

**Costs to Produce Corn and Soybeans in Illinois—2019**

Dale Lattz and Bradley L. Zwillling  
Illinois FBFM Association and  
Department of Agricultural and Consumer Economics  
University of Illinois  
May 2020

In 2019, the total of all economic costs per acre for growing corn in Illinois averaged \$878 in the northern section, \$912 in the central section for farmland with “high” soil ratings, \$887 in the central section for farmland with “low” soil ratings, and \$851 in the southern section. Soybean costs per acre were \$630, \$672, \$629 and \$652, 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 \$4.38 to \$4.95 for corn and from \$10.50 to \$12.54 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 1,592 tillable acres in northern Illinois, 1,527 acres in the central section with high soil ratings, 1,535 acres in the central section with lower soil ratings, and

1,652 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. Also, 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 \$4,000 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 2019 was set at 5 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 6 percent of the total cost per bushel or 28 cents for corn and 66 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 2019, the land interest charge was 1.85 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 2019 as compared to 2018 were higher in all regions of the state. Costs per bushel were higher due to lower yields. Costs per bushel were 51 cents higher in northern Illinois, 68 cents higher in central Illinois with the higher rated soils, 85 cents higher in central Illinois with the lower rated soils and 62 cents higher in southern Illinois.

The average corn yield in 2019 was 23 bushels per acre lower than 2018 in northern Illinois, 29 bushels to 32 bushel lower in central Illinois and 16 bushels lower than 2018 in southern Illinois. The 2019 average

corn yield in the different geographical locations ranged from 19 bushels lower to 1 bushel per acre higher than the five-year average from 2015 to 2019.

Costs **per acre** for corn were mostly higher in all the different geographic regions in Illinois compared to 2018. Across the state, total costs per acre to produce corn varied from no change to a 5 percent increase. Fertility, drying, and nonland interest costs increased the most.

Production costs **per bushel** of soybeans in 2019 increased in Illinois in comparison to 2018. Costs per bushel increased due to lower yields. Soybean yields ranged from 4 to 10 bushels per acre lower in 2019 compared to 2018. Changes in costs per bushel ranged from \$1.90 lower in southern Illinois to \$1.29 lower in northern Illinois.

Total costs **per acre** increased in Illinois when compared to 2018. Costs decreased \$10 per acre in northern Illinois, increased \$8 per acre in central Illinois with the higher rated soils, increased \$6 per acre in central Illinois with the higher rated soils and increased \$24 per acre in southern Illinois when compared to 2018. Average soybean yields in the different areas ranged from 4 bushels lower to no change in bushel per acre when comparing to the five-year average from 2015 to 2019.

### **State Averages**

Total costs to produce corn for all combined areas of the state were \$891 per acre. This is \$30 per acre higher than 2018. Variable costs increased \$25 per acre or 4 percent, other nonland costs increases \$7 per acres, and land costs decreased \$2 per acre. In 2019, cash costs accounted for 47 percent of the total cost of production for corn, other nonland costs were 29 percent, and land costs were 24 percent. The average corn yield for all combined areas of the state was 194 bushels per acre resulting in a total cost of production of \$4.59 per bushel. The average corn yield in 2019 was the lowest in

the last 4 years, 27 bushels to the acre less than 2018. Total costs per acre were the highest in the last four years while total costs per bushel were the highest in the last four years as well.

Total cost per acre to produce soybeans increased, from \$644 per acre in 2018 to \$651 per acre in 2019. Nonland interest accounted for most of the increase. Variable costs accounted for 33 percent of the total cost of production for soybeans, other nonland costs 34 percent and land costs 33 percent. The average soybean yield for all combined areas of the state was 59 bushels per acre resulting in a total cost of production of \$11.03 per bushel. The cost per bushel to raise soybeans the last five years averaged \$10.20 per bushel.

### **Cost Comparison**

Average variable costs per bushel of corn for the five-year period 2015 through 2019 ranged from \$1.88 in central Illinois with the higher rated soils to \$2.31 in southern Illinois. Total costs per bushel ranged from \$4.04 in central Illinois with the higher rated soils to \$4.84 in southern Illinois. Total costs per bushel were higher in southern Illinois due to lower yields.

Average variable costs per bushel of soybeans for the five-year period 2015 through 2019 ranged from \$3.19 in central Illinois with higher rated soils to \$4.02 in southern Illinois. Total costs per bushel varied from \$9.74 in central Illinois with the higher rated soils to \$11.50 in southern Illinois. Like for corn, soybeans total cost per bushel were higher in southern Illinois

due to lower yields.

### **2020 Forecast**

Forecasts for Illinois production costs in 2020 look to be more using Gary Schnitkey's 2020 crop budgets and the USDA's Cost-of-Production Forecasts as a guide. For corn, 2020 variable costs are projected to decrease 3 percent, mainly due to soil fertility costs. For 2020, soybeans have a smaller projected decrease of variable costs of 2 percent. This decrease is also primarily due to soil fertility costs. These decreases coupled with additional cutting of overhead and land costs will aid with lower projected prices for 2020.

### **Acknowledgment**

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 plus 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 217-333-8346 or visit the FBFM website at [www.fbfm.org](http://www.fbfm.org).

Figure 1. Total Costs Per Acre To Grow Corn On Illinois Grain Farms

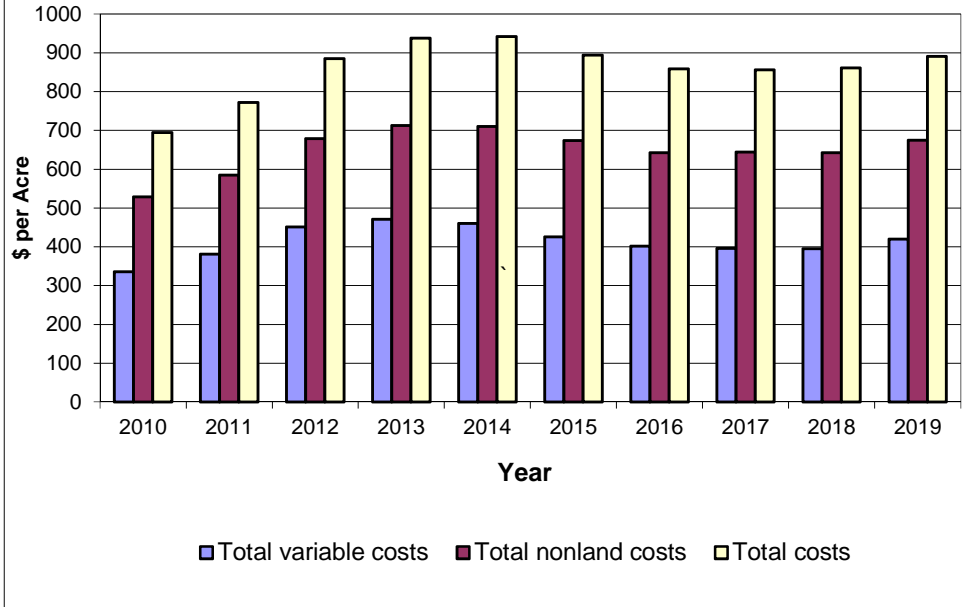
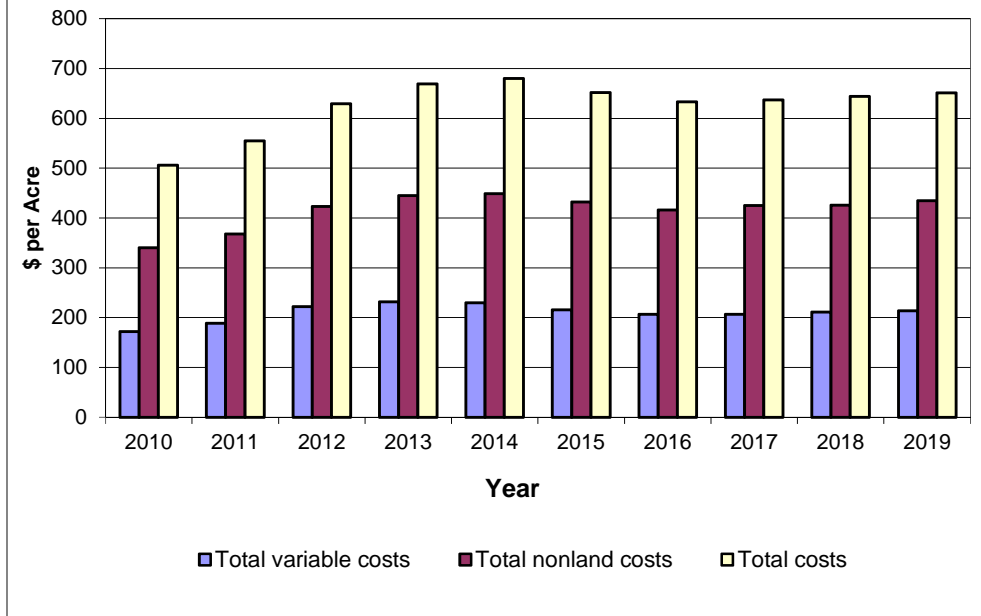


Figure 2. Total Costs Per Acre To Grow Soybeans On Illinois Grain Farms



**Table 1. Cost Per Acre for Growing Corn and Soybeans on Illinois Grain Farms Without Livestock in 2019**

	Corn				Soybeans			
	Northern	Central <sup>1</sup> High	Central <sup>2</sup> Low	Southern	Northern	Central <sup>1</sup> High	Central <sup>2</sup> Low	Southern
Number of Farms .....	322	541	310	196	322	541	310	196
Acres in crop .....	874	794	769	656	519	709	699	766
<b>NONLAND COSTS</b>								
Variable Costs:								
Soil Fertility .....	\$134	\$154	\$155	\$126	\$34	\$45	\$43	\$42
Pesticides .....	54	76	75	71	33	46	47	50
Seed .....	107	114	117	109	63	73	62	64
Drying .....	28	22	21	11	1	-	1	0
Repairs, fuel and hire .....	<u>78</u>	<u>66</u>	<u>63</u>	<u>77</u>	<u>66</u>	<u>58</u>	<u>56</u>	<u>69</u>
Total variable costs.....	\$401	\$432	\$431	\$394	\$197	\$222	\$209	\$225
Percent change from 2018 .....	2%	8%	8%	3%	-3%	2%	2%	1%
Other nonland costs								
Labor .....	\$45	\$47	\$50	\$66	\$39	\$44	\$48	\$58
Buildings .....	24	18	19	24	12	15	13	14
Storage .....	10	15	11	7	4	8	4	5
Machinery depreciation .....	58	63	65	72	49	55	55	69
Nonland interest .....	55	59	57	53	46	53	49	50
Overhead .....	<u>49</u>	<u>48</u>	<u>48</u>	<u>72</u>	<u>47</u>	<u>45</u>	<u>45</u>	<u>68</u>
Total, other costs.....	\$241	\$250	\$250	\$294	\$197	\$220	\$214	\$264
Total, nonland costs .....	\$642	\$682	\$681	\$688	\$394	\$442	\$423	\$489
Percent change from 2018.....	0%	6%	6%	6%	-3%	2%	2%	5%
<b>LAND COSTS</b>								
Total land costs <sup>3</sup> .....	\$236	\$230	\$206	\$163	\$236	\$230	\$206	\$163
<b>TOTAL, all costs</b> .....	<b>\$878</b>	<b>\$912</b>	<b>\$887</b>	<b>\$851</b>	<b>\$630</b>	<b>\$672</b>	<b>\$629</b>	<b>\$652</b>
Percent change from 2018.....	0%	4%	4%	5%	-2%	1%	1%	4%
2019 yields, bushels per acre .....	191	208	187	172	58	64	57	52
Nonland costs per bushel .....	\$3.36	\$3.28	\$3.64	\$4.00	\$6.79	\$6.91	\$7.42	\$9.40
Total, all costs per bushel .....	\$4.60	\$4.38	\$4.74	\$4.95	\$10.86	\$10.50	\$11.04	\$12.54
2015-2019 average yield .....	208	220	206	171	62	68	61	55
Nonland costs per bushel .....	\$3.08	\$3.10	\$3.31	\$4.02	\$6.33	\$6.48	\$6.89	\$8.96
Total, all costs per bushel .....	\$4.22	\$4.15	\$4.31	\$4.98	\$10.13	\$9.85	\$10.24	\$11.94

Note: The last two lines of the table are costs based on 2015-2019 average yields

<sup>1</sup> Soil productivity ratings of 86 to 100

<sup>2</sup> Soil productivity ratings of 56 to 85

<sup>3</sup> Weighted average of owned, crop share and cash rent land costs