In 2015, the total of all economic costs per acre for growing corn in Illinois averaged $921 in the northern section, $896 in the central section for farmland with “high” soil ratings, $886 in the central section for farmland with “low” soil ratings, and $851 in the southern section. Soybean costs per acre were $656, $668, $629 and $631, respectively (see Table 1). Costs were lower in southern Illinois primarily because of lower land costs. The total of all economic costs per bushel in the different sections of the state ranged from $4.48 to $5.22 for corn and from $10.12 to $12.13 for soybeans. Variations in this cost were related to weather, yields, and land quality.

These figures were obtained from farm business records kept by farmers enrolled in the Illinois Farm Business Farm Management Association. The samples included only farms with more than 500 acres of productive and nearly level soils in each area of the state; these are farms without livestock. Farms located in the 22 counties north and northwest of the Illinois River are included in the sample for northern Illinois. Farms from 36 counties below a line from about Mattoon to Alton are in the sample for southern Illinois. The remaining 44 counties make up the sample for central Illinois. The sample farms averaged 1,366 tillable acres in northern Illinois, 1,342 acres in the central section with high soil ratings, 1,374 acres in the central section with lower soil ratings, and 1,794 acres in southern Illinois. This economic analysis includes some factors in the cost of doing business that nonagricultural businesses may not include. These factors are not used as expense items on income tax returns. Examples include the charge for labor performed by the farm operator, a rental charge for the use of owned and rented land, and an interest charge on equity in machinery and inventories of grain and livestock. In the short run, farm operators may continue to produce without covering these total economic costs of production. However, if returns do not equal the total economic cost of production in the long run, it will be difficult to maintain the same level of resources in the farm firm. In addition, producers will be challenged to lower their cost of production or increase volume as profit margins remain narrow.

**Nonland Costs**

Soil fertility costs for soybeans were allocated on the basis of phosphorus, potassium, and lime removal, with the residual cost allocated to corn. The costs of fuel, machine hire and machinery repair were reduced for income received from custom work. Labor costs included the cash value of hired labor, plus a charge for available unpaid labor at a rate of $3,900 per month. This rate represents a charge for
only the physical labor input, not including a charge for management. Building and storage costs were for repairs and depreciation only. The nonland interest rate in 2015 was set at 4.0 percent. This figure was then multiplied by the sum of half the average inventory value of crops at the beginning and the end of the year, the economic depreciated value of machinery and buildings, and half the total operating expenses. The result is the total nonland interest charge. Overhead costs included insurance, utilities, the farm share of light vehicle expenses, and miscellaneous items. As mentioned above, no charge has been made in this analysis for management, but it may normally be about 7 percent of the total cost per bushel, or 30 cents for corn and 60 cents per bushel for soybeans.

**Land Costs**

Land costs were the weighted average of owned, crop share and cash rent costs. Owned land costs include real estate taxes and an interest charge on owned land. For 2015, the land interest charge was 2.1 percent. The land cost for crop shared acres is the labor and equipment charges needed to produce a crop on non-revenue acres (acres the operator does not receive production from). Cash rent costs are the amounts paid to cash rent landlords. Caution is needed in interpreting differences in land costs between areas.

**Cost Per Bushel and Acre**

Costs per bushel of corn in 2015 as compared to 2014 were higher for all geographic areas of the state, except northern Illinois. Costs per bushel were higher due to lower yields. Costs per bushel were 14 cents lower in northern Illinois, 41 cents higher in central Illinois with the higher rated soils, 54 cents higher in central Illinois with the lower rated soils and 69 cents higher in southern Illinois.

The average corn yield in 2015 was 11 bushels per acre lower than 2014 in northern Illinois, 30 to 31 bushels lower in central Illinois and 31 bushels per acre lower in southern Illinois. The 2015 average corn yield in the different geographical locations ranged from 9 to 20 bushels per acre higher than the five-year average from 2011 to 2015.

Costs per acre were mostly lower in all the different geographic regions in Illinois compared to 2014. Across the state, total costs per acre to produce corn decreased 3 to 8 percent. Many costs decreased, including drying, repairs, fuel and land costs.

Production costs per bushel of soybeans in 2015 decreased in all areas of the state except southern Illinois as compared to 2014. Costs per bushel decreased mainly due to lower costs. Soybean yields were mixed when compared to the year before. Soybean yields ranged from 2 bushels per acre higher to 3 bushels lower per acre in 2015 compared to 2014. Changes in costs per bushel ranged from 77 cents lower in central Illinois with higher rated soils to 35 cents higher in southern Illinois.

Total costs per acre decreased in all geographic regions of the state when compared to 2014. Costs decreased $46 per acre in northern Illinois, $29 per acre in central Illinois with the higher rated soils, $14 per acre in central Illinois with the lower rated soils and $17 per acre in southern Illinois. Average soybean yields in the different areas ranged from 3 to 6 bushels per acre higher than the five-year average from 2011 to 2015.

**State Averages**

Total costs to produce corn for all combined areas of the state were $894 per acre. This figure decreased five percent compared to the year before. Variable costs decreased $34 per acre or 7 percent, other nonland costs decreased $2 per acre and land costs decreased $12 per acre. In 2015, cash costs accounted for 48 percent of the total cost of production for corn, other nonland costs
were 28 percent, and land costs were 25 percent. The average corn yield for all combined areas of the state was 191 bushels per acre resulting in a total cost of production of $4.69 per bushel. The average corn yield was the fourth highest on record. Total costs per acre and total costs per bushel were the third highest on record.

Total cost per acre to produce soybeans decreased, from $680 per acre in 2014 to $652 per acre in 2015. Generally speaking, the same expenses that decreased for corn also decreased for soybeans. Variable costs accounted for 33 percent of the total cost of production for soybeans, other nonland costs 33 percent and land costs 34 percent. The average soybean yield for all combined areas of the state was 62 bushels per acre resulting in a total cost of production of $10.52 per bushel. The average soybean yield was the highest on record. The cost per bushel to raise soybeans the last five years averaged $11.36 per bushel.

Cost Comparison

Average variable costs per bushel of corn for the five-year period 2011 through 2015 ranged from $2.41 in central Illinois with the higher rated soils to $3.61 in southern Illinois. Total costs per bushel ranged from $4.93 in central Illinois with the higher rated soils to $6.82 in southern Illinois. Total costs per bushel were higher in southern Illinois due to lower yields, especially in 2012 because of the drought.

Average variable costs per bushel of soybeans ranged from $3.63 in northern Illinois to $4.75 in southern Illinois. Total costs per bushel varied from $11.17 in central Illinois with the higher rated soils to $12.53 in southern Illinois. Like for corn, soybeans total cost per bushel were higher in southern Illinois due to lower yields.

2016 and 2017 Forecast

Forecasts for Illinois production costs in 2016 and 2017 look to be less using Gary Schnitkey’s 2016 crop budgets and the USDA’s Cost-of-Production Forecasts as a guide. For corn, 2016 variable costs are projected to decrease 5 percent, mainly due to soil fertility costs. For 2017, the variable costs are expected to increase almost 2 percent from 2016. However, this is still approximately a 4 percent decrease from 2015. For 2016, soybeans have a larger projected decrease of variable costs of almost 9 percent. This decrease is also primarily due to soil fertility costs. In 2017, the soybean variable costs are expected to be 7 percent less than 2015. With tightening margins, these decreases are needed. However, additional cutting of overhead and land costs will need to occur to make returns more profitable in 2016 and 2017.

Acknowledgement

The author would like to acknowledge that data used in this study comes from the local Farm Business Farm Management (FBFM) Associations across the State of Illinois. Without their cooperation, information as comprehensive and accurate as this would not be available for educational purposes. FBFM, which consists of 5,500 plus farmers and 60 professional field staff, is a not-for-profit organization available to all farm operators in Illinois. FBFM field staff provide on-farm counsel with computerized recordkeeping, farm financial management, business entity planning and income tax management. For more information, please contact the State FBFM Office located at the University of Illinois Department of Agricultural and Consumer Economics at 217-333-5511 or visit the FBFM website at www.fbfm.org.
Figure 1. Total Costs Per Acre To Grow Corn On Illinois Grain Farms

Figure 2. Total Costs Per Acre To Grow Soybeans On Illinois Grain Farms
Table 1. Cost Per Acre for Growing Corn and Soybeans on Illinois Grain Farms Without Livestock in 2015

<table>
<thead>
<tr>
<th></th>
<th>Corn</th>
<th>Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Northern</td>
<td>Central 1</td>
</tr>
<tr>
<td>Number of Farms</td>
<td>380</td>
<td>672</td>
</tr>
<tr>
<td>Acres in crop</td>
<td>841</td>
<td>698</td>
</tr>
</tbody>
</table>

**NONLAND COSTS**

Variable Costs:
- Soil Fertility: $161, $166, $169, $171, $41, $56, $49, $54
- Pesticides: 59, 66, 68, 66, 35, 40, 43, 46
- Seed: 120, 118, 123, 108, 69, 76, 65, 62
- Drying: 17, 15, 13, 8, 0, 1, 1, 0
- Repairs, fuel and hire: 70, 58, 60, 69, 60, 50, 53, 64

Total variable costs: $427, $423, $433, $422, $205, $223, $211, $226

Percent change from 2014: -12%, -7%, -5%, -6%, -10%, -5%, -3%, -6%

Other nonland costs:
- Labor: $48, $49, $50, $62, $43, $46, $49, $56
- Buildings: 26, 17, 19, 26, 13, 14, 13, 15
- Storage: 7, 14, 13, 6, 3, 8, 4, 4
- Machinery depreciation: 72, 65, 67, 74, 62, 57, 57, 69
- Nonland interest: 51, 50, 48, 47, 42, 45, 42, 47
- Overhead: 50, 47, 47, 49, 48, 44, 44, 49

Total, other costs: $254, $242, $244, $264, $211, $214, $209, $240

Total, nonland costs: $681, $665, $677, $686, $416, $437, $420, $466

Percent change from 2014: -9%, -4%, -3%, -4%, -8%, -3%, -1%, -3%

**LAND COSTS**


Percent change from 2014: -8%, -5%, -3%, -3%, -7%, -4%, -2%, -3%

**TOTAL, all costs**

$921 $896 $886 $851 $656 $668 $629 $631

Percent change from 2014: -8%, -5%, -3%, -3%, -7%, -4%, -2%, -3%

2015 yields, bushels per acre: 194, 200, 185, 163, 61, 66, 61, 52

Nonland costs per bushel: $3.51, $3.33, $3.66, $4.21, $6.82, $6.62, $6.89, $8.96

Total, all costs per bushel: $4.75, $4.48, $4.79, $5.22, $10.75, $10.12, $10.31, $12.13

2011-2015 average yield: 187, 189, 175, 146, 58, 60, 56, 49

Nonland costs per bushel: $3.65, $3.53, $3.88, $4.71, $7.17, $7.34, $7.57, $9.46

Total, all costs per bushel: $4.94, $4.75, $5.08, $5.85, $11.31, $11.23, $11.33, $12.81

Note: The last two lines of the table are costs based on 2011-2015 average yields

1 Soil productivity ratings of 86 to 100
2 Soil productivity ratings of 56 to 85
3 Weighted average of owned, crop share and cash rent land costs