

# **The Importance of Agriculture for Kentucky**

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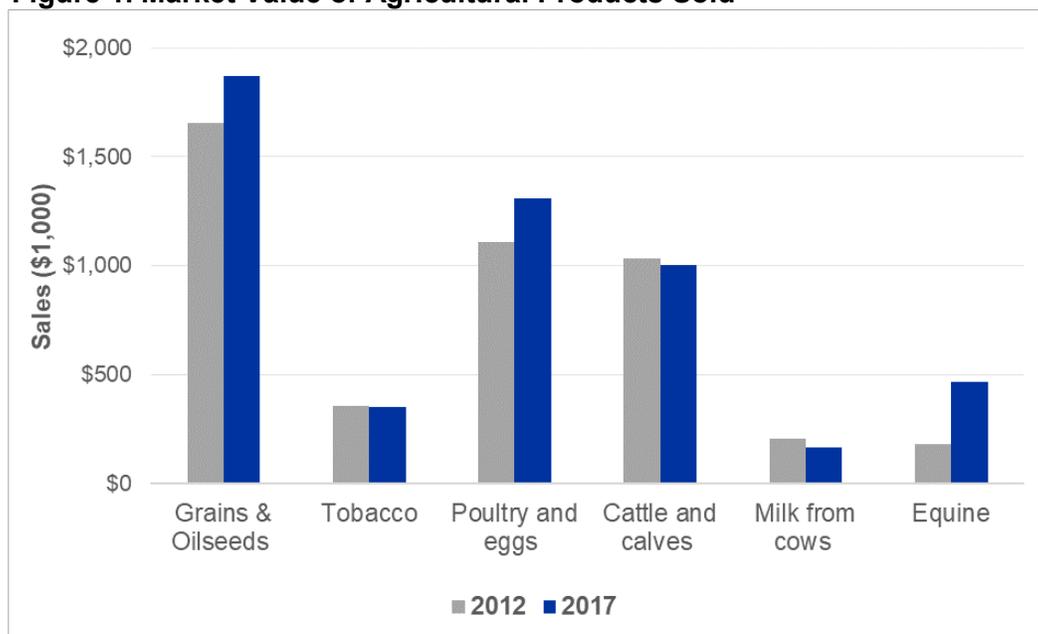
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**The total economic impact of agriculture in Kentucky in 2019 equaled \$49.6 billion, representing an 8.8% increase from the economic impact of \$45.6 billion in 2012.**

Over a period of five years, the total number of farms in Kentucky has fallen from 77,064 operations in 2012 to 75,966 operations in 2017. However, during the same time, the average market value of agricultural products per operation increased from \$65,755 to \$75,533 and farm-related income per operation has increased moderately from \$17,356 in 2012 to \$17,409 in 2017. Total acres of Kentucky farmland decreased slightly by 0.7% to 12,961,784 acres in 2017 and acres per farm increased by 0.8% to 170.6 acres in 2017. Overall, this indicates that loss of value from decreasing number of farms has been partially offset by gains to farms that have stayed operational or have increased in size. Figure 1 provides an overview of the change in the value of sales of top commodities produced in the state.

**Figure 1. Market Value of Agricultural Products Sold**



Data Source: USDA/NASS Quick Stats

To determine the value of agriculture in Kentucky, an Input-Output (IO) model is constructed using 2019 IMPLAN data. This model allows the use of multipliers, which give an indication of the impact of an industry on employment, output, and income in the local economy. Multipliers measure the total change throughout the economy from a one-unit change for a given sector. The model utilizes the Type II multiplier, which is most widely used in IO analysis. A Type II multiplier includes the effect of direct (initial) spending, indirect spending (transactions between businesses), and induced (household) spending. Essentially, an induced effect reflects employees' spending on goods and services.

Note: This report is an update of *The Importance of Agriculture for Kentucky, 2015*.  
View the report here: [http://cedik.ca.uky.edu/files/report\\_importance\\_of\\_ag\\_ky\\_2015.pdf](http://cedik.ca.uky.edu/files/report_importance_of_ag_ky_2015.pdf)

Table 1 provides an overview of the market value for agricultural products in Kentucky across three sectors: agricultural production, agricultural processing, and agriculture-related industries. Agricultural production and processing sectors include all industries that directly conduct agricultural activities. The production sector involves the production of intermediate goods that need to be processed before consumption. The processing sector includes goods that utilize crops and livestock as inputs, as these products are grown or raised on farm.

The agriculture-related industries sector consists of industries that provide inputs to the primary sector or use agricultural products as manufacturing inputs. This includes inputs to agricultural production or processing, such as fertilizer and farm equipment.

In 2019, total revenue for production agriculture was \$5.6 billion and total employment equaled 91,864. The agricultural processing sector generated output worth approximately \$25.1 billion and employed 45,024 workers. Total output for the entire agriculture industry topped \$31.6 billion and employment totaled 138,612 workers. Agricultural output was about 6.7% of total revenue in Kentucky.

Table 2 provides the output, employment and value-added multipliers for the three sectors mentioned above: agricultural production, agricultural processing, and agriculture-related industries. The employment multiplier is defined as the number of new jobs created from hiring an additional employee in the agricultural sector. The output multiplier depicts the “turnover” of the dollar or the additional dollars generated from every dollar increase in sales. The labor-income multiplier describes the additional labor income generated from every dollar of direct labor income earned.

For example, consider the textiles industry. The employment multiplier is equal to 1.80. This number suggests that for every 100 new jobs in the textile industry, through direct, indirect, and induced effects, additional 80 jobs are created throughout the rest of the local economy. The output multiplier is equal to 1.40. This means that for every dollar spent in the production of textiles, an additional 40 cents is generated as a result of interactions between business, suppliers, and household spending. The income multiplier is equal to 1.58. For every \$1 of income generated, an additional 58 cents of income is generated within the local economy. It is important to note that the indirect and induced effects are not constrained to the agricultural industry. Depending on the relationships between different industries and household spending, spillover effects can be felt in any industry within the local economy.

Table 3 provides the final estimate of the overall economic impact of agriculture on the state of Kentucky. Including the multiplier effect, production agriculture represents approximately **\$9.7 billion of output, 122,048 jobs and just above of \$3.0 billion in labor income.** Including other agriculture-related industries, agriculture is responsible for **\$49.6 billion of output, 271,693 jobs and \$10.3 billion in labor income.**

**Table 1. Direct Effect of Agriculture on Kentucky's Economy, 2019**

| <b>Industry</b>                            | <b>Employment</b> | <b>Output (\$1,000)</b> | <b>Value Added (\$1,000)</b> |
|--|-------------------|-------------------------|------------------------------|
| <b>Agricultural Production:</b>            |                   |                         |                              |
| Oilseed and Grain                          | 12,737            | \$1,848,138             | \$834,529                    |
| Vegetable and Melon Farming                | 392               | \$23,518                | \$11,777                     |
| Fruits and Tree Nuts                       | 169               | \$6,507                 | \$4,096                      |
| Greenhouse, Nursery, and Floriculture      | 1,214             | \$71,492                | \$38,595                     |
| Tobacco                                    | 6,419             | \$268,556               | \$173,634                    |
| All Other Crop Farming                     | 24,179            | \$247,855               | \$127,337                    |
| Beef Cattle Ranching                       | 13,878            | \$703,175               | \$299,773                    |
| Dairy Cattle and Milk                      | 795               | \$183,495               | \$37,032                     |
| Poultry and Egg                            | 3,983             | \$1,081,725             | \$139,171                    |
| Other Animal Production (including equine) | 16,007            | \$739,347               | \$666,964                    |
| Commercial fishing                         | 398               | \$6,015                 | \$3,819                      |
| Support Activities for Agriculture         | 11,694            | \$466,642               | \$366,698                    |
| <b>Total</b>                               | <b>91,864</b>     | <b>\$5,646,464</b>      | <b>\$2,703,424</b>           |
| <b>Agricultural Processing:</b>            |                   |                         |                              |
| Food and Beverages                         | 41,749            | \$21,957,888            | \$6,260,937                  |
| Tobacco products                           | 942               | \$2,625,110             | \$1,425,424                  |
| Textiles                                   | 2,333             | \$498,637               | \$164,719                    |
| <b>Total</b>                               | <b>45,024</b>     | <b>\$25,081,636</b>     | <b>\$7,851,079</b>           |
| <b>Agricultural Inputs</b>                 | 1,723             | \$880,116               | \$144,712                    |
| <b>Total for Agriculture</b>               | <b>138,612</b>    | <b>\$31.6 Billion</b>   | <b>\$10.7 Billion</b>        |
| <b>Total for All Industries</b>            | <b>2,568,854</b>  | <b>\$ 473 Billion</b>   | <b>\$221 Billion</b>         |
| <b>Agriculture Share of All Industries</b> | <b>5.4%</b>       | <b>6.7%</b>             | <b>4.8%</b>                  |

Data Source: Implan, 2019

**Table 2. Economic Multipliers for Agricultural Industries in Kentucky, 2019**

| <b>Industry</b>                            | <b>Employment</b> | <b>Output</b> | <b>Income</b> |
|--|-------------------|---------------|---------------|
| <b>Agricultural Production:</b>            |                   |               |               |
| Oilseed and Grain                          | 1.92              | 1.78          | 1.97          |
| Vegetable and Melon Farming                | 1.36              | 1.74          | 1.83          |
| Fruits and Tree Nuts                       | 1.24              | 1.66          | 1.73          |
| Greenhouse, Nursery, and Floriculture      | 1.32              | 1.72          | 1.57          |
| Tobacco                                    | 1.25              | 1.75          | 1.50          |
| All Other Crop Farming                     | 1.09              | 1.84          | 1.69          |
| Beef Cattle Ranching                       | 1.30              | 1.71          | 1.87          |
| Dairy Cattle and Milk                      | 2.10              | 1.71          | 2.67          |
| Poultry and Egg                            | 2.00              | 1.67          | 3.50          |
| Other Animal Production (including equine) | 1.15              | 1.44          | 1.31          |
| Commercial fishing                         | 1.02              | 1.37          | 0.00          |
| Support Activities for Agriculture         | 1.23              | 1.88          | 1.29          |
| <b>Agricultural Processing:</b>            |                   |               |               |
| Food and Beverages                         | 3.24              | 1.57          | 2.31          |
| Tobacco products                           | 6.27              | 1.30          | 4.20          |
| Textiles                                   | 1.80              | 1.40          | 1.58          |
| <b>Agricultural Inputs</b>                 |                   |               |               |
|  | 2.52              | 1.55          | 2.35          |

Data Source: Implan, 2019

**Table 3. Total Effect of Agriculture on Kentucky's Economy, 2019**

| Industry                                   | Employment     | Output (\$1,000)      | Income (\$1,000)      |
|--|----------------|-----------------------|-----------------------|
| <b>Agricultural Production:</b>            |                |                       |                       |
| Oilseed and Grain                          | 24,422         | \$3,287,683           | \$971,810             |
| Vegetable and Melon Farming                | 533            | \$40,944              | \$13,262              |
| Fruits and Tree Nuts                       | 208            | \$10,812              | \$3,961               |
| Greenhouse, Nursery, and Floriculture      | 1,601          | \$122,624             | \$46,291              |
| Tobacco                                    | 8,028          | \$469,217             | \$200,873             |
| All Other Crop Farming                     | 26,280         | \$455,516             | \$175,386             |
| Beef Cattle Ranching                       | 18,111         | \$1,201,679           | \$322,263             |
| Dairy Cattle and Milk                      | 1,667          | \$314,000             | \$61,095              |
| Poultry and Egg                            | 7,955          | \$1,804,518           | \$267,846             |
| Other Animal Production (including equine) | 18,401         | \$1,067,758           | \$441,171             |
| Commercial fishing                         | 407            | \$8,256               | -\$59                 |
| Support Activities for Agriculture         | 14,435         | \$877,377             | \$559,404             |
| <b>Total</b>                               | <b>122,048</b> | <b>\$9,660,385</b>    | <b>\$3,063,304</b>    |
| <b>Agricultural Processing:</b>            |                |                       |                       |
| Food and Beverages                         | 135,205        | \$34,501,705          | \$6,527,822           |
| Tobacco products                           | 5,904          | \$3,424,443           | \$309,902             |
| Textiles                                   | 4,190          | \$699,651             | \$168,036             |
| <b>Total</b>                               | <b>145,299</b> | <b>\$38,625,799</b>   | <b>\$7,005,760</b>    |
| <b>Agricultural Inputs</b>                 | 4,346          | \$1,362,849           | \$242,937             |
| <b>Total for Agriculture</b>               | <b>271,693</b> | <b>\$49.6 Billion</b> | <b>\$10.3 Billion</b> |

Data Source: Implan, 2019

