10.14 | -8.16 | -13.09 | -60.77 | 15.60 | 52.36 | 51.57 | 75.52 | -13.09 | -60.77 | 15.60 | 52.36 | 51.57 | 75.52 | 15.60 | 52.36 | 51.57 | 75.52 | Line 6 minus Line 5 | |
| 9 | MA v Nov | 55.80 | 15.12 | 13.23 | 58.07 | -23.66 | -10.71 | 3.74 | -81.42 | -140.40 | -65.45 | -192.91 | -17.70 | 3.74 | -81.42 | -140.40 | -65.45 | -192.91 | -17.70 | -140.40 | -65.45 | -192.91 | -17.70 | Line 7 minus Line 5 | |
| 10 | NRTL - November | 7 | | 27 | | 11 | | 166 | | 363 | | 345 | | 166 | | 363 | | 345 | | 363 | | 345 | | 345 | DLGF Calculation |
| 11 | NRTL - Annual Avg | 41 | | 64 | | 12 | | 129 | | 397 | | 409 | | 129 | | 397 | | 409 | | 397 | | 409 | | 409 | Line 10 + or - Avg. Line 8 |
| 12 | NRTL - Market Avg | 42 | | 63 | | -6 | | 127 | | 260 | | 240 | | 127 | | 260 | | 240 | | 260 | | 240 | | 240 | Line 10 + or - Avg. Line 9 |
| 13 | NRTL Average | 30 | | 51 | | 6 | | 141 | | 340 | | 331 | | 141 | | 340 | | 331 | | 340 | | 331 | | 331 | Average Lines 10, 11, & 12 |
| 14 | FRBC RE Rate | 0.0486 | | 0.0537 | | 0.0524 | | 0.0431 | | 0.0404 | | 0.0547 | | 0.0431 | | 0.0404 | | 0.0547 | | 0.0404 | | 0.0547 | | 0.0547 | Fed. Res. Bank of Chicago |
| 15 | FRBC OP Rate | 0.0521 | | 0.0579 | | 0.0581 | | 0.0469 | | 0.0438 | | 0.0578 | | 0.0469 | | 0.0438 | | 0.0578 | | 0.0438 | | 0.0578 | | 0.0578 | Fed. Res. Bank of Chicago |
| 16 | Avg. FRBC Rate | 0.0504 | | 0.0558 | | 0.0553 | | 0.0450 | | 0.0421 | | 0.0563 | | 0.0450 | | 0.0421 | | 0.0563 | | 0.0421 | | 0.0563 | | 0.0563 | Average Lines 14 & 15 |
| 17 | Operating Market Value In Use | 595 | | 914 | | 108 | | 3,133 | | 8,076 | | 5,879 | | 3,133 | | 8,076 | | 5,879 | | 8,076 | | 5,879 | | 5,879 | Line 13 / Line 16 |

NRTL = Net Return To Land

FRBC = Federal Reserve Bank of Chicago

Sources: (pages references within this packet)

| Line # | Column | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|--------|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1 | Yield | P-35 | P-35 | P-35 | P-35 | P-35 | P-35 |
| 2 | Price - November | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 |
| 3 | Price - Annual Avg. | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 |
| 4 | Price - Market Avg. | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 |
| 10 | NRTL - November | P-34 Line 12 | P-34 Line 12 | P-34 Line 12 | P-34 Line 12 | P-34 Line 12 | P-34 Line 12 |
| 14 | FRBC RE Rate | P-26 | P-26 | P-26 | P-26 | P-26 | P-26 |
| 15 | FRBC OP Rate | P-26 | P-26 | P-26 | P-26 | P-26 | P-26 |
| 16 | Avg. FRBC Rate | P-26 | P-26 | P-26 | P-26 | P-26 | P-26 |

| Line # | Doster/Huie -Table 1 Updated - December, 2022 | A 2017 | | B 2018 | | C 2019 | | D 2020 | | E 2021 | | F 2022 | | Source of Information |
|--------|--|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------------------------|
| | | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | Corn | Beans | |
| 1 | Yield per Acre | 180 | 54 | 189 | 57.5 | 169 | 51 | 187 | 59 | 195 | 59.5 | 191 | 59 | IN Ag. Stats. Service |
| 2 | Price per Bu. - November | 3.32 | 9.41 | 3.49 | 8.60 | 3.92 | 8.94 | 3.82 | 10.30 | 5.37 | 12.20 | 6.46 | 13.60 | IN Ag. Stats. Service |
| 3 | Sales | 598 | 508 | 660 | 495 | 662 | 456 | 714 | 608 | 1047 | 726 | 1234 | 802 | Line 1 X Line 2 |
| 4 | Less Variable Costs | 422 | 232 | 435 | 255 | 447 | 245 | 418 | 235 | 424 | 243 | 660 | 329 | Purdue Crop Guide |
| 5 | Contribution Margin | 176 | 276 | 225 | 240 | 215 | 211 | 296 | 373 | 623 | 483 | 574 | 473 | Line 3 - Line 4 |
| 6 | Plus Government Pymt. | 30 | | 40 | | 68 | | 102 | | 49 | | 58 | | IN Ag. Stats. Service |
| 7 | Total Contribution Margin | 241 | | 252 | | 247 | | 386 | | 578 | | 553 | | Lines 5 + 6 / 2 |
| 8 | Less Overhead: | | | | | | | | | | | | | |
| 9 | Annual Machinery | | 123 | | 130 | | | | 130 | | 130 | | 130 | Purdue Crop Guide |
| 10 | Drying/Handling | | 81 | | 66 | | | | 65 | | 64 | | 56 | Purdue Crop Guide |
| 11 | Family/Hired Labor | | 30 | | 29 | | | | 25 | | 21 | | 22 | Purdue Crop Guide |
| | Real Estate Tax | | | | | | | | | | | | | DLGF Study |
| 12 | Net Return To Land - Nov. | | 7 | | 27 | | | | 166 | | 363 | | 345 | Line 7 - 8,9,10, 11 |

Sources: (pages references within this packet)

| | | | | | | | |
|----|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1 | Yield per Acre | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| 2 | Price per Bu. - November | P-35 | P-35 | P-35 | P-35 | P-35 | P-35 |
| 4 | Less Variable Costs | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 | P-40 & 41 |
| 6 | Plus Government Pymt. | P-45 | P-48 | P-51 | P-54 | P-57 | P-60 |
| 8 | Annual Machinery | P-63 | P-63 | P-63 | P-63 | P-63 | P-63 |
| 9 | Drying/Handling | N/A | N/A | N/A | N/A | N/A | N/A |
| 10 | Family/Hired Labor | P-47 | P-50 | P-53 | P-56 | P-59 | P-62 |
| 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-10 thru 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 |
| 2011 | 146 |
| 2012 | 99 |
| 2013 | 177 |
| 2014 | 188 |
| 2015 | 150 |
| 2016 | 173 |

| | | |
|------|-----|------|
| 2017 | 180 | P-36 |
| 2018 | 189 | P-36 |
| 2019 | 169 | P-36 |
| 2020 | 187 | P-36 |
| 2021 | 195 | P-36 |
| 2022 | 191 | P-37 |

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 |
| 2011 | 45.5 |
| 2012 | 44 |
| 2013 | 51.5 |
| 2014 | 55.5 |
| 2015 | 50 |
| 2016 | 57.5 |

| | | |
|------|------|------|
| 2017 | 54 | P-38 |
| 2018 | 57.5 | P-38 |
| 2019 | 51 | P-38 |
| 2020 | 59 | P-38 |
| 2021 | 59.5 | P-38 |
| 2022 | 59 | P-39 |

Source: Indiana Agricultural Statistics Service

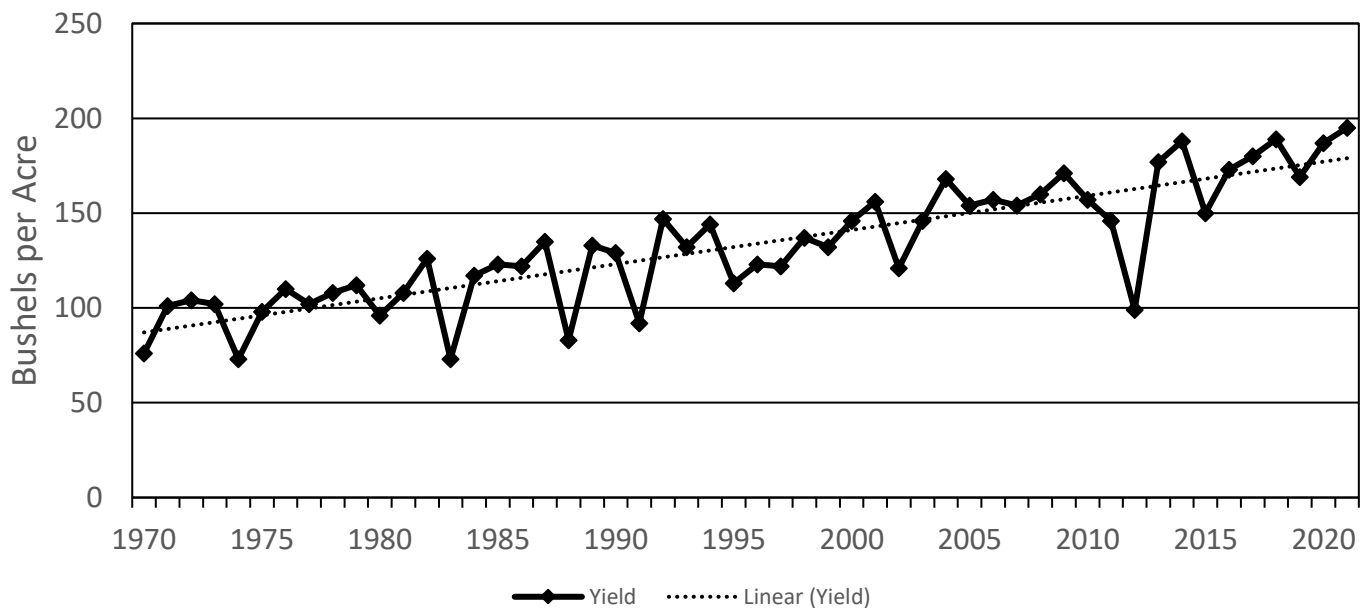
CROP SUMMARY

CORN FORECAST AND FINAL YIELD INDIANA, 1998-2021

| Year | August Forecast | September Forecast | October Forecast | November Forecast | Final Yield Per Acre |
|-------------|-----------------|--------------------|------------------|-------------------|----------------------|
| | Yield (Bu) | Yield (Bu) | Yield (Bu) | Yield (Bu) | (Bushels) |
| 1998 | 136 | 139 | 137 | 137 | 137 |
| 1999 | 130 | 128 | 128 | 130 | 132 |
| 2000 | 155 | 155 | 151 | 147 | 146 |
| 2001 | 147 | 152 | 160 | 160 | 156 |
| 2002 | 124 | 119 | 117 | 117 | 121 |
| 2003 | 144 | 145 | 148 | 150 | 146 |
| 2004 | 156 | 157 | 167 | 169 | 168 |
| 2005 | 145 | 149 | 149 | 151 | 154 |
| 2006 | 167 | 167 | 165 | 159 | 157 |
| 2007 | 157 | 160 | 158 | 158 | 154 |
| 2008 | 164 | 162 | 160 | 160 | 160 |
| 2009 | 163 | 163 | 166 | 166 | 171 |
| 2010 | 176 | 170 | 160 | 160 | 157 |
| 2011 | 150 | 145 | 145 | 145 | 146 |
| 2012 | 100 | 100 | 100 | 100 | 99 |
| 2013 | 166 | 166 | (¹) | 174 | 177 |
| 2014 | 179 | 184 | 186 | 186 | 188 |
| 2015 | 158 | 156 | 156 | 156 | 150 |
| 2016 | 187 | 185 | 177 | 177 | 173 |
| 2017 | 173 | 171 | 173 | 181 | 180 |
| 2018 | 186 | 192 | 194 | 194 | 189 |
| 2019 | 166 | 161 | 162 | 165 | 169 |
| 2020 | 188 | 186 | 189 | 189 | 187 |
| 2021 | 194 | 197 | 194 | 189 | 195 |

¹ Data not available due to sequestration.

Corn Yield Trend Indiana, 1970-2021





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 2022 | YEAR | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - YIELD, MEASURED IN BU / ACRE | TOTAL | NOT SPECIFIED | 191 | |
| SURVEY 2022 | YEAR - AUG FORECAST | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - YIELD, MEASURED IN BU / ACRE | TOTAL | NOT SPECIFIED | 189 | |
| SURVEY 2022 | YEAR - NOV FORECAST | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - YIELD, MEASURED IN BU / ACRE | TOTAL | NOT SPECIFIED | 191 | |
| SURVEY 2022 | YEAR - OCT FORECAST | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - YIELD, MEASURED IN BU / ACRE | TOTAL | NOT SPECIFIED | 187 | |
| SURVEY 2022 | YEAR - SEP FORECAST | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - YIELD, MEASURED IN BU / ACRE | TOTAL | NOT SPECIFIED | 186 | |

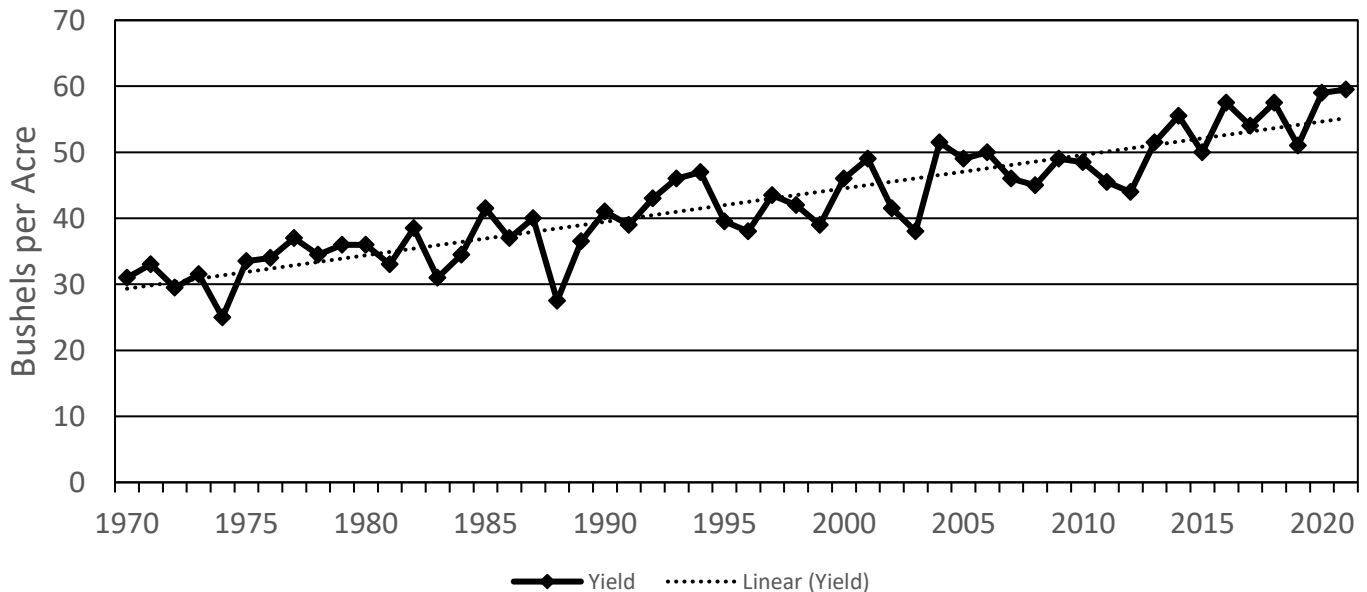
CROP SUMMARY

SOYBEAN FORECAST AND FINAL YIELD INDIANA, 1998-2021

| Year | August Forecast Yield (Bu) | September Forecast Yield (Bu) | October Forecast Yield (Bu) | November Forecast Yield (Bu) | Final Yield Per Acre (Bushels) |
|-------------|-------------------------------|----------------------------------|--------------------------------|---------------------------------|-----------------------------------|
| 1998 | 45.0 | 45.0 | 42.0 | 42.0 | 42.0 |
| 1999 | 41.0 | 40.0 | 39.0 | 38.0 | 39.0 |
| 2000 | 46.0 | 46.0 | 46.0 | 46.0 | 46.0 |
| 2001 | 46.0 | 48.0 | 49.0 | 49.0 | 49.0 |
| 2002 | 41.0 | 41.0 | 40.0 | 41.0 | 41.5 |
| 2003 | 43.0 | 43.0 | 40.0 | 38.0 | 38.0 |
| 2004 | 45.0 | 45.0 | 51.0 | 53.0 | 51.5 |
| 2005 | 46.0 | 45.0 | 46.0 | 48.0 | 49.0 |
| 2006 | 49.0 | 50.0 | 51.0 | 51.0 | 50.0 |
| 2007 | 47.0 | 43.0 | 43.0 | 44.0 | 46.0 |
| 2008 | 46.0 | 43.0 | 42.0 | 44.0 | 45.0 |
| 2009 | 45.0 | 43.0 | 43.0 | 46.0 | 49.0 |
| 2010 | 49.0 | 50.0 | 50.0 | 50.0 | 48.5 |
| 2011 | 43.0 | 42.0 | 42.0 | 42.0 | 45.5 |
| 2012 | 37.0 | 37.0 | 41.0 | 44.0 | 44.0 |
| 2013 | 50.0 | 48.0 | (¹) | 50.0 | 51.5 |
| 2014 | 51.0 | 52.0 | 54.0 | 54.0 | 55.5 |
| 2015 | 49.0 | 50.0 | 51.0 | 51.0 | 50.0 |
| 2016 | 55.0 | 58.0 | 59.0 | 59.0 | 57.5 |
| 2017 | 55.0 | 56.0 | 55.0 | 55.0 | 54.0 |
| 2018 | 58.0 | 60.0 | 60.0 | 60.0 | 57.5 |
| 2019 | 50.0 | 49.0 | 48.0 | 49.0 | 51.0 |
| 2020 | 61.0 | 60.0 | 60.0 | 58.0 | 59.0 |
| 2021 | 60.0 | 60.0 | 60.0 | 57.0 | 59.5 |

¹ Data not available due to sequestration.

Soybean Yield Trend Indiana, 1970-2021





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 2022 | YEAR | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - YIELD, MEASURED IN BU / ACRE | TOTAL | NOT SPECIFIED | 59 | |
| SURVEY 2022 | YEAR - AUG FORECAST | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - YIELD, MEASURED IN BU / ACRE | TOTAL | NOT SPECIFIED | 60 | |
| SURVEY 2022 | YEAR - NOV FORECAST | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - YIELD, MEASURED IN BU / ACRE | TOTAL | NOT SPECIFIED | 59 | |
| SURVEY 2022 | YEAR - OCT FORECAST | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - YIELD, MEASURED IN BU / ACRE | TOTAL | NOT SPECIFIED | 59 | |
| SURVEY 2022 | YEAR - SEP FORECAST | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - YIELD, MEASURED IN BU / ACRE | TOTAL | NOT SPECIFIED | 60 | |

Corn Prices

Source: Indiana Agricultural Statistics

| | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Annual Average | Marketing Average * |
|------|------|------|-------|-------|------|------|------|------|-------|------|------|------|----------------|---------------------|
| 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 |
| 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 |
| 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 |
| 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 |
| 2014 | 4.49 | 4.48 | 4.68 | 4.86 | 4.91 | 4.63 | 4.07 | 3.88 | 3.59 | 3.48 | 3.54 | 3.80 | 4.20 | 4.47 |
| 2015 | 3.86 | 3.93 | 3.94 | 3.84 | 3.74 | 3.67 | 4.03 | 3.90 | 3.85 | 3.87 | 3.97 | 3.88 | 3.87 | 3.75 |
| 2016 | 3.97 | 3.92 | 3.93 | 3.97 | 4.09 | 4.26 | 3.89 | 3.54 | 3.41 | 3.40 | 3.44 | 3.57 | 3.78 | 3.92 |
| 2017 | 3.64 | 3.73 | 3.77 | 3.77 | 3.79 | 3.84 | 3.86 | 3.64 | 3.42 | 3.38 | 3.32 | 3.42 | 3.63 | 3.63 |
| 2018 | 3.54 | 3.59 | 3.72 | 3.80 | 3.92 | 3.81 | 3.60 | 3.54 | 3.45 | 3.44 | 3.49 | 3.70 | 3.63 | 3.56 |
| 2019 | 3.76 | 3.79 | 3.75 | 3.68 | 3.81 | 4.28 | 4.55 | 4.27 | 3.96 | 4.01 | 3.92 | 4.00 | 3.98 | 3.78 |
| 2020 | 4.10 | 4.04 | 4.03 | 3.61 | 3.43 | 3.41 | 3.51 | 3.48 | 3.77 | 3.73 | 3.82 | 4.06 | 3.75 | 3.84 |
| 2021 | 4.32 | 4.74 | 4.95 | 5.39 | 5.87 | 6.32 | 6.22 | 6.39 | 5.28 | 4.97 | 5.37 | 5.58 | 5.45 | 4.65 |
| 2022 | 5.58 | 6.16 | 6.60 | 7.07 | 7.03 | 7.47 | 7.14 | 7.30 | 7.05 | 6.46 | 6.46 | 6.46 | 6.73 | 5.45 |

*Marketing average is September of the previous year to August in the current year.

Source: Pages 42 & 43 of this packet

Note: November & December 2022 Prices were not available at the time this calculation was made so the October 2022 price was carried over.

Soybean Prices

Source: Indiana Agricultural Statistics

| | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Annual Average | Marketing Average * |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|---------------------|
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 2015 | 10.50 | 10.20 | 10.10 | 9.94 | 9.91 | 9.91 | 10.30 | 10.00 | 9.00 | 8.80 | 8.84 | 8.94 | 9.70 | 10.20 |
| 2016 | 8.93 | 8.80 | 8.90 | 9.29 | 10.10 | 10.90 | 10.70 | 10.30 | 9.62 | 9.45 | 9.64 | 9.91 | 9.71 | 9.16 |
| 2017 | 9.96 | 10.10 | 9.97 | 9.51 | 9.58 | 9.27 | 9.77 | 9.47 | 9.50 | 9.42 | 9.41 | 9.56 | 9.63 | 9.69 |
| 2018 | 9.61 | 9.79 | 10.10 | 10.30 | 10.50 | 10.20 | 8.94 | 8.85 | 8.75 | 8.64 | 8.60 | 8.94 | 9.44 | 9.61 |
| 2019 | 8.94 | 8.91 | 8.83 | 8.57 | 8.39 | 8.71 | 8.80 | 8.60 | 8.60 | 8.93 | 8.94 | 9.17 | 8.78 | 8.73 |
| 2020 | 9.22 | 9.04 | 9.01 | 8.64 | 8.62 | 8.70 | 8.87 | 8.80 | 9.44 | 9.81 | 10.30 | 10.80 | 9.27 | 8.92 |
| 2021 | 10.90 | 12.60 | 13.00 | 14.00 | 15.00 | 14.40 | 14.30 | 13.60 | 12.40 | 11.90 | 12.20 | 12.70 | 13.08 | 11.10 |
| 2022 | 12.90 | 14.60 | 15.50 | 15.90 | 16.00 | 17.00 | 16.00 | 15.40 | 14.50 | 13.60 | 13.60 | 13.60 | 14.88 | 13.30 |

*Marketing average is September of the previous year to August in the current year.

Source: Page 42 & 44 of this packet

Note: November & December 2022 prices were not available at the time this calculation was made so the October 2022 price was carried over.

CROP PRICES

MONTHLY PRICES RECEIVED BY FARMERS CROPS, INDIANA, 2015-2022 ¹

| Year | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Marketing Year Avg. |
|---|------------------|--------------|--------------|--------------|--------------|--------------|------------------|--------------|--------------|------------------|------------------|------------------|---------------------|
| <u>Corn (Dollars per Bushel)</u> | | | | | | | | | | | | | |
| 2015-16 | 3.85 | 3.87 | 3.97 | 3.88 | 3.97 | 3.92 | 3.93 | 3.97 | 4.09 | 4.26 | 3.89 | 3.54 | 3.92 |
| 2016-17 | 3.41 | 3.40 | 3.44 | 3.57 | 3.64 | 3.73 | 3.77 | 3.77 | 3.79 | 3.84 | 3.86 | 3.64 | 3.63 |
| 2017-18 | 3.42 | 3.38 | 3.32 | 3.42 | 3.54 | 3.59 | 3.72 | 3.80 | 3.92 | 3.81 | 3.60 | 3.54 | 3.56 |
| 2018-19 | 3.45 | 3.44 | 3.49 | 3.70 | 3.76 | 3.79 | 3.75 | 3.68 | 3.81 | 4.28 | 4.55 | 4.27 | 3.78 |
| 2019-20 | 3.96 | 4.01 | 3.92 | 4.00 | 4.10 | 4.04 | 4.03 | 3.61 | 3.43 | 3.41 | 3.51 | 3.48 | 3.84 |
| 2020-21 | 3.77 | 3.73 | 3.82 | 4.06 | 4.32 | 4.74 | 4.95 | 5.39 | 5.87 | 6.32 | 6.22 | 6.39 | 4.65 |
| 2021-22 | 5.28 | 4.97 | 5.37 | 5.58 | 5.58 | 6.16 | 6.60 | 7.07 | 7.03 | 7.47 | 7.14 | 7.30 | 5.45 |
| <u>Soybeans (Dollars per Bushel)</u> | | | | | | | | | | | | | |
| 2015-16 | 9.00 | 8.80 | 8.84 | 8.94 | 8.93 | 8.80 | 8.90 | 9.29 | 10.10 | 10.90 | 10.70 | 10.30 | 9.16 |
| 2016-17 | 9.62 | 9.45 | 9.64 | 9.91 | 9.96 | 10.10 | 9.97 | 9.51 | 9.58 | 9.27 | 9.77 | 9.47 | 9.69 |
| 2017-18 | 9.50 | 9.42 | 9.41 | 9.56 | 9.61 | 9.79 | 10.10 | 10.30 | 10.50 | 10.20 | 8.94 | 8.85 | 9.61 |
| 2018-19 | 8.75 | 8.64 | 8.60 | 8.94 | 8.94 | 8.91 | 8.83 | 8.57 | 8.39 | 8.71 | 8.80 | 8.60 | 8.73 |
| 2019-20 | 8.60 | 8.93 | 8.94 | 9.17 | 9.22 | 9.04 | 9.01 | 8.64 | 8.62 | 8.70 | 8.87 | 8.80 | 8.92 |
| 2020-21 | 9.44 | 9.81 | 10.30 | 10.80 | 10.90 | 12.60 | 13.00 | 14.00 | 15.00 | 14.40 | 14.30 | 13.60 | 11.10 |
| 2021-22 | 12.40 | 11.90 | 12.20 | 12.70 | 12.90 | 14.60 | 15.50 | 15.90 | 16.00 | 17.00 | 16.00 | 15.40 | 13.30 |
| Year | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Marketing Year Avg. |
| <u>Wheat (Dollars per Bushel)</u> | | | | | | | | | | | | | |
| 2015-16 | 5.28 | 4.91 | 4.61 | 4.37 | 4.98 | 4.44 | 5.05 | 4.59 | 5.14 | 4.48 | 4.20 | 4.41 | 4.88 |
| 2016-17 | 4.45 | 4.12 | 3.98 | 3.48 | 3.64 | 3.67 | 3.98 | 3.92 | 4.17 | 4.60 | 4.15 | 4.22 | 4.04 |
| 2017-18 | 4.62 | 5.01 | 4.56 | 4.34 | 4.25 | 4.48 | (²) | 4.62 | 4.79 | 4.97 | 4.66 | 4.97 | 4.78 |
| 2018-19 | 4.83 | 4.83 | 5.25 | 4.95 | 4.40 | 5.19 | 5.37 | 5.46 | 5.56 | 5.21 | 4.14 | 5.01 | 4.90 |
| 2019-20 | 5.08 | 4.91 | 4.62 | 5.00 | 5.28 | 5.27 | 5.26 | 5.48 | 5.32 | 5.43 | 5.47 | 5.44 | 4.95 |
| 2020-21 | 5.23 | 5.18 | 5.34 | 5.62 | 5.78 | 5.95 | 6.15 | 5.75 | 5.93 | (²) | (²) | (²) | 5.28 |
| 2021-22 | (²) | 6.18 | 6.63 | 6.51 | 6.42 | 7.45 | 6.84 | 6.83 | 7.89 | 8.92 | 7.63 | 6.88 | 6.42 |

¹ Weighted monthly average for market year. 2021 and 2022 are preliminary.

² Data not available.



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 | 2022 | APR | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 7.07 | |
| SURVEY | 2022 | AUG | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 7.3 | |
| SURVEY | 2022 | FEB | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 6.16 | |
| SURVEY | 2022 | JAN | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 5.58 | |
| SURVEY | 2022 | JUL | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 7.14 | |
| SURVEY | 2022 | JUN | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 7.47 | |
| SURVEY | 2022 | MAR | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 6.6 | |
| SURVEY | 2022 | MAY | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 7.03 | |
| SURVEY | 2022 | OCT | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 6.46 | |
| SURVEY | 2022 | SEP | | STATE | INDIANA | 18 | | | | | | | 00000000 | | CORN | CORN, GRAIN - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 7.05 | |



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 | 2022 | APR | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 15.9 | |
| SURVEY | 2022 | AUG | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 15.4 | |
| SURVEY | 2022 | FEB | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 14.6 | |
| SURVEY | 2022 | JAN | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 12.9 | |
| SURVEY | 2022 | JUL | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 16 | |
| SURVEY | 2022 | JUN | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 17 | |
| SURVEY | 2022 | MAR | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 15.5 | |
| SURVEY | 2022 | MAY | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 16 | |
| SURVEY | 2022 | OCT | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 13.6 | |
| SURVEY | 2022 | SEP | | STATE | INDIANA | 18 | | | | | | | 00000000 | | SOYBEANS | SOYBEANS - PRICE RECEIVED, MEASURED IN \$ / BU | TOTAL | NOT SPECIFIED | 14.5 | |

2017 Purdue Crop Cost & Return Guide

March 2017 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

| | Low Productivity Soil | | | | | | Average Productivity Soil | | | | | | High Productivity Soil | | | | | |
|--------------------------------------|-----------------------|--------|--------|--------|--------|--------|---------------------------|--------|--------|--------|--------|--------|------------------------|--------|--------|--------|--------|--------|
| | Rot. | | Rot. | | DC | | Rot. | | Rot. | | DC | | Rot. | | Rot. | | DC | |
| | Corn | Beans | Wheat | Beans | Wheat | Beans | Corn | Beans | Wheat | Beans | Wheat | Beans | Corn | Beans | Wheat | Beans | Corn | Beans |
| Expected yield per acre ² | 128 | 136 | 42 | 60 | 29 | 29 | 160 | 170 | 52 | 75 | 36 | 36 | 192 | 204 | 62 | 90 | 43 | 43 |
| Harvest price ³ | \$3.70 | \$9.60 | \$4.20 | \$9.60 | \$9.60 | \$9.60 | \$3.70 | \$3.70 | \$9.60 | \$4.20 | \$9.60 | \$9.60 | \$3.70 | \$3.70 | \$9.60 | \$4.20 | \$9.60 | \$9.60 |
| Market revenue | \$474 | \$503 | \$403 | \$252 | \$278 | \$278 | \$592 | \$629 | \$499 | \$315 | \$346 | \$346 | \$710 | \$755 | \$595 | \$378 | \$413 | \$413 |
| Less variable costs ⁴ | | | | | | | | | | | | | | | | | | |
| Fertilizer ⁵ | \$120 | \$107 | \$35 | \$51 | \$26 | \$26 | \$127 | \$115 | \$42 | \$67 | \$31 | \$31 | \$134 | \$122 | \$49 | \$83 | \$35 | \$35 |
| Seed ⁶ | 98 | 98 | 71 | 44 | 82 | 82 | 119 | 119 | 71 | 44 | 82 | 82 | 119 | 119 | 71 | 44 | 82 | 82 |
| Pesticides ⁷ | 54 | 54 | 46 | 15 | 43 | 43 | 54 | 54 | 46 | 15 | 43 | 43 | 54 | 54 | 46 | 15 | 43 | 43 |
| Dryer fuel ⁸ | 30 | 24 | N/A | N/A | 4 | 4 | 38 | 30 | N/A | N/A | 5 | 5 | 45 | 36 | N/A | N/A | 5 | 5 |
| Machinery fuel @ \$2.02 | 15 | 15 | 9 | 9 | 6 | 6 | 15 | 15 | 9 | 9 | 6 | 6 | 15 | 15 | 9 | 9 | 6 | 6 |
| Machinery repairs ⁹ | 22 | 22 | 18 | 18 | 15 | 15 | 22 | 22 | 18 | 18 | 15 | 15 | 22 | 22 | 18 | 18 | 15 | 15 |
| Hauling ¹⁰ | 13 | 14 | 4 | 6 | 3 | 3 | 16 | 17 | 5 | 8 | 4 | 4 | 19 | 20 | 6 | 9 | 4 | 4 |
| Interest ¹¹ | 11 | 11 | 7 | 5 | 6 | 6 | 12 | 12 | 7 | 5 | 6 | 6 | 12 | 12 | 7 | 6 | 7 | 7 |
| Insurance/misc. ¹² | 36 | 36 | 31 | 9 | 9 | 9 | 38 | 38 | 34 | 9 | 9 | 9 | 40 | 40 | 34 | 9 | 9 | 9 |
| Total variable cost | \$399 | \$381 | \$221 | \$157 | \$194 | \$194 | \$441 | \$422 | \$232 | \$175 | \$201 | \$201 | \$460 | \$440 | \$240 | \$193 | \$206 | \$206 |
| Contribution margin ¹³ | | | | | | | | | | | | | | | | | | |
| (Revenue - variable costs) | \$75 | \$122 | \$182 | \$95 | \$84 | \$84 | \$151 | \$207 | \$267 | \$140 | \$145 | \$145 | \$250 | \$315 | \$355 | \$185 | \$207 | \$207 |
| per acre | | | | | | | | | | | | | | | | | | |

¹Estimated 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.

²These 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.

³Harvest corn price is December 2017 CME Group futures price less \$0.25 basis. Harvest soybean price is November 2017 CME Group futures price less \$0.35 basis. Harvest wheat price is July 2017 CME Group futures price less \$.35 basis. Harvest prices were based on opening prices on March 17, 2017. These prices will change.

Table 1 (Continued)

⁴Input prices for variable costs reflect expected prices for 2017. 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.

⁵Phosphate, 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, P₂O₅, K₂O, and lime by crop and soil were as follows: continuous corn, 240-47-55-720, 240-59-63-720, 240-71-72-720; rotation corn, 200-50-57-600, 200-63-66-600, 200-75-75-600; rotation beans, 0-34-79-0, 0-42-93-0, 0-50-107-0; wheat, 58-38-42-172, 84-47-48-251, 110-57-53-330; double crop beans, 0-23-61-0, 0-29-70-0, 0-34-80-0. Fertilizer prices per lb.: NH₃ @ \$0.32; urea @ \$0.39; P₂O₅ @ \$0.40; K₂O @ \$0.27; lime @ \$19.00/ton spread on the field. For very poorly drained soils, consider increasing N rates by 5-10%. For well-drained soils, consider reducing N rates by 5-10%. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

⁶Corn 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.

⁷Includes 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.

⁸Fuel 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.

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

¹⁰Hauling charge represents moving grain from field to storage.

¹¹Interest 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.

¹²Includes crop insurance, general farm insurance, and miscellaneous cost. The cost of crop insurance represents the premium projected for a Revenue Protection (RP) policy at the 80% coverage level. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

¹³Contribution 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

| Farm Acres Rotation ¹ | Low Productivity Soil | | | | | | Average Productivity Soil | | | | | | High Productivity Soil | | | | | |
|---------------------------------------|-----------------------|--------|--------|--------|--------|--------|---------------------------|-------|--------|--------|-------|-------|------------------------|--------|--------|-------|--------|-------|
| | 900 | | 1000 | | 3000 | | 900 | | 1000 | | 3000 | | 900 | | 1000 | | 3000 | |
| | c-c | c-b | c-c | c-b | c-c | c-b | 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 | \$75 | \$152 | \$75 | \$152 | \$151 | \$237 | \$151 | \$237 | \$151 | \$237 | \$237 | \$237 | \$250 | \$335 | \$250 | \$335 | \$250 | \$335 |
| Government payment ³ | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Total contribution margin | \$75 | \$152 | \$75 | \$152 | \$151 | \$237 | \$151 | \$237 | \$151 | \$237 | \$237 | \$237 | \$250 | \$335 | \$250 | \$335 | \$250 | \$335 |
| Annual overhead costs: | | | | | | | | | | | | | | | | | | |
| Machinery ownership ⁴ | \$137 | \$123 | \$109 | \$98 | \$137 | \$123 | \$109 | \$98 | \$137 | \$123 | \$98 | \$137 | \$109 | \$123 | \$109 | \$98 | \$109 | \$98 |
| Family and hired labor ⁵ | \$90 | \$81 | \$47 | \$42 | \$90 | \$81 | \$47 | \$42 | \$90 | \$81 | \$42 | \$42 | \$90 | \$81 | \$47 | \$42 | \$47 | \$42 |
| Land ⁶ | \$149 | \$149 | \$149 | \$149 | \$194 | \$194 | \$194 | \$194 | \$194 | \$194 | \$194 | \$194 | \$194 | \$244 | \$244 | \$244 | \$244 | \$244 |
| Earnings or (losses) | -\$301 | -\$201 | -\$230 | -\$137 | -\$270 | -\$161 | -\$199 | -\$97 | -\$270 | -\$161 | -\$97 | -\$97 | -\$221 | -\$113 | -\$150 | -\$49 | -\$150 | -\$49 |

¹Rotations 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.

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

³It is assumed that the current farm bill will not provide ARC-County payments in 2017. Any 2017 payments will not be received until October 2018.

⁴The 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.

⁵For the larger acreages, labor expense includes a family living withdrawal of \$81,141 (\$89,858 of family living expenses less \$43,098 in net nonfarm income plus \$34,381 in income and self-employment taxes); a full-time employee with total compensation of \$41,542; and a part-time employee with compensation of \$3,583. 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.

⁶Based on 2016 cash rent per bushel of corn yield reported in the article entitled "Adjustment to Indiana Farmland Value and Cash Rent Continues," Purdue Agricultural Economics Report, August, 2016. The relatively low estimated contribution margins for 2017 will likely place downward pressure on cash rents, thus 2017 cash rents are assumed to be 5 percent below 2016 cash rents.

Prepared by: Craig L. Dobbins and Michael R. Langemeier, 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: 3/17/17

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2018 Purdue Crop Cost & Return Guide

March 2018 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. | Rot. | DC | | Cont. | Rot. | DC | | Cont. | Rot. | DC | | | | |
| Corn | Beans | Wheat | Beans | Corn | Beans | Wheat | Beans | Corn | Beans | Wheat | Beans | Corn | Beans | Wheat | Beans |
| Expected yield per acre ² | 130 | 43 | 61 | 30 | 162 | 53 | 76 | 37 | 194 | 206 | 63 | 91 | 44 | | |
| Harvest price ³ | \$3.70 | \$9.90 | \$4.30 | \$9.90 | \$3.70 | \$9.90 | \$4.30 | \$9.90 | \$3.70 | \$9.90 | \$9.90 | \$4.30 | \$9.90 | \$4.30 | \$9.90 |
| Market revenue | \$481 | \$426 | \$262 | \$297 | \$599 | \$525 | \$327 | \$366 | \$718 | \$762 | \$624 | \$391 | \$436 | | |
| Less variable costs ⁴ | | | | | | | | | | | | | | | |
| Fertilizer ⁵ | \$124 | \$112 | \$55 | \$29 | \$132 | \$121 | \$73 | \$34 | \$140 | \$129 | \$55 | \$90 | \$40 | | |
| Seed ⁶ | 91 | 91 | 44 | 78 | 111 | 111 | 44 | 78 | 111 | 111 | 67 | 44 | 78 | | |
| Pesticides ⁷ | 61 | 61 | 25 | 55 | 61 | 61 | 25 | 55 | 61 | 61 | 65 | 25 | 55 | | |
| Dryer fuel ⁸ | 35 | 28 | N/A | 4 | 44 | 35 | N/A | 5 | 52 | 42 | N/A | N/A | 5 | | |
| Machinery fuel @ \$2.46 | 18 | 18 | 11 | 8 | 18 | 18 | 11 | 8 | 18 | 18 | 11 | 11 | 8 | | |
| Machinery repairs ⁹ | 22 | 22 | 18 | 15 | 22 | 22 | 18 | 15 | 22 | 22 | 18 | 18 | 15 | | |
| Hauling ¹⁰ | 13 | 14 | 4 | 3 | 16 | 17 | 8 | 4 | 19 | 21 | 6 | 9 | 4 | | |
| Interest ¹¹ | 11 | 11 | 7 | 7 | 12 | 12 | 6 | 7 | 13 | 12 | 8 | 7 | 7 | | |
| Insurance/misc. ¹² | 36 | 36 | 31 | 9 | 38 | 38 | 34 | 9 | 40 | 40 | 34 | 9 | 9 | | |
| Total variable cost | \$411 | \$393 | \$242 | \$208 | \$454 | \$435 | \$194 | \$215 | \$476 | \$456 | \$264 | \$213 | \$221 | | |
| Contribution margin ¹³ | | | | | | | | | | | | | | | |
| (Revenue - variable costs) | \$70 | \$118 | \$184 | \$89 | \$145 | \$201 | \$133 | \$151 | \$242 | \$306 | \$360 | \$178 | \$215 | | |
| per acre | | | | | | | | | | | | | | | |

¹Estimated 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.

²These yields assume average weather conditions and timely plant/harvest dates, except soybean double-crop yield, which is based on a July 1 planting date. Rotation corn, rotation soybean, and wheat 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. Continuous corn yields are 94% of rotation corn yields. 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.

³Harvest corn price is December 2018 CME Group futures price less \$0.25 basis. Harvest soybean price is November 2018 CME Group futures price less \$0.35 basis. Harvest wheat price is July 2018 CME Group futures price less \$.35 basis. Harvest prices were based on opening prices on March 28, 2018. These prices will change.

Table 1 (Continued)

⁴Input prices for variable costs reflect expected prices for 2018. 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.

⁵Phosphate, 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, P₂O₅, K₂O, and lime by crop and soil were as follows: continuous corn, 240-47-55-720, 240-59-63-720, 240-71-72-720; rotation corn, 200-50-57-600, 200-63-66-600, 200-75-75-600; rotation beans, 0-34-79-0, 0-42-93-0, 0-50-107-0; wheat, 58-38-42-172, 84-47-48-251, 110-57-53-330; double crop beans, 0-23-61-0, 0-29-70-0, 0-34-80-0. Fertilizer prices per lb.: NH₃ @ \$0.32; urea @ \$0.40; P₂O₅ @ \$0.46; K₂O @ \$0.29; lime @ \$19.00/ton spread on the field. For very poorly drained soils, consider increasing N rates by 5-10%. For well-drained soils, consider reducing N rates by 5-10%. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

⁶Corn 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.

⁷Includes 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.

⁸Fuel 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.

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

¹⁰Hauling charge represents moving grain from field to storage.

¹¹Interest 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.

¹²Includes crop insurance, general farm insurance, and miscellaneous cost. The cost of crop insurance represents the premium projected for a Revenue Protection (RP) policy at the 80% coverage level. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

¹³Contribution 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

| Farm Acres Rotation ¹ | Low Productivity Soil | | | Average Productivity Soil | | | High Productivity Soil | | | |
|---------------------------------------|-----------------------|-------------|-------------|---------------------------|-------------|-------------|------------------------|-------------|-------------|-------------|
| | 900 c-c | 1000 c-b | 3000 c-b | 900 c-c | 1000 c-b | 2700 c-c | 900 c-c | 1000 c-b | 2700 c-c | 3000 c-b |
| Crop contribution margin ² | \$70 | \$151 | \$151 | \$145 | \$236 | \$145 | \$242 | \$333 | \$242 | \$333 |
| Government payment ³ | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Total contribution margin | \$70 | \$151 | \$151 | \$145 | \$236 | \$145 | \$242 | \$333 | \$242 | \$333 |
| Annual overhead costs: | | | | | | | | | | |
| Machinery ownership ⁴ | \$138 | \$130 | \$86 | \$138 | \$130 | \$91 | \$138 | \$130 | \$91 | \$86 |
| Family and hired labor ⁵ | \$73 | \$66 | \$37 | \$73 | \$66 | \$41 | \$73 | \$66 | \$41 | \$37 |
| Land ⁶ | \$151 | \$151 | \$151 | \$195 | \$195 | \$195 | \$246 | \$246 | \$246 | \$246 |
| Earnings or (losses) | -\$292 | -\$196 | -\$123 | -\$261 | -\$155 | -\$182 | -\$215 | -\$109 | -\$136 | -\$36 |

¹Rotations 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.

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

³It is assumed that the current farm bill will not provide ARC-County payments in 2018. Any 2018 payments will not be received until October 2019.

⁴The 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.

⁵For the larger acreages, labor expense includes a family living withdrawal of \$65,520 (\$85,186 of family living expenses less \$46,085 in net nonfarm income plus \$26,419 in income and self-employment taxes); a full-time employee with total compensation of \$42,084; and a part-time employee with compensation of \$3,630. 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.

⁶Based on 2017 cash rent per bushel of corn yield reported in the article entitled "Indiana Farmland Values and Cash Rents Continue to Adjust," Purdue Agricultural Economics Report, August, 2017. The relatively tight margins expected in 2018 result will likely dampen cash rents, thus 2018 cash rents are assumed to be 5% lower than 2017 cash rents.

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

Date: 3/28/18

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2019 Purdue Crop Cost & Return Guide

March 2019 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 | DC Beans | Cont. Corn | Rot. Corn | Rot. Beans | DC Beans | Cont. Corn | Rot. Corn | Rot. Beans | DC Beans | | | |
| Expected yield per acre ² | 131 | 139 | 43 | 61 | 30 | 164 | 174 | 54 | 77 | 38 | 196 | 209 | 65 | 92 | 46 |
| Harvest price ³ | \$3.70 | \$3.70 | \$8.90 | \$4.40 | \$8.90 | \$3.70 | \$3.70 | \$8.90 | \$4.40 | \$8.90 | \$3.70 | \$3.70 | \$8.90 | \$4.40 | \$8.90 |
| Market revenue | \$485 | \$514 | \$383 | \$268 | \$267 | \$607 | \$644 | \$481 | \$339 | \$338 | \$725 | \$773 | \$579 | \$405 | \$409 |
| Less variable costs ⁴ | | | | | | | | | | | | | | | |
| Fertilizer ⁵ | \$143 | \$128 | \$43 | \$60 | \$32 | \$152 | \$138 | \$53 | \$80 | \$39 | \$160 | \$147 | \$62 | \$98 | \$46 |
| Seed ⁶ | 91 | 91 | 67 | 44 | 78 | 111 | 111 | 67 | 44 | 78 | 111 | 111 | 67 | 44 | 78 |
| Pesticides ⁷ | 58 | 58 | 50 | 30 | 45 | 58 | 58 | 50 | 30 | 45 | 58 | 58 | 50 | 30 | 45 |
| Dryer fuel ⁸ | 32 | 26 | N/A | N/A | 4 | 40 | 32 | N/A | N/A | 5 | 48 | 39 | N/A | N/A | 6 |
| Machinery fuel @ \$.52 ⁹ | 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 | 13 | 14 | 4 | 6 | 3 | 16 | 17 | 5 | 8 | 4 | 20 | 21 | 7 | 9 | 5 |
| Interest ¹¹ | 12 | 11 | 7 | 6 | 6 | 13 | 12 | 7 | 6 | 7 | 13 | 13 | 8 | 7 | 7 |
| Insurance/misc. ¹² | 36 | 36 | 31 | 9 | 9 | 38 | 38 | 34 | 9 | 9 | 40 | 40 | 34 | 9 | 9 |
| Total variable cost | \$426 | \$405 | \$231 | \$184 | \$200 | \$469 | \$447 | \$245 | \$206 | \$210 | \$491 | \$470 | \$257 | \$226 | \$219 |
| Contribution margin ¹³ (Revenue - variable costs) per acre | \$59 | \$109 | \$152 | \$84 | \$67 | \$138 | \$197 | \$236 | \$133 | \$128 | \$234 | \$303 | \$322 | \$179 | \$190 |

¹Estimated 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.

²These yields assume average weather conditions and timely plant/harvest dates, except soybean double-crop yield, which is based on a July 1 planting date. Rotation corn, rotation soybean, and wheat 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. Continuous corn yields are 94% of rotation corn yields. 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.

³Harvest corn price is December 2019 CME Group futures price less \$0.25 basis. Harvest soybean price is November 2019 CME Group futures price less \$0.35 basis. Harvest wheat price is July 2019 CME Group futures price less \$.35 basis. Harvest prices were based on opening prices on March 28, 2019. These prices will change.

Table 1 (Continued)

⁴Input prices for variable costs reflect expected prices for 2018. 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.

⁵Phosphate, 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, P₂O₅, K₂O, and lime by crop and soil were as follows: continuous corn, 240-47-55-720, 240-59-63-720, 240-71-72-720; rotation corn, 200-50-57-600, 200-63-66-600, 200-75-75-600; rotation beans, 0-34-79-0, 0-42-93-0, 0-50-107-0; wheat, 58-38-42-172, 84-47-48-251, 110-57-53-330; double crop beans, 0-23-61-0, 0-29-70-0, 0-34-80-0. Fertilizer prices per lb.: NH₃ @ \$0.38; urea @ \$0.43; P₂O₅ @ \$0.33; lime @ \$19.00/ton spread on the field. For very poorly drained soils, consider increasing N rates by 5-10%. For well-drained soils, consider reducing N rates by 5-10%. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

⁶Corn 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.

⁷Includes 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.

⁸Fuel 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.

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

¹⁰Hauling charge represents moving grain from field to storage.

¹¹Interest 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.

¹²Includes crop insurance, general farm insurance, and miscellaneous cost. The cost of crop insurance represents the premium projected for a Revenue Protection (RP) policy at the 80% coverage level. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

¹³Contribution 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

| Farm Acres Rotation ¹ | Low Productivity Soil | | | | | | Average Productivity Soil | | | | | | High Productivity Soil | | | | | | | |
|---------------------------------------|-----------------------|--------|--------|--------|--------|--------|---------------------------|--------|--------|--------|--------|--------|------------------------|--------|--------|--------|--------|-------|--------|-------|
| | 900 | | 1000 | | 2700 | | 900 | | 1000 | | 2700 | | 900 | | 1000 | | 2700 | | 3000 | |
| | c-c | c-b | c-c | c-b | c-c | c-b | c-c | c-b | 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 | \$59 | \$131 | \$59 | \$131 | \$59 | \$131 | \$138 | \$217 | \$138 | \$217 | \$138 | \$217 | \$234 | \$313 | \$234 | \$313 | \$234 | \$313 | \$234 | \$313 |
| Government payment ³ | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Total contribution margin | \$59 | \$131 | \$59 | \$131 | \$59 | \$131 | \$138 | \$217 | \$138 | \$217 | \$138 | \$217 | \$234 | \$313 | \$234 | \$313 | \$234 | \$313 | \$234 | \$313 |
| Annual overhead costs: | | | | | | | | | | | | | | | | | | | | |
| Machinery ownership ⁴ | \$138 | \$130 | \$85 | \$80 | \$85 | \$80 | \$138 | \$130 | \$85 | \$80 | \$85 | \$80 | \$138 | \$130 | \$85 | \$80 | \$138 | \$130 | \$85 | \$80 |
| Family and hired labor ⁵ | \$89 | \$80 | \$48 | \$43 | \$48 | \$43 | \$89 | \$80 | \$48 | \$43 | \$48 | \$43 | \$89 | \$80 | \$48 | \$43 | \$89 | \$80 | \$48 | \$43 |
| Land ⁶ | \$164 | \$164 | \$164 | \$164 | \$164 | \$164 | \$208 | \$208 | \$208 | \$208 | \$208 | \$208 | \$264 | \$264 | \$264 | \$264 | \$264 | \$264 | \$264 | \$264 |
| Earnings or (losses) | -\$333 | -\$243 | -\$238 | -\$156 | -\$238 | -\$156 | -\$297 | -\$201 | -\$203 | -\$114 | -\$203 | -\$114 | -\$257 | -\$161 | -\$257 | -\$161 | -\$163 | -\$74 | -\$163 | -\$74 |

¹Rotations 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.

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

³It is assumed that the current farm bill will not provide ARC-County or PLC payments in 2019.

⁴The 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.

⁵For the larger acreages, labor expense includes a family living withdrawal of \$78,106 (\$90,356 of family living expenses less \$42,285 in net nonfarm income plus \$30,035 in income and self-employment taxes); a full-time employee with total compensation of \$44,071; and a part-time employee with compensation of \$3,802. 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.

⁶Based on 2018 cash rent per bushel of corn yield reported in the article entitled "Indiana Farmland Values - Up, Down, and Sideways," Purdue Agricultural Economics Report, August, 2018. The relatively tight margins expected in 2019 will likely dampen increases in cash rents, thus 2019 cash rents are assumed to be the same as 2018 cash rents.

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

Date: 3/28/19

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2020 Purdue Crop Cost & Return Guide

March 2020 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 | DC Beans | Cont. Corn | Rot. Corn | Rot. Beans | DC Beans | Cont. Corn | Rot. Corn | Rot. Beans | DC Beans | | | |
| Expected yield per acre ² | 133 | 141 | 44 | 62 | 31 | 165 | 176 | 54 | 77 | 38 | 198 | 211 | 65 | 93 | 46 |
| Harvest price ³ | \$3.40 | \$3.40 | \$8.35 | \$5.20 | \$8.35 | \$3.40 | \$3.40 | \$8.35 | \$5.20 | \$8.35 | \$3.40 | \$3.40 | \$8.35 | \$5.20 | \$8.35 |
| Market revenue | \$452 | \$479 | \$367 | \$322 | \$259 | \$561 | \$598 | \$451 | \$400 | \$317 | \$673 | \$717 | \$543 | \$484 | \$384 |
| Less variable costs ⁴ | | | | | | | | | | | | | | | |
| Fertilizer ⁵ | \$119 | \$107 | \$38 | \$53 | \$28 | \$126 | \$115 | \$45 | \$70 | \$34 | \$133 | \$123 | \$53 | \$87 | \$39 |
| Seed ⁶ | 91 | 91 | 67 | 44 | 78 | 111 | 111 | 67 | 44 | 78 | 111 | 111 | 67 | 44 | 78 |
| Pesticides ⁷ | 58 | 58 | 50 | 30 | 45 | 58 | 58 | 50 | 30 | 45 | 58 | 58 | 50 | 30 | 45 |
| Dryer fuel ⁸ | 29 | 23 | N/A | N/A | 4 | 36 | 29 | N/A | N/A | 5 | 43 | 34 | N/A | N/A | 6 |
| Machinery fuel @ \$.20/7 | 15 | 15 | 9 | 9 | 7 | 15 | 15 | 9 | 9 | 7 | 15 | 15 | 9 | 9 | 7 |
| Machinery repairs ⁹ | 22 | 22 | 18 | 18 | 15 | 22 | 22 | 18 | 18 | 15 | 22 | 22 | 18 | 18 | 15 |
| Hauling ¹⁰ | 13 | 14 | 4 | 6 | 3 | 17 | 18 | 5 | 8 | 4 | 20 | 21 | 7 | 9 | 5 |
| Interest ¹¹ | 11 | 11 | 7 | 5 | 6 | 12 | 12 | 7 | 6 | 6 | 12 | 12 | 7 | 7 | 7 |
| Insurance/misc. ¹² | 36 | 36 | 31 | 9 | 9 | 38 | 38 | 34 | 9 | 9 | 40 | 40 | 34 | 9 | 9 |
| Total variable cost | \$394 | \$377 | \$224 | \$174 | \$195 | \$435 | \$418 | \$235 | \$194 | \$203 | \$454 | \$436 | \$245 | \$213 | \$211 |
| Contribution margin ¹³ (Revenue - variable costs) per acre | \$58 | \$102 | \$143 | \$148 | \$64 | \$126 | \$180 | \$216 | \$206 | \$114 | \$219 | \$281 | \$298 | \$271 | \$173 |

¹Estimated 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.

²These yields assume average weather conditions and timely plant/harvest dates, except soybean double-crop yield, which is based on a July 1 planting date. Rotation corn, rotation soybean, and wheat 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. Continuous corn yields are 94% of rotation corn yields. 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.

³Harvest corn price is December 2020 CME Group futures price less \$0.25 basis. Harvest soybean price is November 2020 CME Group futures price less \$0.35 basis. Harvest wheat price is July 2020 CME Group futures price less \$.35 basis. Harvest prices were based on opening prices on March 24, 2020. These prices will change.

March 2020 Estimates

Table 1 (Continued)

⁴Input prices for variable costs reflect expected prices for 2020. 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.

⁵Phosphate, potash, and lime applications are based on Tri-State Fertilizer Recommendations (Source: Purdue Extension Bulletin, AY-9-32, 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, P₂O₅, K₂O, and lime by crop and soil were as follows: continuous corn, 240-47-55-720, 240-59-63-720, 240-71-72-720; rotation corn, 200-50-57-600, 200-63-66-600, 200-75-75-600; rotation beans, 0-34-79-0, 0-42-93-0, 0-50-107-0; wheat, 58-38-42-172, 84-47-48-251, 110-57-53-330; double crop beans, 0-23-61-0, 0-29-70-0, 0-34-80-0. Fertilizer prices per lb.: NH₃ @ \$0.31; urea @ \$0.39; P₂O₅ @ \$0.38; K₂O @ \$0.30; lime @ \$19.00/ton spread on the field. For very poorly drained soils, consider increasing N rates by 5-10%. For well-drained soils, consider reducing N rates by 5-10%. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

⁶Corn 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.

⁷Includes 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.

⁸Fuel 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.

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

¹⁰Hauling charge represents moving grain from field to storage.

¹¹Interest 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.

¹²Includes crop insurance, general farm insurance, and miscellaneous cost. The cost of crop insurance represents the premium projected for a Revenue Protection (RP) policy at the 80% coverage level. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

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

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

| Farm Acres Rotation ¹ | Low Productivity Soil | | | Average Productivity Soil | | | High Productivity Soil | | |
|---------------------------------------|-----------------------|----------|----------|---------------------------|----------|----------|------------------------|----------|----------|
| | 900 c-c | 1000 c-b | 3000 c-b | 900 c-c | 1000 c-b | 3000 c-b | 900 c-c | 1000 c-b | 3000 c-b |
| Crop contribution margin ² | \$58 | \$123 | \$123 | \$126 | \$198 | \$198 | \$219 | \$290 | \$290 |
| Government payment ³ | \$23 | \$23 | \$23 | \$23 | \$23 | \$23 | \$23 | \$23 | \$23 |
| Total contribution margin | \$81 | \$146 | \$146 | \$149 | \$221 | \$221 | \$242 | \$313 | \$313 |
| Annual overhead costs: | | | | | | | | | |
| Machinery ownership ⁴ | \$138 | \$130 | \$80 | \$138 | \$130 | \$80 | \$138 | \$130 | \$80 |
| Family and hired labor ⁵ | \$72 | \$65 | \$39 | \$72 | \$65 | \$39 | \$72 | \$65 | \$39 |
| Land ⁶ | \$159 | \$159 | \$159 | \$208 | \$208 | \$208 | \$257 | \$257 | \$257 |
| Earnings or (losses) | -\$288 | -\$208 | -\$132 | -\$269 | -\$182 | -\$106 | -\$225 | -\$139 | -\$63 |

¹Rotations 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.

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

³It is assumed that the current farm bill will provide PLC payments for corn base acres in 2020.

⁴The 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.

⁵For the larger acreages, labor expense includes a family living withdrawal of \$78,106 (\$90,356 of family living expenses less \$42,285 in net nonfarm income plus \$30,035 in income and self-employment taxes); a full-time employee with total compensation of \$44,071; and a part-time employee with compensation of \$3,802. 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.

⁶Based on 2019 cash rent per bushel of corn yield reported in the article entitled "2019 Indiana Farmland Values and Cash Rents Slide Lower," Purdue Agricultural Economics Report, August, 2019. The relatively tight margins expected in 2020 will likely dampen increases in cash rents, thus 2020 cash rents are assumed to be the same as 2019 cash rents.

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

Date: 3/24/20

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2021 Purdue Crop Cost & Return Guide

February 2021 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 | Beans | DC Beans | Cont. Corn | Rot. Corn | Beans | DC Beans | Cont. Corn | Rot. Corn | Beans | DC Beans | | | |
| Expected yield per acre ² | 135 | 144 | 44 | 62 | 31 | 169 | 180 | 55 | 77 | 39 | 203 | 216 | 66 | 93 | 46 |
| Harvest price ³ | \$4.30 | \$4.30 | \$11.50 | \$6.10 | \$11.50 | \$4.30 | \$4.30 | \$11.50 | \$6.10 | \$11.50 | \$4.30 | \$4.30 | \$11.50 | \$6.10 | \$11.50 |
| Market revenue | \$581 | \$619 | \$506 | \$378 | \$357 | \$727 | \$774 | \$633 | \$470 | \$449 | \$873 | \$929 | \$759 | \$567 | \$529 |
| Less variable costs ⁴ | | | | | | | | | | | | | | | |
| Fertilizer ⁵ | \$123 | \$111 | \$43 | \$59 | \$32 | \$132 | \$121 | \$52 | \$76 | \$38 | \$141 | \$131 | \$61 | \$95 | \$44 |
| Seed ⁶ | 91 | 91 | 67 | 44 | 78 | 111 | 111 | 67 | 44 | 78 | 111 | 111 | 67 | 44 | 78 |
| Pesticides ⁷ | 58 | 58 | 50 | 30 | 45 | 58 | 58 | 50 | 30 | 45 | 58 | 58 | 50 | 30 | 45 |
| Dryer fuel ⁸ | 29 | 23 | N/A | N/A | 4 | 36 | 29 | N/A | N/A | 5 | 44 | 35 | N/A | N/A | 6 |
| Machinery fuel @ \$.209 | 15 | 15 | 9 | 9 | 7 | 15 | 15 | 9 | 9 | 7 | 15 | 15 | 9 | 9 | 7 |
| Machinery repairs ⁹ | 22 | 22 | 18 | 18 | 15 | 22 | 22 | 18 | 18 | 15 | 22 | 22 | 18 | 18 | 15 |
| Hauling ¹⁰ | 14 | 14 | 4 | 6 | 3 | 17 | 18 | 6 | 8 | 4 | 20 | 22 | 7 | 9 | 5 |
| Interest ¹¹ | 11 | 11 | 7 | 6 | 6 | 12 | 12 | 7 | 6 | 7 | 13 | 12 | 7 | 7 | 7 |
| Insurance/misc. ¹² | 36 | 36 | 31 | 9 | 9 | 38 | 38 | 34 | 9 | 9 | 40 | 40 | 34 | 9 | 9 |
| Total variable cost | \$399 | \$381 | \$229 | \$181 | \$199 | \$441 | \$424 | \$243 | \$200 | \$208 | \$464 | \$446 | \$253 | \$221 | \$216 |
| Contribution margin ¹³ | | | | | | | | | | | | | | | |
| (Revenue - variable costs) per acre | \$182 | \$238 | \$277 | \$197 | \$158 | \$286 | \$350 | \$390 | \$270 | \$241 | \$409 | \$483 | \$506 | \$346 | \$313 |

¹Estimated 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.

²These yields assume average weather conditions and timely plant/harvest dates, except soybean double-crop yield, which is based on a July 1 planting date. Rotation corn, rotation soybean, and wheat 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. Continuous corn yields are 94% of rotation corn yields. 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.

³Harvest corn price is December 2021 CME Group futures price less \$0.25 basis. Harvest soybean price is November 2021 CME Group futures price less \$0.35 basis. Harvest wheat price is July 2021 CME Group futures price less \$.35 basis. Harvest prices were based on opening prices on February 9, 2021. These prices will change.

Table 1 (Continued)

⁴Input prices for variable costs reflect expected prices for 2021. 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.

⁵Phosphate, potash, and lime applications are based on Tri-State Fertilizer Recommendations (Source: Purdue Extension Bulletin, AY-9-32, 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, P₂O₅, K₂O, and lime by crop and soil were as follows: continuous corn, 240-47-55-720, 240-59-63-720, 240-71-72-720; rotation corn, 200-50-57-600, 200-63-66-600, 200-75-75-600; rotation beans, 0-34-79-0, 0-42-93-0, 0-50-107-0; wheat, 58-38-42-172, 84-47-48-251, 110-57-53-330; double crop beans, 0-23-61-0, 0-29-70-0, 0-34-80-0. Fertilizer prices per lb.: NH₃ @ \$0.31; urea @ \$0.40; P₂O₅ @ \$0.49; K₂O @ \$0.31; lime @ \$19.00/ton spread on the field. For very poorly drained soils, consider increasing N rates by 5-10%. For well-drained soils, consider reducing N rates by 5-10%. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

⁶Corn 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.

⁷Includes 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.

⁸Fuel 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.

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

¹⁰Hauling charge represents moving grain from field to storage.

¹¹Interest 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.

¹²Includes crop insurance, general farm insurance, and miscellaneous cost. The cost of crop insurance represents the premium projected for a Revenue Protection (RP) policy at the 80% coverage level. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

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

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

| Farm Acres Rotation ¹ | Low Productivity Soil | | | Average Productivity Soil | | | High Productivity Soil | | | |
|---------------------------------------|-----------------------|-------------|-------------|---------------------------|-------------|-------------|------------------------|-------------|-------------|-------------|
| | 900 c-c | 1000 c-b | 3000 c-b | 900 c-c | 1000 c-b | 2700 c-c | 900 c-c | 1000 c-b | 2700 c-c | 3000 c-b |
| Crop contribution margin ² | \$182 | \$258 | \$258 | \$286 | \$370 | \$286 | \$409 | \$495 | \$409 | \$495 |
| Government payment ³ | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Total contribution margin | \$182 | \$258 | \$258 | \$286 | \$370 | \$286 | \$409 | \$495 | \$409 | \$495 |
| Annual overhead costs: | | | | | | | | | | |
| Machinery ownership ⁴ | \$138 | \$130 | \$80 | \$138 | \$130 | \$85 | \$138 | \$130 | \$85 | \$80 |
| Family and hired labor ⁵ | \$72 | \$64 | \$39 | \$72 | \$64 | \$43 | \$72 | \$64 | \$43 | \$39 |
| Land ⁶ | \$171 | \$171 | \$171 | \$223 | \$223 | \$223 | \$274 | \$274 | \$274 | \$274 |
| Earnings or (losses) | -\$199 | -\$107 | -\$32 | -\$147 | -\$47 | -\$65 | -\$75 | \$27 | \$7 | \$102 |

¹Rotations 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.

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

³It is assumed that the current farm bill will not provide ARC-CO or PLC payments for base acres in 2021.

⁴The 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.

⁵For the larger acreages, labor expense includes a family living withdrawal of \$64,488 (\$84,991 of family living expenses less \$45,217 in net nonfarm income plus \$24,714 in income and self-employment taxes); a full-time employee with total compensation of \$47,141; and a part-time employee with compensation of \$4,066. 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.

⁶Based on 2020 cash rent per bushel of corn yield reported in the article entitled "Indiana Farmland Values Increase but Signal Concern of Potential COVID-19 Slump," Purdue Agricultural Economics Report, July, 2020. The relatively tight margins expected in 2020 will likely dampen increases in cash rents, thus 2021 cash rents are assumed to be the same as 2020 cash rents.

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

Date: 2/9/21

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2022 Purdue Crop Cost & Return Guide

March 2022 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 | DC Beans | Cont. Corn | Rot. Corn | Rot. Beans | DC Beans | Cont. Corn | Rot. Corn | Rot. Beans | DC Beans | |
| Expected yield per acre ² | 141 | 150 | 45 | 65 | 171 | 182 | 55 | 78 | 201 | 214 | 65 | 92 | 46 |
| Harvest price ³ | \$6.25 | \$6.25 | \$14.35 | \$10.50 | \$6.25 | \$6.25 | \$14.35 | \$10.50 | \$6.25 | \$6.25 | \$14.35 | \$10.50 | \$14.35 |
| Market revenue | \$881 | \$938 | \$646 | \$683 | \$1,069 | \$1,138 | \$789 | \$819 | \$1,256 | \$1,338 | \$933 | \$966 | \$660 |
| Less variable costs ⁴ | | | | | | | | | | | | | |
| Fertilizer ⁵ | \$305 | \$271 | \$85 | \$128 | \$319 | \$286 | \$100 | \$160 | \$333 | \$301 | \$116 | \$195 | \$86 |
| Seed ⁶ | 97 | 97 | 71 | 44 | 118 | 118 | 71 | 44 | 118 | 118 | 71 | 44 | 82 |
| Pesticides ⁷ | 73 | 73 | 63 | 38 | 73 | 73 | 63 | 38 | 73 | 73 | 63 | 38 | 56 |
| Dryer fuel ⁸ | 45 | 36 | N/A | N/A | 54 | 43 | N/A | N/A | 64 | 51 | N/A | N/A | 6 |
| Machinery fuel @ \$4.40 | 33 | 33 | 20 | 20 | 33 | 33 | 20 | 20 | 33 | 33 | 20 | 20 | 14 |
| Machinery repairs ⁹ | 22 | 22 | 18 | 18 | 22 | 22 | 18 | 18 | 22 | 22 | 18 | 18 | 15 |
| Hauling ¹⁰ | 14 | 15 | 5 | 7 | 17 | 18 | 6 | 8 | 20 | 21 | 7 | 9 | 5 |
| Interest ¹¹ | 19 | 18 | 9 | 9 | 20 | 19 | 10 | 10 | 21 | 20 | 10 | 11 | 9 |
| Insurance/misc. ¹² | 43 | 43 | 38 | 9 | 48 | 48 | 41 | 9 | 53 | 53 | 43 | 9 | 9 |
| Total variable cost | \$651 | \$608 | \$309 | \$273 | \$704 | \$660 | \$329 | \$307 | \$737 | \$692 | \$348 | \$344 | \$282 |
| Contribution margin ¹³ (Revenue - variable costs) per acre | \$230 | \$330 | \$337 | \$410 | \$365 | \$478 | \$460 | \$512 | \$519 | \$646 | \$585 | \$622 | \$378 |

¹Estimated 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.

²These yields assume average weather conditions and timely plant/harvest dates, except soybean double-crop yield, which is based on a July 1 planting date. Rotation corn, rotation soybean, and wheat 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. Continuous corn yields are 94% of rotation corn yields. 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.

³Harvest corn price is December 2022 CME Group futures price less \$0.25 basis. Harvest soybean price is November 2022 CME Group futures price less \$0.35 basis. Harvest wheat price is July 2022 CME Group futures price less \$.35 basis. Harvest prices were based on opening prices on March 21, 2022. These prices will change.

March 2022 Estimates

Table 1 (Continued)

⁴Input prices for variable costs reflect expected prices for 2022. 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.

⁵Phosphate, potash, and lime applications are based on Tri-State Fertilizer Recommendations (Source: Purdue Extension Bulletin, AY-9-32, 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, P₂O₅, K₂O, and lime by crop and soil were as follows: continuous corn, 240-47-55-720, 240-59-63-720, 240-71-72-720; rotation corn, 200-50-57-600, 200-63-66-600, 200-75-75-600; rotation beans, 0-34-79-0, 0-42-93-0, 0-50-107-0; wheat, 58-38-42-172, 84-47-48-251, 110-57-53-330; double crop beans, 0-23-61-0, 0-29-70-0, 0-34-80-0. Fertilizer prices per lb.: NH₃ @ \$0.92; urea @ \$0.97; P₂O₅ @ \$0.76; K₂O @ \$0.69; lime @ \$19.00/ton spread on the field. For very poorly drained soils, consider increasing N rates by 5-10%. For well-drained soils, consider reducing N rates by 5-10%. All soil tests for phosphorus and potassium are assumed to be in the maintenance range, and the pH is in the recommended range.

⁶Corn 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.

⁷Includes 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.

⁸Fuel 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.

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

¹⁰Hauling charge represents moving grain from field to storage.

¹¹Interest 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.

¹²Includes crop insurance, general farm insurance, and miscellaneous cost. The cost of crop insurance represents the premium projected for a Revenue Protection (RP) policy at the 80% coverage level. Crop insurance is included in budgets for corn and full-season soybeans, but is not included for wheat and double-crop soybeans.

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

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

| Farm Acres Rotation ¹ | Low Productivity Soil | | | Average Productivity Soil | | | High Productivity Soil | | |
|---------------------------------------|-----------------------|-------------|-------------|---------------------------|-------------|-------------|------------------------|-------------|-------------|
| | 900 c-c | 1000 c-b | 3000 c-b | 900 c-c | 1000 c-b | 3000 c-b | 900 c-c | 1000 c-b | 3000 c-b |
| Crop contribution margin ² | \$230 | \$334 | \$334 | \$365 | \$469 | \$469 | \$519 | \$616 | \$616 |
| Government payment ³ | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Total contribution margin | \$230 | \$334 | \$334 | \$365 | \$469 | \$469 | \$519 | \$616 | \$616 |
| Annual overhead costs: | | | | | | | | | |
| Machinery ownership ⁴ | \$138 | \$130 | \$86 | \$138 | \$130 | \$86 | \$138 | \$130 | \$86 |
| Family and hired labor ⁵ | \$63 | \$56 | \$35 | \$63 | \$56 | \$35 | \$63 | \$56 | \$35 |
| Land ⁶ | \$189 | \$189 | \$189 | \$239 | \$239 | \$239 | \$285 | \$285 | \$285 |
| Earnings or (losses) | -\$159 | -\$41 | \$23 | -\$74 | \$44 | \$108 | \$34 | \$145 | \$209 |

¹Rotations 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.

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

³It is assumed that the current farm bill will not provide ARC-CO or PLC payments for base acres in 2022.

⁴The 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.

⁵For the larger acreages, operator labor expense incorporates information pertaining to total family living, net nonfarm income, and income and self-employment taxes obtained from FINBIN, Center for Farm Financial Management, University of Minnesota. The larger acreages also included hired labor. FINBIN data was used to compute hourly hired labor wages. 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.

⁶Based on 2021 cash rent per bushel of corn yield reported in the article entitled "Indiana Farmland Prices Hit New Record High in 2021," Purdue Agricultural Economics Report, July, 2021. The relatively strong crop prices in 2021 will likely create upward pressure on cash rents, thus 2022 cash rents are assumed to be 5% higher than 2021 cash rents.

Prepared by: Michael R. Langemeier, Department of Agricultural Economics; Bob Nielsen, Tony J. Vyn, and Shaun Casteel, Department of Agronomy; and Bill Johnson, Department of Botany and Plant Pathology, Purdue University.

Date: 3/21/22

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Calculation of Average Government Payments per Acre

January 1, 2023

| Line # | 2017 | 2018 | 2019 | 2020 | 2021 |
|--------|-------------|-------------|-------------|---------------|-------------|
| 1 | 373,228,000 | 516,224,000 | 878,992,000 | 1,321,404,000 | 651,209,000 |
| 2 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | -3,638,000 | -3,787,000 | -2,648,000 | -15,761,000 |
| 4 | 373,228,000 | 512,586,000 | 875,205,000 | 1,318,756,000 | 635,448,000 |
| 5 | 12,590,633 | 12,909,673 | 12,909,673 | 12,909,673 | 12,909,673 |
| 6 | 29.64 | 39.71 | 67.79 | 102.15 | 49.22 |

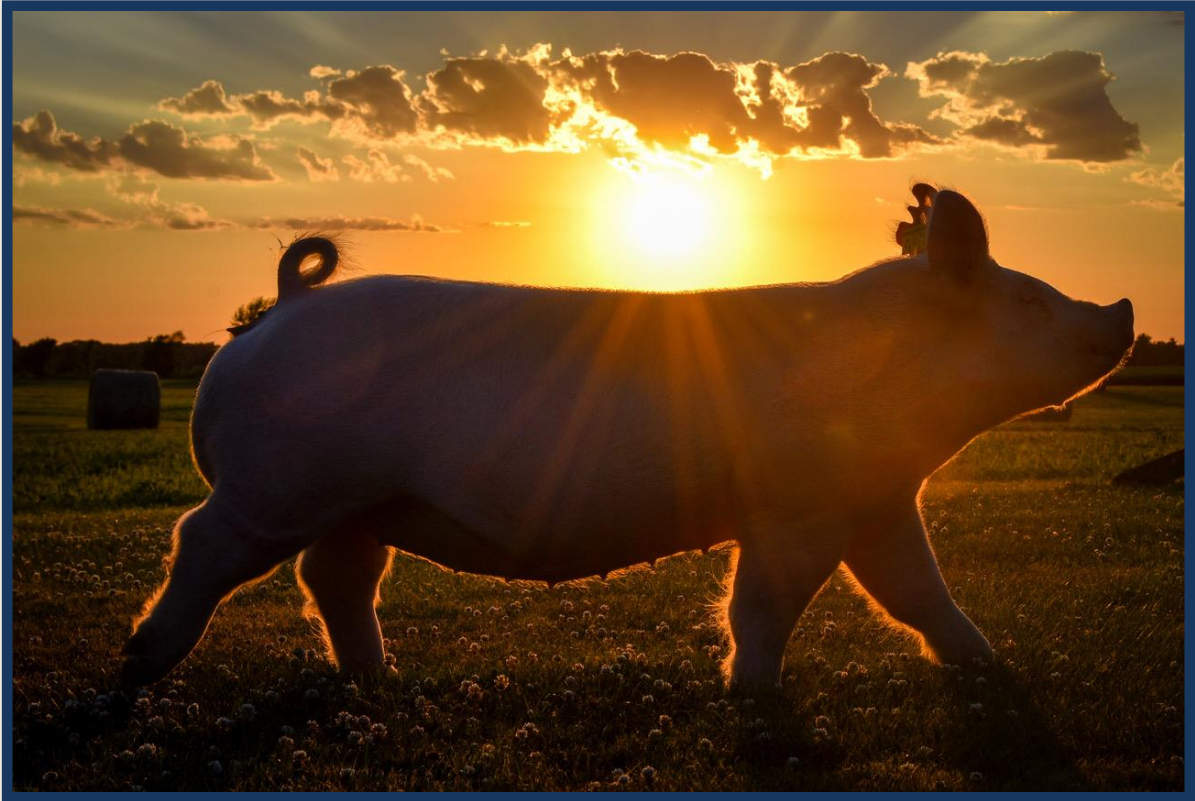
Source: USDA-Indiana Ag Statistics Service

| | | | | | | |
|---|---------------------------------|------|------|------|------|------|
| 1 | Total Government Payment | 2017 | 2018 | 2019 | 2020 | 2021 |
| 2 | Milk Income Loss Payment | P-65 | P-65 | P-65 | P-65 | P-65 |
| 3 | Dairy Margin Protection Program | P-65 | P-65 | P-65 | P-65 | P-65 |
| 5 | Cropland Acres | P-68 | P-66 | P-66 | P-66 | P-66 |

Data for 2022 is not currently available. The Department has estimated the Government Payment per Acre for 2022 in the following way.

| | |
|--|-------------|
| Average Total Government Payment (2017-2021) | 748,211,400 |
| Average Milk Income Loss Payment (2017-2021) | 0 |
| Average Dairy Margin Protection Pymt (2017-2021) | -5,166,800 |
| Estimated Net Government Payment for 2022 | 743,044,600 |
| Cropland Acres (P-66) | 12,909,673 |
| Estimated Payment Per Acre for 2022 | 57.56 |

INDIANA



AGRICULTURAL STATISTICS 2021-2022

FARM INCOME

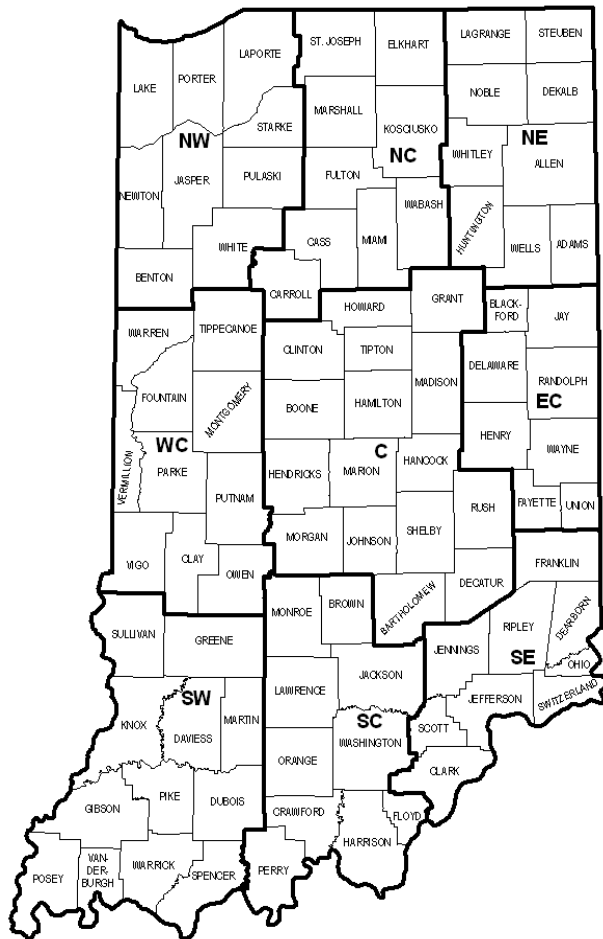
FARM PRODUCTION EXPENSES, BY CATEGORY, INDIANA, 2017-2021 ¹

| Item | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|------------|------------|------------|------------|-------------------|
| Thousand Dollars | | | | | |
| Total Production Expenses | 10,249,444 | 10,053,488 | 10,120,900 | 10,237,244 | 10,220,072 |
| Intermediate Product Expenses | | | | | |
| Farm-origin Expenses | 2,510,786 | 2,462,639 | 2,734,996 | 2,658,709 | 2,303,561 |
| Feed Purchases | 1,150,000 | 1,130,000 | 1,380,000 | 1,350,000 | 910,000 |
| Livestock and Poultry | 370,786 | 392,639 | 394,996 | 328,709 | 393,561 |
| Seed Purchases | 990,000 | 940,000 | 960,000 | 980,000 | 1,000,000 |
| Manufactured Inputs | 2,009,080 | 2,150,280 | 1,994,537 | 2,069,321 | 2,700,149 |
| Pesticide Expenditures | 560,000 | 560,000 | 560,000 | 580,000 | 780,000 |
| Fertilizer, Lime, and Soil Conditioner | 960,000 | 1,080,000 | 950,000 | 1,050,000 | 1,420,000 |
| Fuels and Oils | 377,194 | 394,785 | 381,843 | 339,497 | 387,716 |
| Electricity | 111,886 | 115,495 | 102,694 | 99,824 | 112,433 |
| Other Intermediate Inputs | 1,790,820 | 1,705,825 | 1,649,710 | 1,730,422 | 1,690,065 |
| Labor Expenses | | | | | |
| Cash Expenses | 479,917 | 502,668 | 431,996 | 464,448 | 356,877 |
| Contract Labor | 26,356 | 16,363 | 11,094 | 16,314 | 32,296 |
| Hired Labor and Employee Compensation | 453,561 | 486,304 | 420,902 | 448,134 | 324,581 |
| Non-cash Employee Compensation | 20,083 | 17,332 | 3,004 | 5,552 | 8,123 |
| Interest Expenses | 615,953 | 687,006 | 688,094 | 644,954 | 633,126 |
| Net Rent, Including Landlord Capital Consumption | 1,114,357 | 979,190 | 1,121,868 | 1,156,580 | 1,194,945 |
| Property Taxes and Fees | 462,678 | 536,821 | 506,316 | 490,948 | 534,853 |
| Personal Property Taxes | 48,450 | 33,351 | 34,510 | 33,148 | 32,607 |
| Motor Vehicle Registration and Licensing Fees | 27,678 | 26,821 | 26,316 | 25,948 | 24,853 |
| Real Estate | 386,550 | 476,649 | 445,490 | 431,852 | 477,393 |
| Capital Consumption | 1,245,770 | 1,011,727 | 990,378 | 1,016,310 | 798,373 |
| Data as of September 1, 2022 | | | | | |
| ¹ All data includes Operator Dwellings | | | | | |
| Source: Economic Research Service | | | | | |

U.S. GOVERNMENT DIRECT FARM PROGRAM PAYMENTS BY PROGRAM, INDIANA, 2017-2021 ^{1 2 3}

| Program | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---------|---------|---------|-----------|----------------|
| Thousand Dollars | | | | | |
| Fixed Direct Payments | 0 | (13) | (19) | (142) | (295) |
| Cotton Ginning Cost-Share (CGCS) Program | 0 | 8 | 0 | 0 | 0 |
| Average Crop Revenue Election Program (ACRE) | 0 | 0 | 0 | 0 | (3) |
| Price Loss Coverage (PLC) | 8,700 | 7,764 | 2,453 | 91,778 | 7,153 |
| Agricultural Risk Coverage (ARC) | 285,888 | 50,301 | 4,453 | 117,924 | 2,516 |
| Loan Deficiency Payments | 0 | 0 | (1) | 2 | (75) |
| Dairy Margin Protection Program | 0 | 3,638 | 3,787 | 2,648 | 15,761 |
| Conservation | 77,745 | 87,747 | 78,290 | 83,342 | 76,202 |
| Supplemental and ad hoc disaster assistance | 790 | 847 | 37,201 | 840,884 | 549,307 |
| Market Facilitation Program | NA | 365,754 | 752,586 | 184,776 | 455 |
| Miscellaneous Programs | 105 | 177 | 241 | 192 | 188 |
| Total | 373,228 | 516,224 | 878,992 | 1,321,404 | 651,209 |
| Data as of September 1, 2022 | | | | | |
| NA = Data are not available/applicable. | | | | | |
| Values are rounded to the nearest hundred. | | | | | |
| ¹ Gross payments from the U.S. government to the farm sector | | | | | |
| ² Payments returned to the U.S. government by the farm sector | | | | | |
| ³ Accounting adjustments. A negative value indicates payments returned exceeded gross payments during the calendar year. | | | | | |
| Source: Economic Research Service | | | | | |

COUNTY HIGHLIGHTS



COUNTY HIGHLIGHTS

The following pages of county statistics represent the results of a survey of over 15,000 farm operators following the 2021 harvest season. In addition to these data are selected items of interest from the U.S. Population Census, 2017 Census of Agriculture, and 2020 Cash Receipts information from the Bureau of Economic 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 2017 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

| | | | |
|---------------------------------------|------------|------------------------------|------------------|
| 2021 Census Population | 6,805,985 | 2020 Cash Receipts | \$11,031,098,000 |
| 2017 Total Land Area (acres) | 22,928,355 | Crop Receipts | \$6,979,003,000 |
| 2017 Number of Farms | 56,649 | Livestock Receipts | \$4,052,095,000 |
| 2017 Land in Farms (acres) | 14,969,996 | 2020 Other Income | \$2,076,289,000 |
| 2017 Average Size of Farm (acres) | 264 | Government Payments | \$1,301,141,000 |
| 2017 Value of Land & Bldgs (avg/acre) | \$6,576 | Imputed Income/Rent Received | \$775,148,000 |
| 2017 Cropland (acres) | 12,909,673 | 2020 Total Income | \$13,107,387,000 |
| 2017 Harvested Cropland (acres) | 12,345,774 | Less: Production Expenses | \$10,066,467,000 |
| 2017 Pastureland, all types (acres) | 716,911 | Realized Net Income | \$3,040,920,000 |
| 2017 Woodland (acres) | 1,034,784 | | |

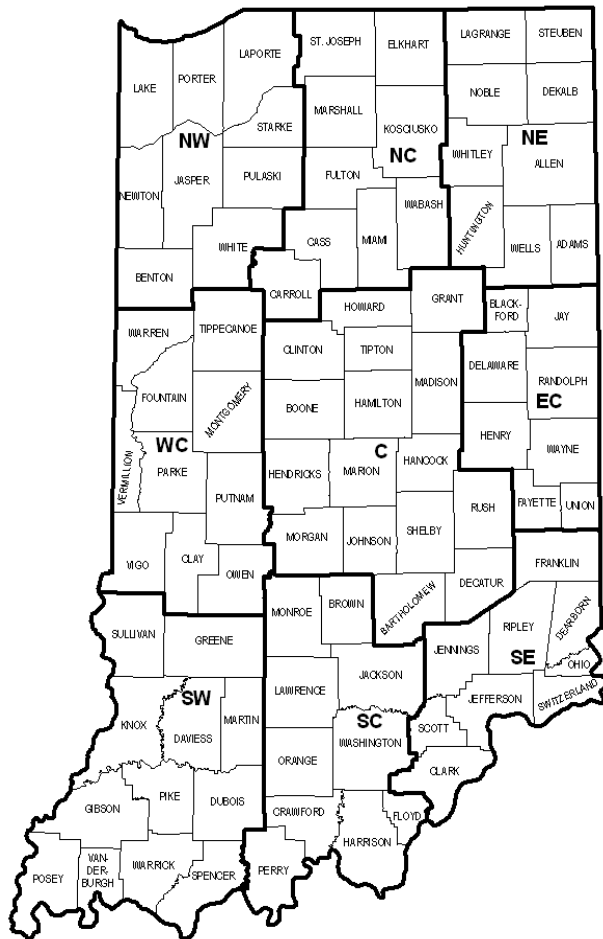
| <u>2021 CROPS</u> | <u>PLTD</u> | <u>HARV</u> | <u>YLD</u> | <u>UNIT</u> | <u>PROD</u> | <u>LIVESTOCK</u> | <u>NUMBER HEAD</u> |
|-------------------|-------------|-------------|------------|-------------|---------------|---------------------|--------------------|
| Corn | 5,400,000 | 5,270,000 | 195.0 | Bu | 1,027,650,000 | Jan 2022 All Cattle | 810,000 |
| Soybeans | 5,650,000 | 5,640,000 | 59.5 | Bu | 335,580,000 | Beef Cows | 184,000 |
| Wheat | 340,000 | 270,000 | 85.0 | Bu | 22,950,000 | Milk Cows | 186,000 |
| Alfalfa Hay | --- | 260,000 | 3.30 | Ton | 858,000 | 2017 All Hogs | 4,004,388 |
| Other Hay | --- | 280,000 | 2.50 | Ton | 700,000 | 2017 All Sheep | 62,085 |
| 2017 Popcorn | --- | 79,222 | --- | Lbs | 352,386,717 | 2017 Chickens | 26,354,377 |
| | | | | | | 2017 Turkeys | 7,350,556 |

INDIANA



AGRICULTURAL STATISTICS 2017-2018

COUNTY HIGHLIGHTS



COUNTY HIGHLIGHTS

The following pages of county statistics represent the results of a survey of over 15,000 farm operators following the 2017 harvest season. In addition to these data are selected items of interest from the U.S. Population Census, 2012 Census of Agriculture, and 2016 Cash Receipts information from the Bureau of Economic 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 2012 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

| | | | |
|---------------------------------------|------------|------------------------------|------------------|
| 2016 Census Population | 6,619,680 | 2016 Cash Receipts | \$10,122,960,000 |
| 2012 Total Land Area (acres) | 22,928,756 | Crop Receipts | \$6,536,930,000 |
| 2012 Number of Farms | 58,695 | Livestock Receipts | \$3,586,030,000 |
| 2012 Land in Farms (acres) | 14,720,396 | 2016 Other Income | \$1,540,497,000 |
| 2012 Average Size of Farm (acres) | 251 | Government Payments | \$648,105,000 |
| 2012 Value of Land & Bldgs (avg/acre) | \$5,354 | Imputed Income/Rent Received | \$892,392,000 |
| 2012 Cropland (acres) | 12,590,633 | 2016 Total Income | \$11,663,457,000 |
| 2012 Harvested Cropland (acres) | 12,146,538 | Less: Production Expenses | \$10,320,505,000 |
| 2012 Pastureland, all types (acres) | 762,619 | Realized Net Income | \$1,342,952,000 |
| 2012 Woodland (acres) | 1,048,632 | | |

| <u>2017 CROPS</u> | <u>PLTD</u> | <u>HARV</u> | <u>YLD</u> | <u>UNIT</u> | <u>PROD</u> | <u>LIVESTOCK</u> | <u>NUMBER HEAD</u> |
|-------------------|-------------|-------------|------------|-------------|-------------|---------------------|--------------------|
| Corn | 5,350,000 | 5,190,000 | 180.0 | Bu | 934,200,000 | Jan 2018 All Cattle | 870,000 |
| Soybeans | 5,950,000 | 5,940,000 | 54.0 | Bu | 320,760,000 | Beef Cows | 208,000 |
| Wheat | 290,000 | 240,000 | 74.0 | Bu | 17,760,000 | Milk Cows | 187,000 |
| Alfalfa Hay | --- | 270,000 | 3.30 | Ton | 891,000 | 2012 All Hogs | 3,747,352 |
| Other Hay | --- | 310,000 | 2.40 | Ton | 744,000 | 2012 All Sheep | 52,169 |
| 2012 Popcorn | --- | 61,092 | --- | Lbs | 151,728,996 | 2012 Chickens | 25,587,222 |
| | | | | | | 2012 Turkeys | 5,084,794 |

AN OVERVIEW OF HOW THE CALENDAR IS USED IN CALCULATING THE AG LAND BASE RATE

| <u>SPRING, 2021</u> | <u>SUMMER, 2021</u> | <u>FALL, 2021</u> | <u>WINTER, 2021</u> | <u>SPRING, 2022</u> | <u>SUMMER, 2022</u> |
|---|---|---|--|---|---|
| Planting 2021 crops Sell a portion of the 2020 crops Paying 1/1/20 Property Taxes Collect all or a portion of 2021 Cash Rent | Care for 2021 crops Sell remainder of the 2020 crops | Harvest 2021 crops Sell a portion of the 2021 crops Paying 1/1/20 Property Taxes Collect remainder of 2021 Cash Rent, if any due | Prep equipment for storage Sell a portion of the 2021 crops | Planting 2022 crops Sell a portion of the 2021 crops Paying 1/1/21 Property Taxes Collect all or a portion of 2022 Cash Rent | Care for 2022 crops Sell remainder of the 2021 crops |

CASH RENT INCOME - CALENDAR YEAR

OPER. INCOME -
1/3 NOVEMBER
GRAIN PRICES

OPERATING INCOME - 1/3 MARKET YEAR AVERAGE OF GRAIN PRICES

OPERATING INCOME - 1/3 CALENDAR YEAR AVERAGE OF GRAIN PRICES

STATE OF INDIANA

DEPARTMENT OF LOCAL GOVERNMENT FINANCE



INDIANA GOVERNMENT CENTER NORTH
 100 NORTH SENATE AVENUE N1058(B)
 INDIANAPOLIS, IN 46204
 PHONE (317) 232-3777
 FAX (317) 974-1629

Agricultural Land Base Rates For The Assessment Dates: January 1, 2019 – 2023

| Data Year | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|-----------|---------|---------|---------|---------|---------|------|------|------|------|------|
| Tax Year | | | | | | | | | | |
| 23 Pay 24 | | | | | \$1,890 | | | | | |
| 22 Pay 23 | | | | \$1,500 | | | | | | |
| 21 Pay 22 | | | \$1,290 | | | | | | | |
| 20 Pay 21 | | \$1,280 | | | | | | | | |
| 19 Pay 20 | \$1,560 | | | | | | | | | |

The Agricultural Land Base Rate calculation was first established for the 2002 general reassessment and was developed in compliance with the St. John’s court case. The statute related to the base rate calculation can be found at Indiana Code 6-1.1-4-4.5(e).

The base rates shown above are made for the January 1 assessment dates of 2019 payable in 2020 through 2023 payable in 2024. They are based on a rolling six-year average of the market value in use. Once each of the market values is determined, the highest value for that six-year period is eliminated and the remaining five years are averaged. The statute then provides instructions to determine the capitalization rate used to calculate the final base rate.

Indiana Code 6-1.1-4-13(a) provides that “land shall be assessed as agricultural land only when it is devoted to agricultural use”. This means that a parcel or a portion of the parcel is eligible for this base rate when it qualifies for it. Once the base rate is applied to land classified as agricultural land, the assessor then applies soil productivity factors and influence factors when appropriate.

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.

$$\text{Market value in use} = \text{Net Income} / \text{Capitalization Rate}$$

The change in market value in use from year to year is based on changes in cash rent, yields, production costs, market prices and interest rates for each of the six years involved.

For example, the change for 2023 pay 2024 was the result of the removal of the 2016 data and the addition of the 2022 data.