Understanding Pennsylvania Agriculture

PennState
College of Agricultural Sciences

Center for Economic and Community Development
& Penn State Extension

About this Report

Using maps and figures, "Understanding Pennsylvania Agriculture" provides a graphic update on the number of farms, land in farms, agricultural product sales, farm incomes, and information on farm operators by county in Pennsylvania in 2017.

The analysis in this report is based on data from the 2017 Census of Agriculture, administered by the U.S. Department of Agriculture (USDA), which was released in spring 2019. "Pennsylvania Agriculture: 2017 Update" serves as a follow-up to a previous report published by the Center for Economic and Community Development based on the 2012 Census of Agriculture titled, "Pennsylvania Agriculture: Where the Action Is!"

Data sources for this report:

U.S. Department of Agriculture, National Agricultural Statistics Service, *2017 Census of Agriculture*

U.S. Census Bureau, 2013-*2017 American Community Survey 5-Year Estimates*

U.S. Department of Labor, Bureau of Labor Statistics, *2017 Quarterly Census of Employment & Wages*

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Key Terms

Farm: Any place from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the year (USDA, 2019).

Employment: Filled jobs by place of work, reported by employer; includes full, part-time, temporary or permanent jobs (U.S. Bureau of Labor Statistics, 2018).

Land in Farms: Agricultural land used for crops, pasture, or grazing. Woodland and wasteland not actually under cultivation or used for pasture or grazing is included, provided it was part of the farm operator's total operation. Land in farms includes land owned and operated as well as land rented from others (USDA, 2019).

Market Value of Agricultural Products Sold: Gross market value before taxes and production expenses of all agricultural products sold or removed from the farm. It includes sales by the producers; the value of any shares received by partners, landlords, contractors, or others; organic sales; direct sales; and the value of commodities placed in the Commodity Credit Corporation (CCC) loan program. This indicator does not include payments received for participation in other Federal farm programs; income from farm-related sources such as custom work and other agricultural services; nor income from nonfarm sources (USDA, 2019). The market value of agricultural products sold is equivalent to total sales. Throughout the report, this indicator is referred to as "total sales" and "agricultural product sales."

Net Cash Farm Income: The sum of a farm operation's total sales, government payments, and other farm related income, minus total farm expenses (USDA, 2019).

Producers: Someone involved in making decisions for a farm operation (USDA, 2019). The 2017 Census of Agriculture accounts for up to four producers per operation. From 2002-2012, the Census collected data for up to three producers on a farming operation. This definitional change makes it difficult to compare across time and may impact the overall number of people who identify as producers in the 2017 Census.

Key Takeaways

Based on data from the 2017 Census of Agriculture, this report provides an update on four key variables in Pennsylvania agriculture: number of farms, land in farms, market value of agricultural products sold, and net cash farm income. This report also categorizes farms into five 'sales groups' based on the market value of agricultural products sold. Using maps, tables, and figures, this report shows the distribution of these variables across Pennsylvania's 67 counties and by sales group. This report takes a "big picture" look at the 53,157 farms reported in the 2017 Census of Agriculture.

Key Pennsylvania Takeaways from the 2017 USDA Census of Agriculture

- Pennsylvania ranked 6th nationally in total population and 6th in total employment. Zooming in on agriculture, Pennsylvania was 14th nationally in number of agricultural producers. Pennsylvania ranked 14th nationally in the number of farms. In a national ranking of market value of agricultural product sales, Pennsylvania ranked 19th.

- Of the 53,157 farms in Pennsylvania, Lancaster County had the most farms (5,108 farms) and York County had the second most farms (2,067 farms) in the state. Cameron County and Forest County contained the least number of farms, with 37 farms and 36 farms respectively.

- Of the state's 53,157 farms, half generated less than $10,000 per year in agricultural product sales. No county in 2017 had a majority of farms generating over $100,000 in total sales.

- Farms with the highest agricultural product sales were clustered in southeast Pennsylvania. The counties with the highest total sales were Lancaster ($1.5 Billion) and Chester ($712.5 Million). The counties with the lowest values were Cameron ($523,000) and Philadelphia ($327,000).

- About 7% of Pennsylvania's total agricultural product sales was generated by farms with less than $99,999 in annual product sales. About 26% of Pennsylvania's total sales was generated by farms with sales between $100,000-$499,999 and 67% of the total market value agricultural products sold came from farms with annual sales $500,000 and above.

- In terms of net cash income, farms with agricultural product sales between $0-$9,999 incurred a total loss in net cash farm income of $229,230,000, the equivalent of 10% of the total net cash income for all farms in Pennsylvania. Farms with agricultural product sales above $500,000 had total net cash farm income of $1,671,965,000, making up 75% of the total net cash income for all farms in Pennsylvania.

- In terms of demographics of producers, there is diversity within and across the state. Cameron, McKean, and Luzerne Counties had the oldest average age of producers (60.6 years) and Philadelphia County (42.5 years) and Lancaster County (46.6 years) had the lowest average producer ages. Between 30%-40% of farm producers in most counties are female.

- The following table summarizes the top five counties across the four key variables mentioned above with the addition of net cash income per farm operation:
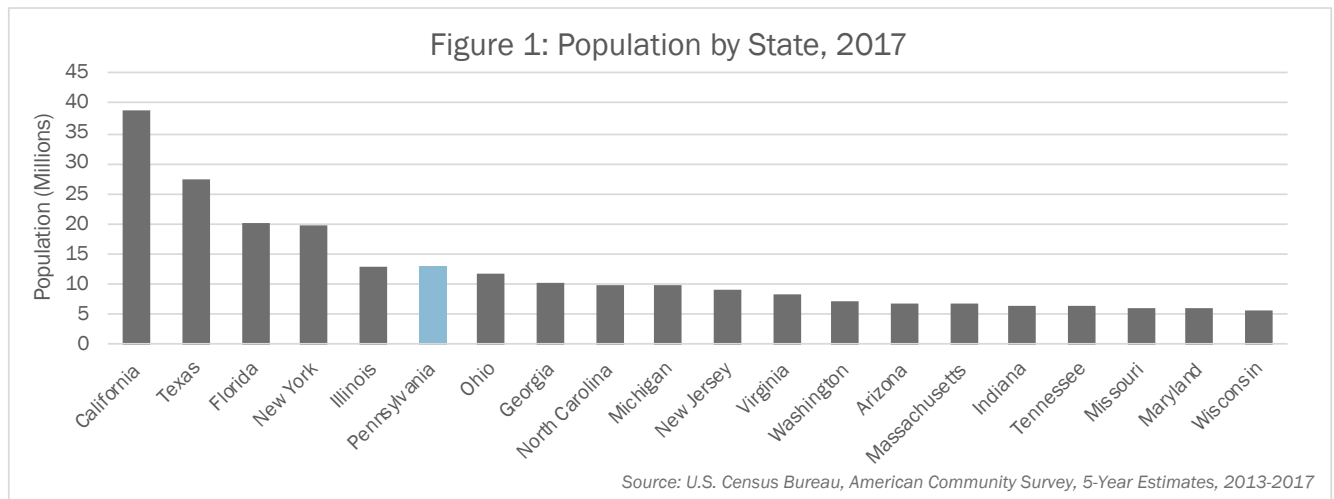
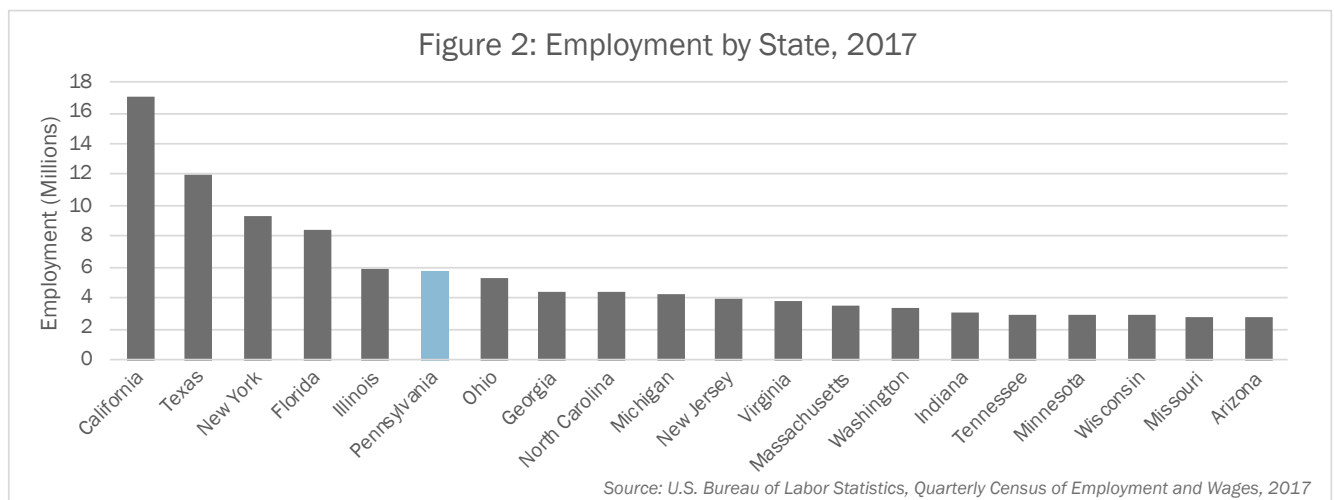|	Pennsylvania's 67 Counties – 2017: Top Five Counties				
Rank	Number of Farms	Land in Farms	Value of Farm Product Sales	Net Cash Farm Income	Net Cash Income Per Farm Operation
1	Lancaster	Lancaster	Lancaster	Lancaster	Chester
2	York	Bradford	Chester	Chester	Lebanon
3	Berks	Franklin	Berks	Berks	Lancaster
4	Washington	York	Franklin	Franklin	Union
5	Chester	Berks	Lebanon	Lebanon	Franklin

Pennsylvania Agriculture in the National Context

This section provides values on population, employment, number of producers, number of farms, and market value of agricultural product sales in order to contextualize Pennsylvania's standing relative to the "Top 20" states in each respective category.

Table 1: Key Variables for Pennsylvania		
Variable	**Value**	**Pennsylvania's Rank Among 50 States**
Population, total	12,790,505 residents	5
Employment, total	5,799,123 jobs	6
Number of Agricultural Producers	90,461 producers	14
Number of Farms	53,157 farms	14
Market Value of Agricultural Products Sold	$7,758,884,000	19

Figure 1: Population by State, 2017

Source: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2013-2017

Figure 1: At 12,790,505 residents, Pennsylvania was the 6th largest state in the nation in 2017.

Figure 2: Employment by State, 2017

*Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2017*

Figure 2: Pennsylvania had the 6th largest number of employed persons at 5,799,123.

Figure 3: Number of Agricultural Producers by State, 2017

Source: USDA Census of Agriculture, 2017
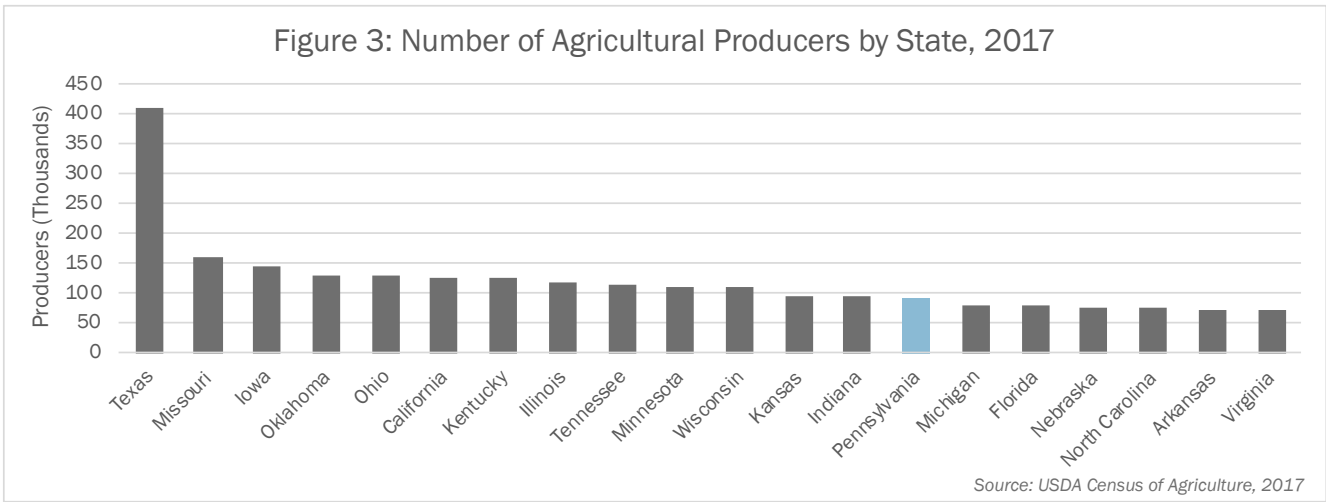
Figure 3: In 2017, Pennsylvania had 90,461 agricultural producers ranking 14th in the nation.

Figure 4: Number of Farms by State, 2017

Source: USDA Census of Agriculture, 2017
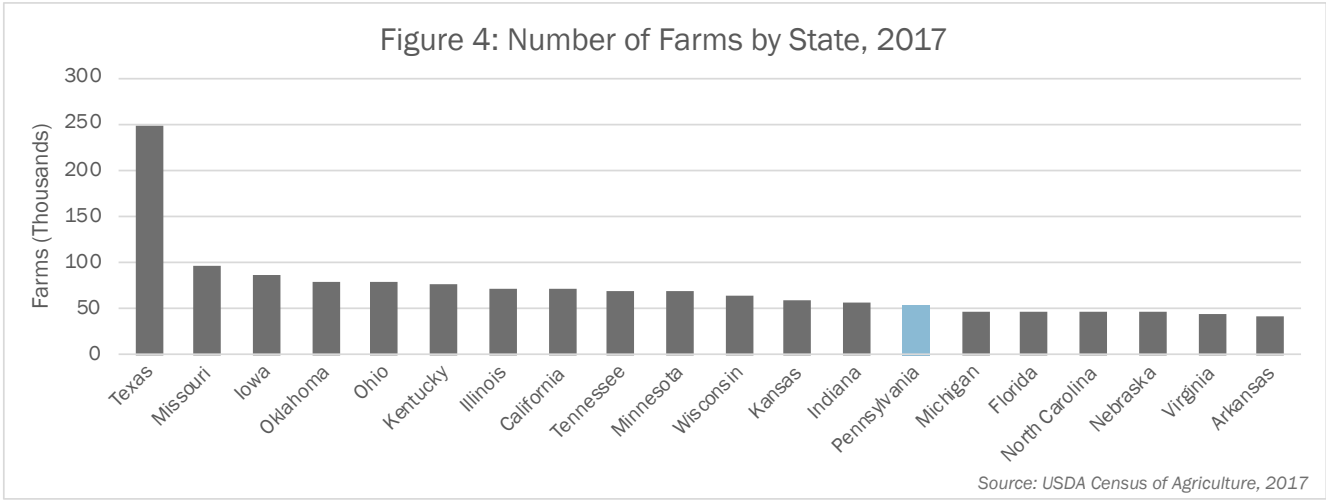
Figure 4: In 2017, Pennsylvania had 53,157 farms, at 14th largest in the nation.

Figure 5: Market Value of Agricultural Products Sold by State, 2017

Source: USDA Census of Agriculture, 2017
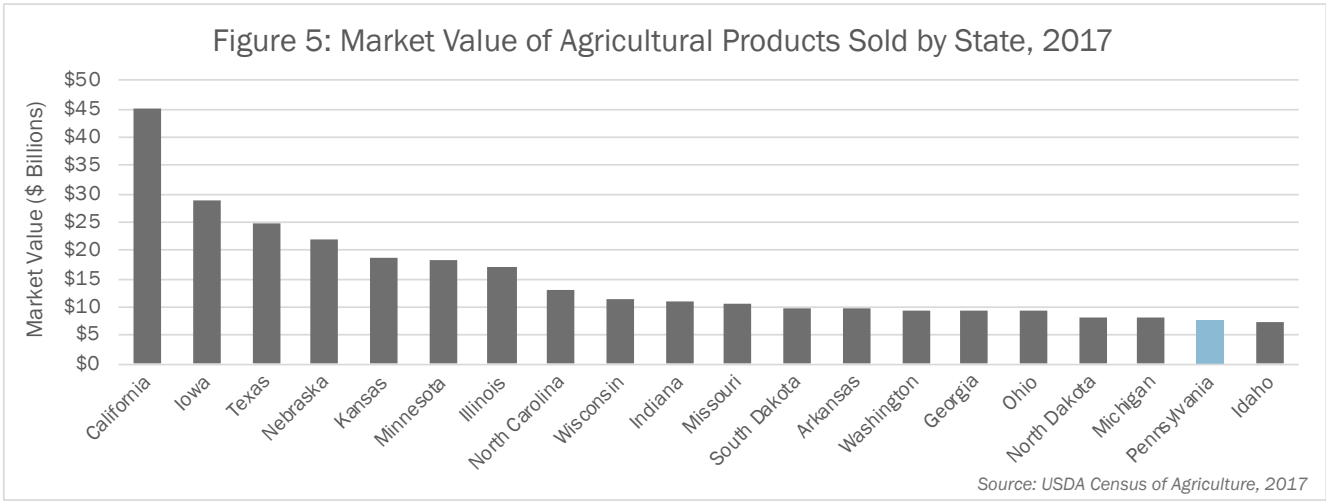
Figure 5: In 2017, Pennsylvania's total agricultural product sales amounted to $7,758,884,000.

Section 1: Number of Farms

This section explores the total number of farms found in each county. Map 1 shows the distribution of farms by county across Pennsylvania. The remainder of the section looks at the number of farms categorized by agricultural product sales group, including farms with sales under $10,000 to farms with sales over $500,000.

Map 1: Number of Farms by County, 2017

Legend: Less than 100 | 100 - 499 | 500 - 999 | 1,000 - 4,999 | 5,000 & Above
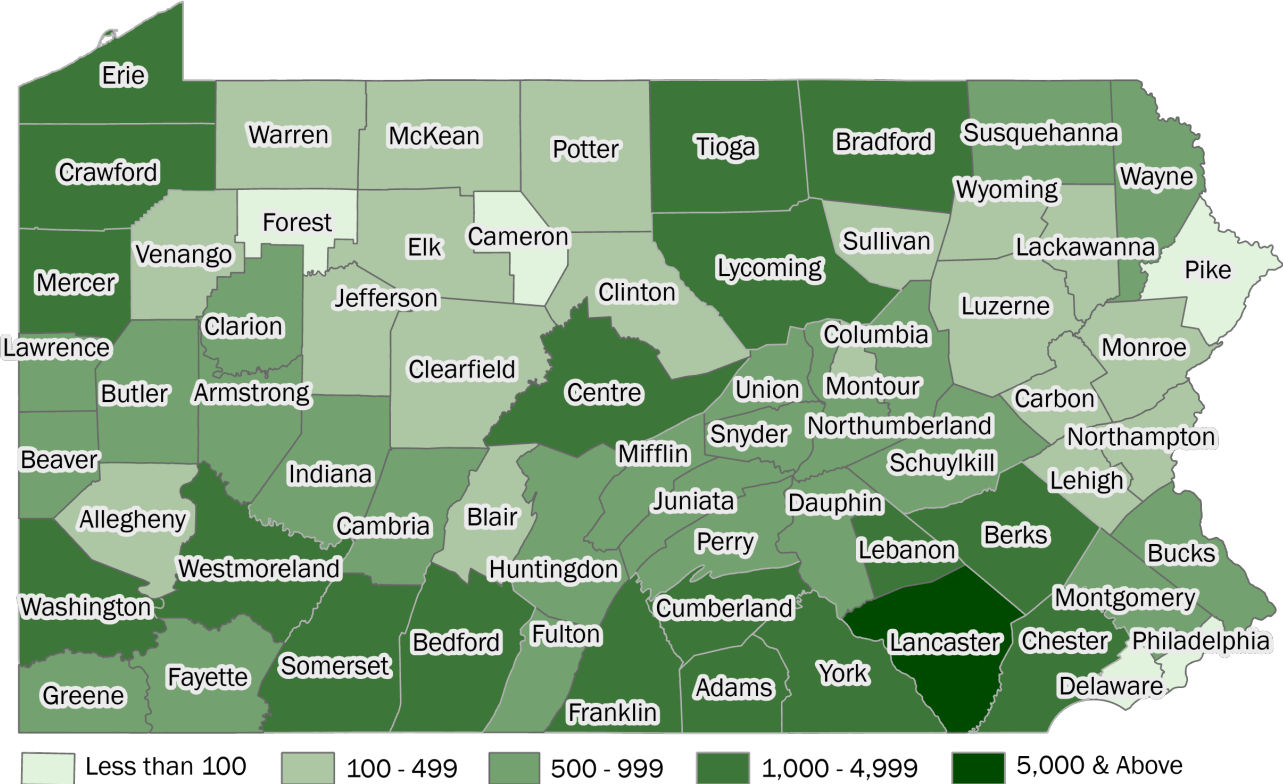
In 2017, there were 53,157 farms in Pennsylvania. Lancaster County was home to the most farms (5,108), followed by neighboring York County (2,067). Forest County (36 farms) and Cameron County (37 farms) had the fewest number of farms.

Number of Farms by Sales Group

Table 2 shows the number of farms in Pennsylvania that fall in each agricultural product sales group. Figure 6 depicts the percent of Pennsylvania farms in each sales group.

Table 2: Number of Farms by Sales Group: Pennsylvania, 2017	
Sales Group (Market Value of Agricultural Products Sold)	**Number of Farms**
$0 - $9,999	26,416
$10,000 - $49,999	11,703
$50,000 - $99,999	3,621
$100,000 - $499,999	8,308
$500,000 and above	3,109

Figure 6: Percent of Farms in Each Sales Group: Pennsylvania, 2017

- $0 - $9,999
- $10,000 - $49,999
- $50,000 - $99,999
- $100,000 - $499,999
- $500,000 and above

49.7%
22.0%
6.8%
15.6%
5.8%

Source: USDA Census of Agriculture, 2017
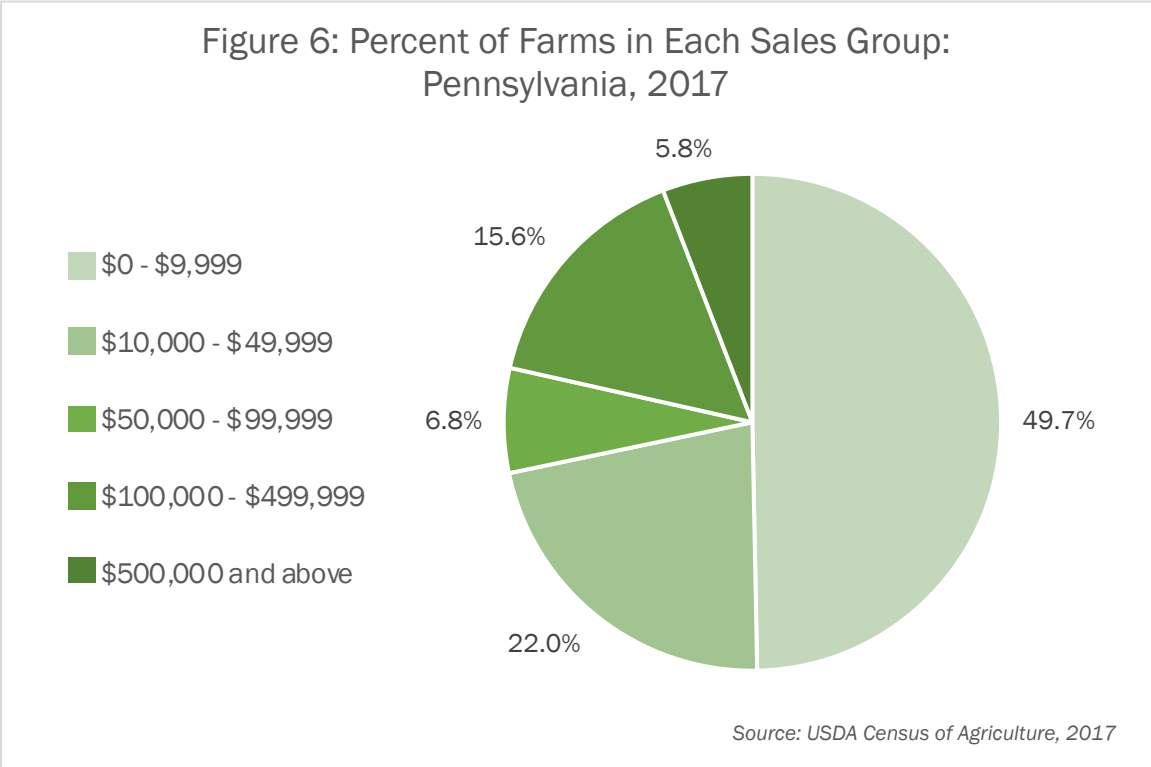
Of the state's 53,157 farms, half generated less than $10,000 per year in total sales. Annually, 22% of Pennsylvania's farms (11,703) farms sold between $10,000 and $49,999. There were only a few thousand farms that had over $500,000 in agricultural product sales.

Maps 2-6 show the number of farms in each agricultural product sales group across the state. Different areas of the state reflect differing numbers of farms in each agricultural product sales group. For example, Map 2 shows a high number of farms with total sales below $9,999 in Chester, Lancaster, York, and Washington Counties. Map 5 shows there are a high number of farms with total sales of $500,000 and greater located in Lancaster and Franklin County.
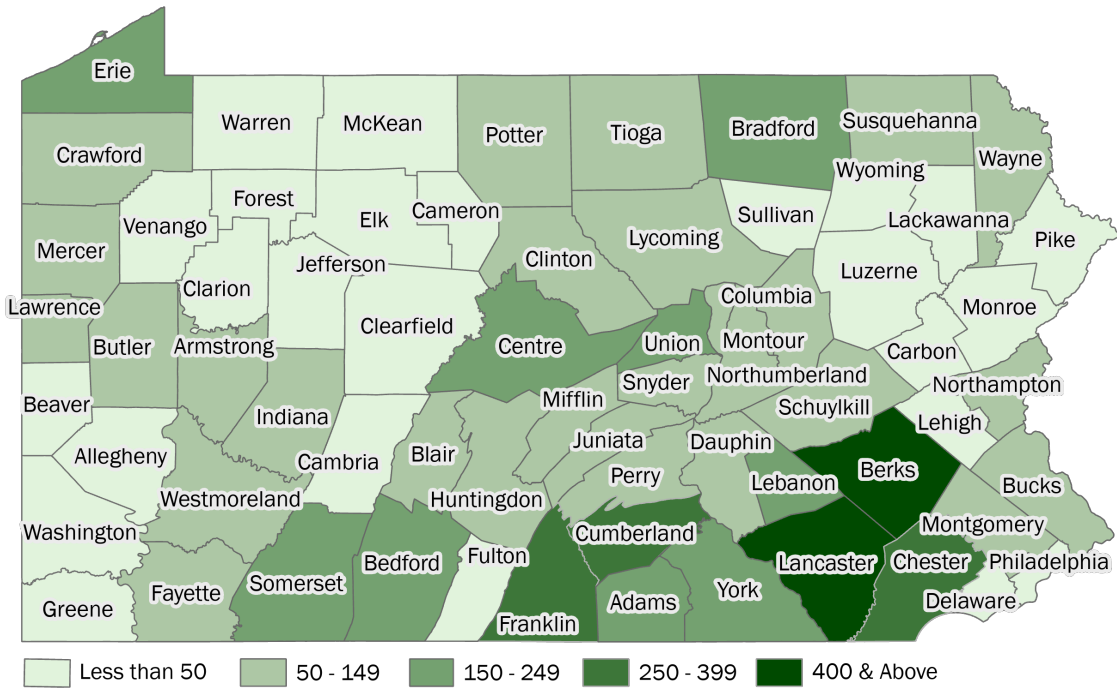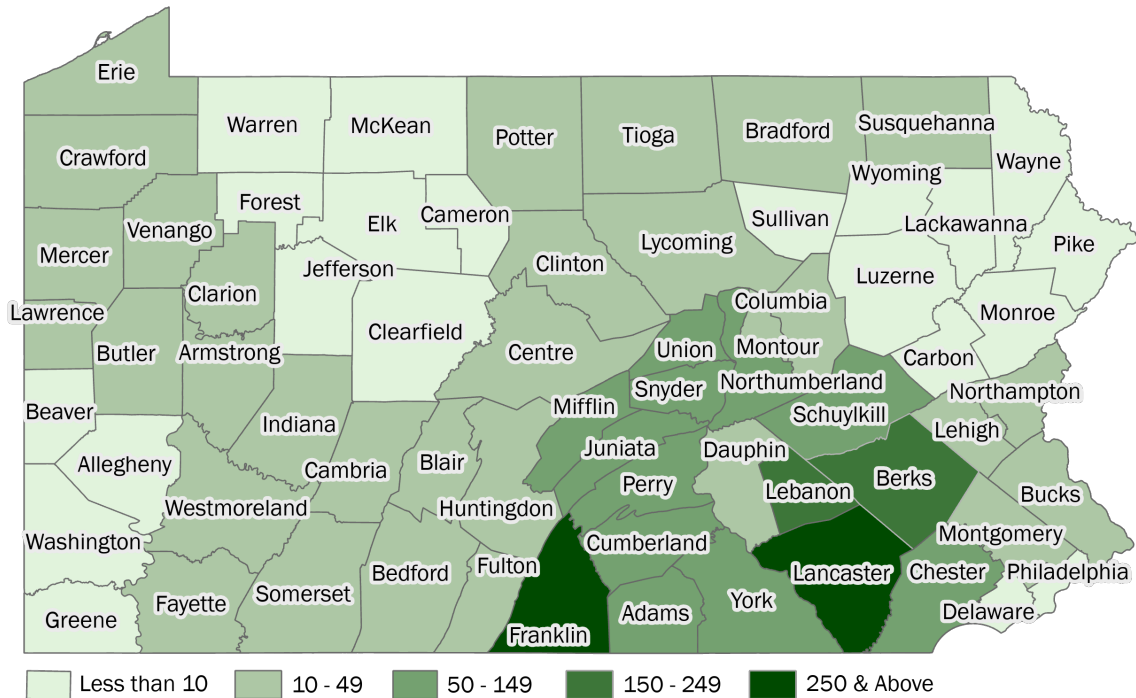
Map 2: Number of Farms with Sales $0 - $9,999 by County, 2017

Less than 200 | 200 - 299 | 300 - 499 | 500 - 799 | 800 & Above
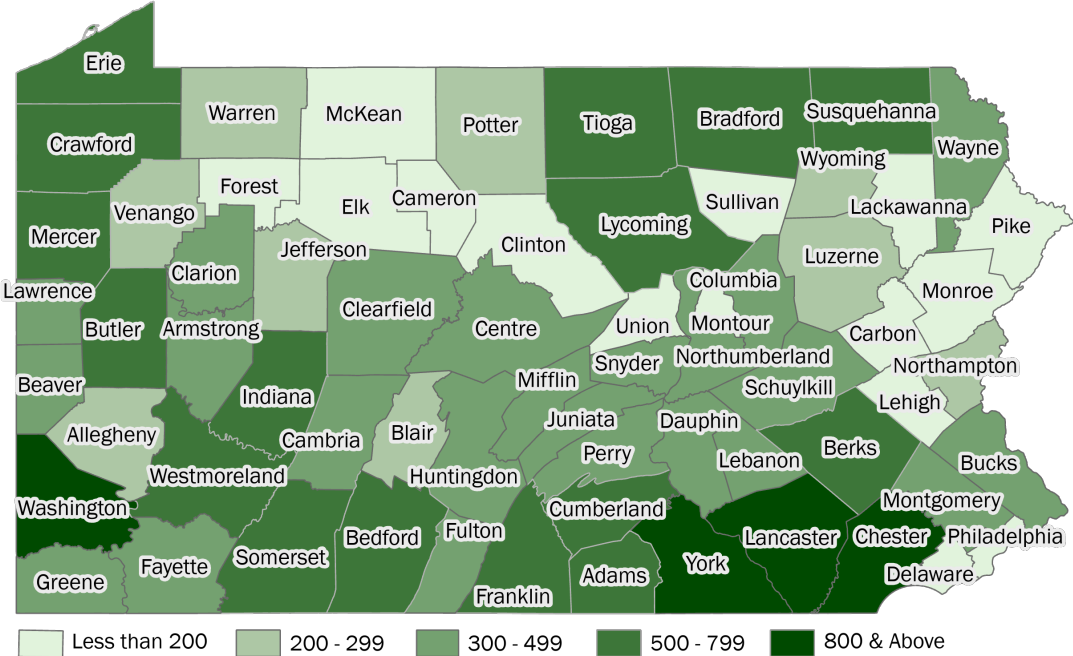
Map 3: Number of Farms with Sales $10,0000 - $99,999 by County, 2017

Less than 100 | 100 - 199 | 200 - 299 | 300 - 599 | 600 & Above
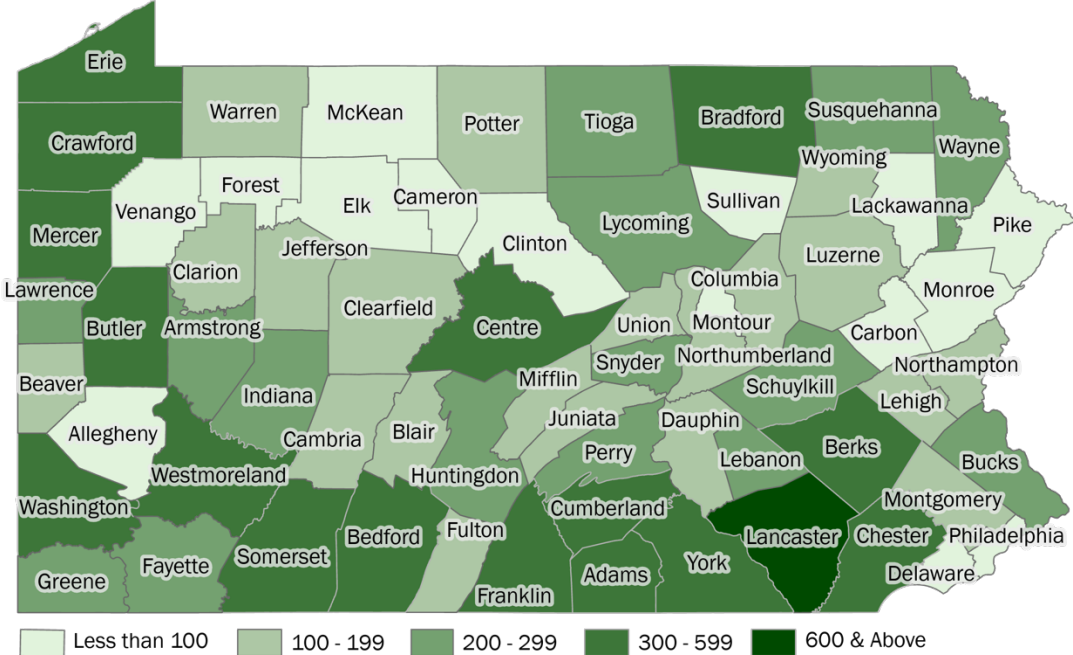
Map 4: Number of Farms with Sales $100,000 - $499,999 by County, 2017

Less than 50 | 50 - 149 | 150 - 249 | 250 - 399 | 400 & Above

Map 5: Number of Farms with Sales $500,0000 & Over by County, 2017

Less than 10 | 10 - 49 | 50 - 149 | 150 - 249 | 250 & Above

Map 6 depicts the percentage of farms in each county earning less than $100,000 in agricultural product sales in 2017. Map 7 depicts the percentage of farms in each county earning greater than $100,000 in agricultural product sales.

Rather than number of farms, percentages are used here to show if farms in a county are mainly low or high sales operations. For example, Map 6 shows that most counties in Pennsylvania had a large majority of farms earning less than $100,000 in sales, particularly in the western and northern portions of the state. Map 7 shows that only three counties in 2017 had 40% or more of farms earning over $100,000 in agricultural product sales.

Map 6: Percent of Farms with Sales Less than $100,000 by County, 2017

Legend: Less than 59.99% | 60% - 69.99% | 70% - 79.99% | 80% - 89.99% | 90% - 100%
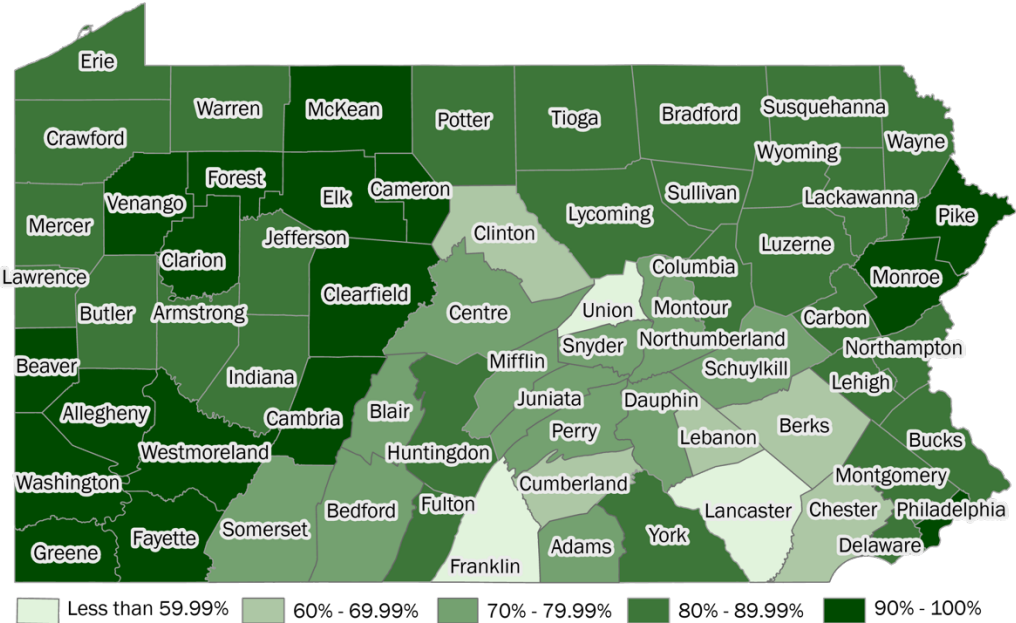
Map 7: Percentage of Farms with Sales $100,000 & Over by County, 2017

Legend: Less than 9.99% | 10% - 19.99% | 20% - 29.99% | 30% - 39.99% | 40% & Above
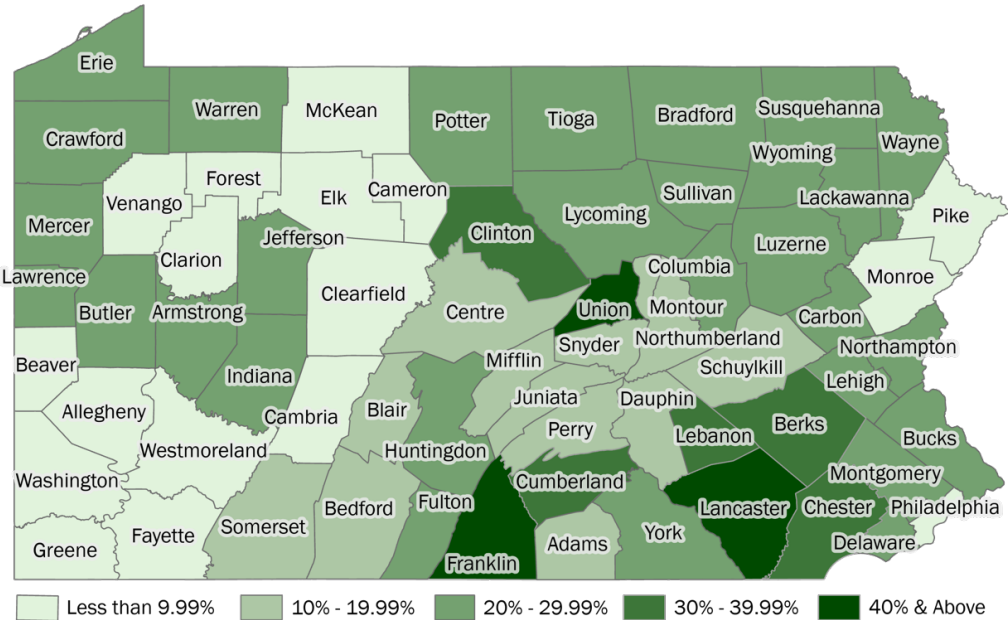
Section 2: Land in Farms

In 2017, a total of 7,278,668 acres in Pennsylvania were designated as "land in farms" which is defined as agricultural land used for crops, pasture, or grazing. Map 8 displays total land in farms in thousands of acres by county. Map 9 shows the percentage of total county land area that is farmland. Note that in Map 9, Lancaster County was the only county with more than 60% of total land in the county designated as land in farms.

Map 8: Land in Farms by County, 2017 (Thousands of Acres)
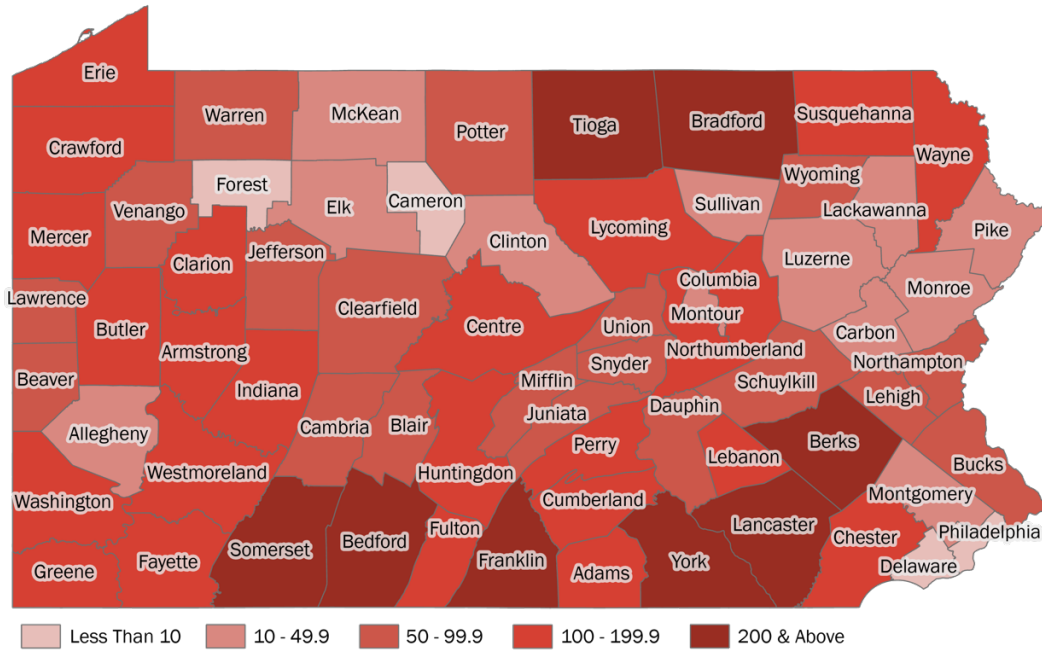
Map 9: Percent of County Land Area in Farms, 2017
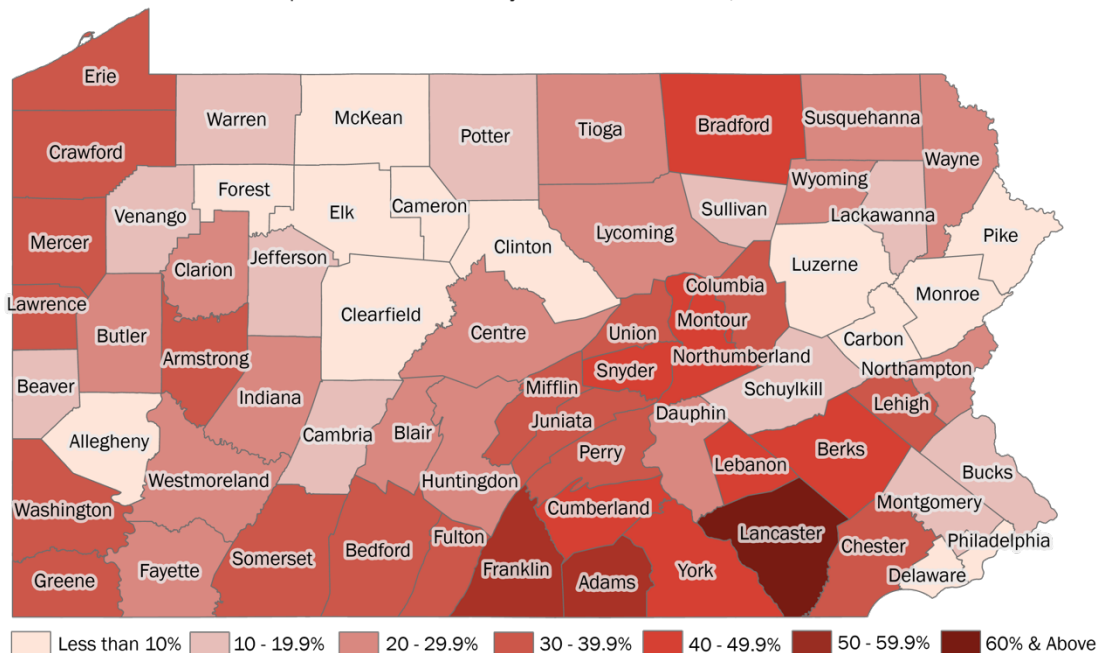
Land in Farms by Sales Group

This section looks at the percent and number of acres farmed by agricultural product sales group. As both Table 3 and Figure 7 display, the majority (51%) of Pennsylvania's agricultural land is in farms in the two highest agricultural product sales groups.

Table 3: Land in Farms by Sales Group: Pennsylvania, 2017	
Sales Group (Market Value of Agricultural Products Sold)	**Land in Farms (Number of Acres)**
$0 - $9,999	1,497,628
$10,000 - $49,999	1,397,838
$50,000 - $99,999	643,978
$100,000 - $499,999	2,028,538
$500,000 and above	1,710,686

Figure 7: Percent of Land in Farms by Sales Group: Pennsylvania, 2017

- $0 - $9,999
- $10,000 - $49,999
- $50,000 - $99,999
- $100,000 - $499,999
- $500,000 and above

21%
19%
9%
28%
24%

Source: USDA Census of Agriculture, 2017
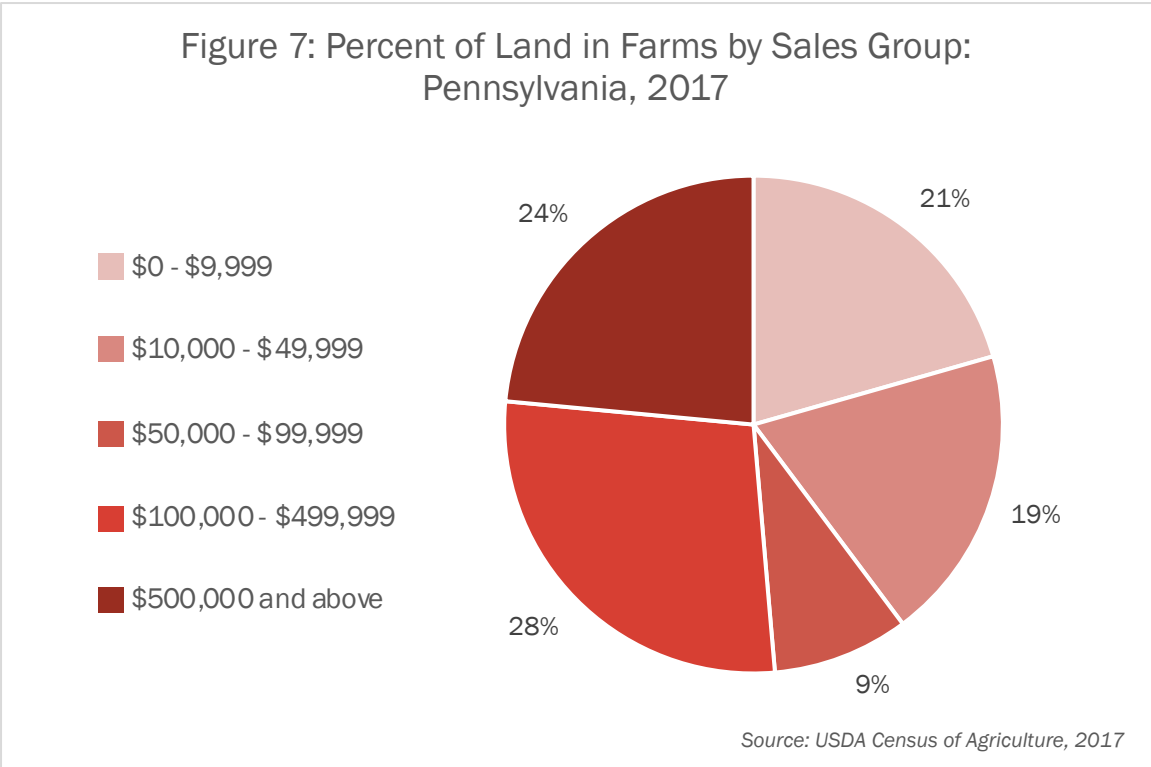
Section 3: Value of Agricultural Product Sales

This section shows how agricultural product sales are distributed across the state. Map 10 displays the value of agricultural product sales by county.

Map 10: Market Value of Agricultural Product Sales by County, 2017
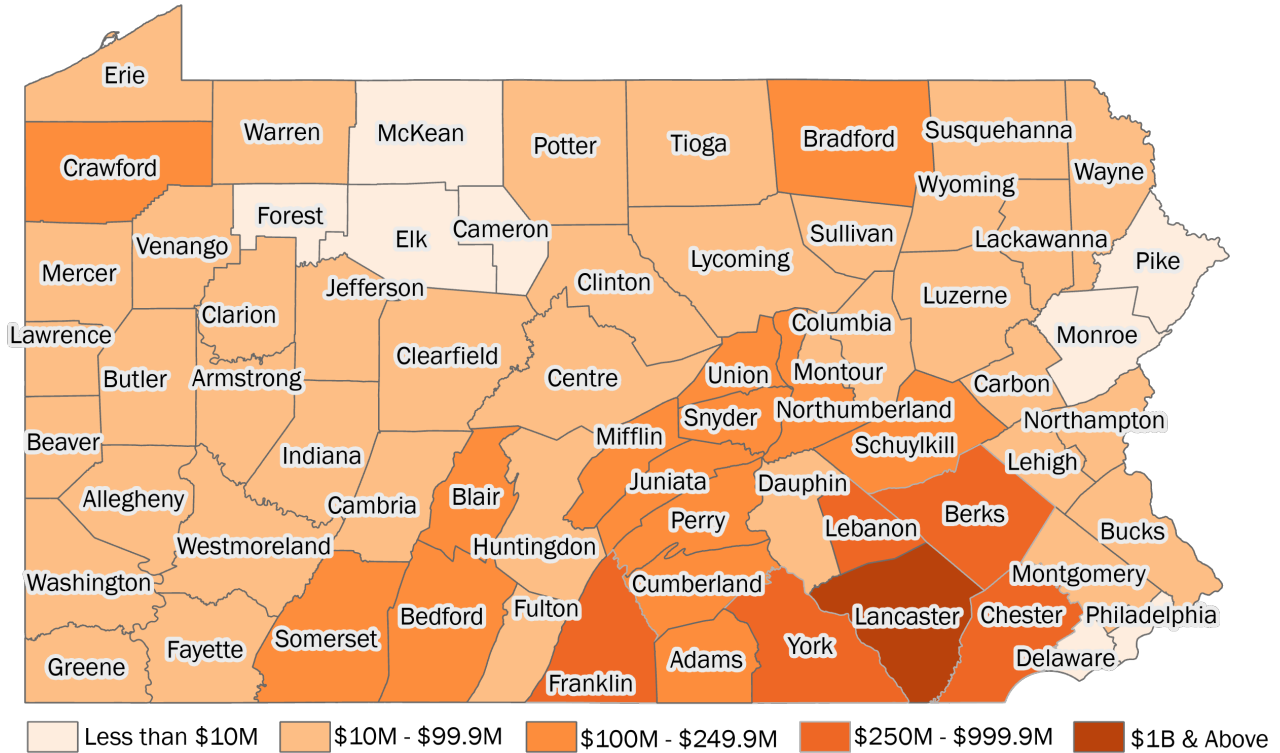
Farms with the highest agricultural product sales are generally clustered in southeast Pennsylvania. Counties with the lowest agricultural product sales were Philadelphia ($327,000), Cameron ($523,000), Pike ($892,000), and Forest ($2,059,000).

Crawford County in northwest Pennsylvania sold $107,270,000 in agricultural product sales. Bradford County in the northeast had $132,640,000 in sales. Counties with the highest agricultural sales were Lancaster ($1.5 billion) and Chester ($712.5 million).

Value of Agricultural Product Sales by Sales Group

Across all farms in Pennsylvania, the market value of agricultural products sold totaled $7,758,884,000. This section displays Pennsylvania's total agricultural product sales value by farm sales group. Table 4 shows the total value of agricultural product sales generated by farms in each sales group. Figure 8 shows the share of Pennsylvania's total sales by sales group. For example, collectively, farms generating between $0 and $9,999 in sales made up 1% of Pennsylvania's total agricultural product sales. Note the amount of sales coming out of farms selling above $500,000 annually.

Table 4: Total Agricultural Product Sales by Sales Group: Pennsylvania, 2017	
Sales Group (Market Value of Agricultural Products Sold)	Total Sales
$0 - $9,999	$63,396,000
$10,000 - $49,999	$264,921,000
$50,000 - $99,999	$253,421,000
$100,000 - $499,999	$1,979,242,000
$500,000 and above	$5,197,903,000

Figure 8: Market Value of Agricultural Product Sales by Sales Group: Pennsylvania, 2017

0.8%   3.4%   3.3%

25.6%

66.9%

Legend:
- $0 - $9,999
- $10,000 - $49,999
- $50,000 - $99,999
- $100,000 - $499,999
- $500,000 and above
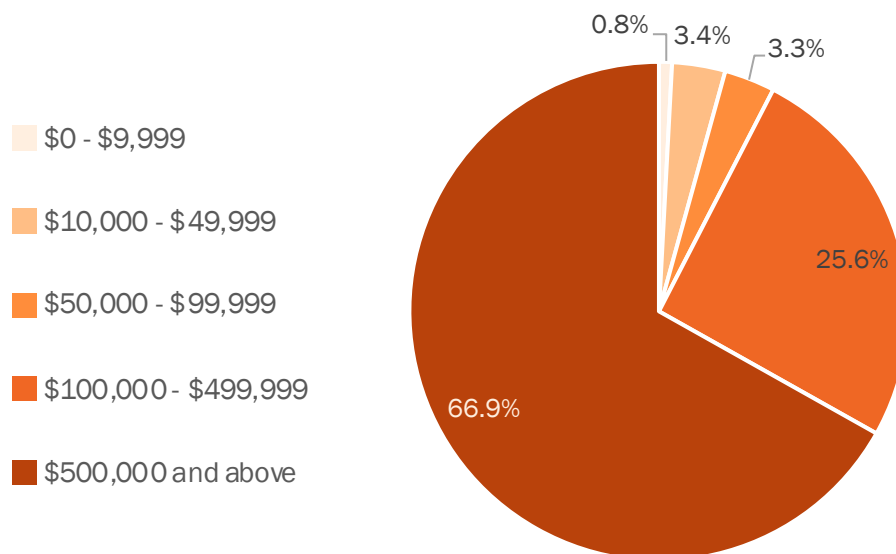
Source: USDA Census of Agriculture, 2017

In 2017, 67% of Pennsylvania's total agricultural product sales came from farms with annual sales of $500,000 and above. About 3% of total sales were generated by farms in the $50,000-$99,999 sales group.

Section 4: Net Cash Farm Income

This section explores net cash farm income, which encompasses total farm sales, government payments, and other farm related income, minus total farm expenses. Map 11 displays total net cash farm income by county.

Note that five counties experienced negative total net cash farm income in 2017: Delaware (-$474,000), Philadelphia (-$1,317,000), Monroe (-$1,107,000), Pike (-$432,000), and Wyoming (-$130,000).

Lancaster and Chester Counties in southeast Pennsylvania had the highest total net cash farm income with $478 million and $191 million, respectively. Crawford County, in western Pennsylvania, had $26.7 million in total net cash farm income.

Map 11: Net Cash Farm Income by County, 2017

Legend:
- Less Than $0
- $0 - $9.9M
- $10M - $24.9M
- $25M - $99.9M
- $100M - $199.9M
- $200M & Above
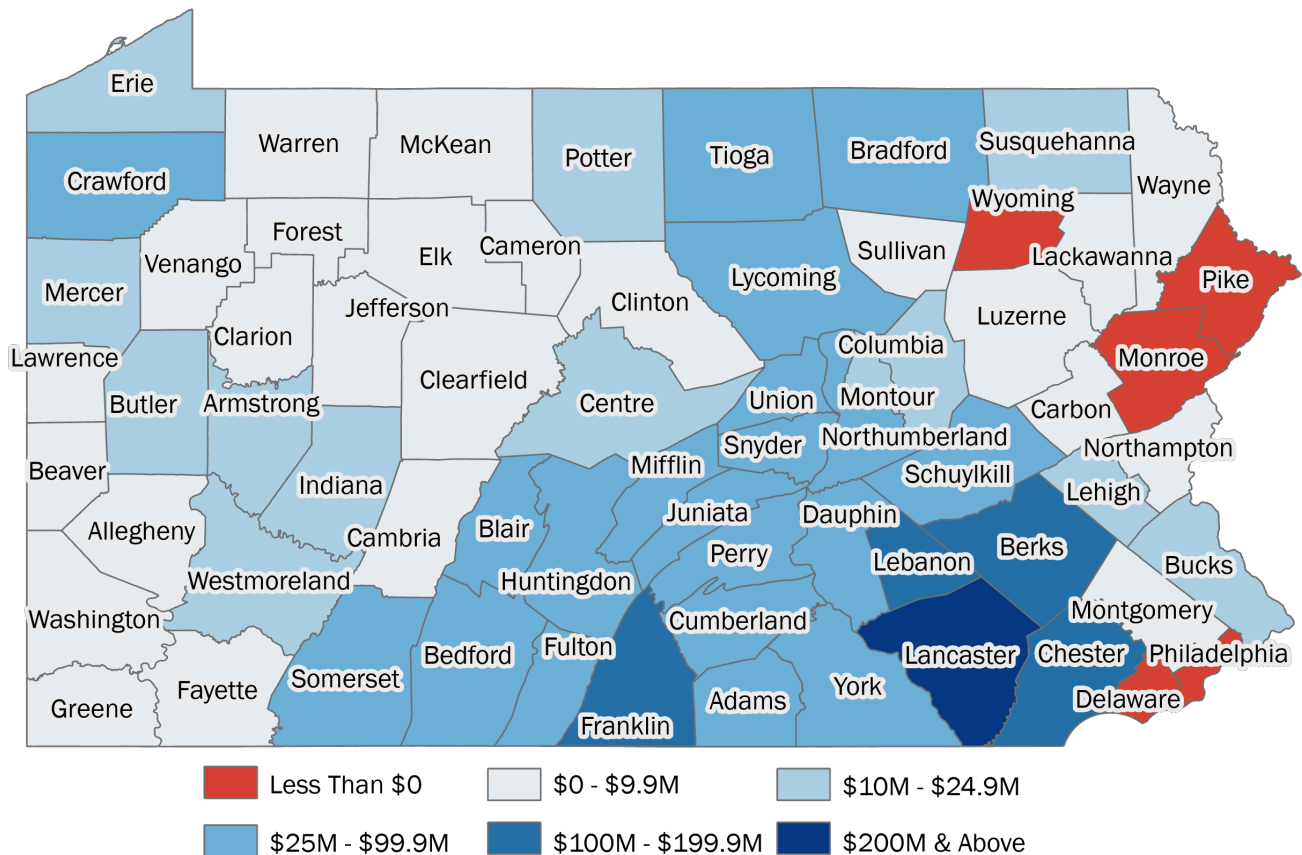
Map 12 shows average net cash income **per farm** by county in 2017. Generally, counties in southeast Pennsylvania had the highest per farm net cash farm income. Some counties in central Pennsylvania also had per farm net cash farm incomes of $75,000 or higher. The average net cash farm income in Pike, Wyoming, Monroe, Philadelphia, and Delaware Counties was negative in 2017. Map 13 depicts the percentage of farms in each county that had positive per farm net cash farm incomes in 2017.

Map 12: Net Cash Farm Income per Farm by County, 2017
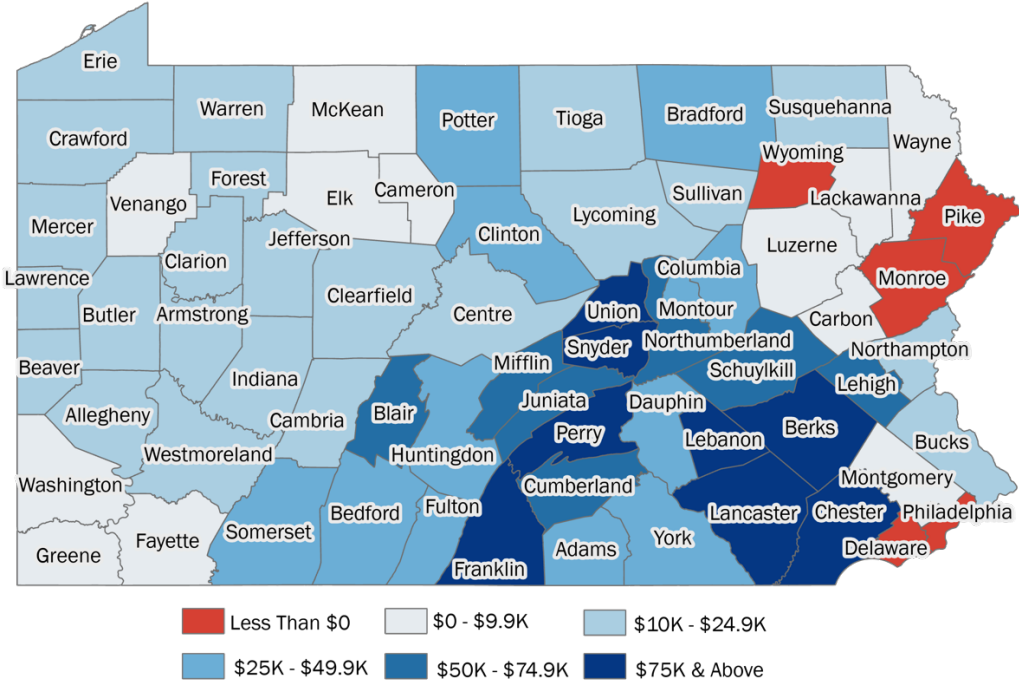
Map 13: Percent of Farms with Positive Net Cash Farm Income by County, 2017
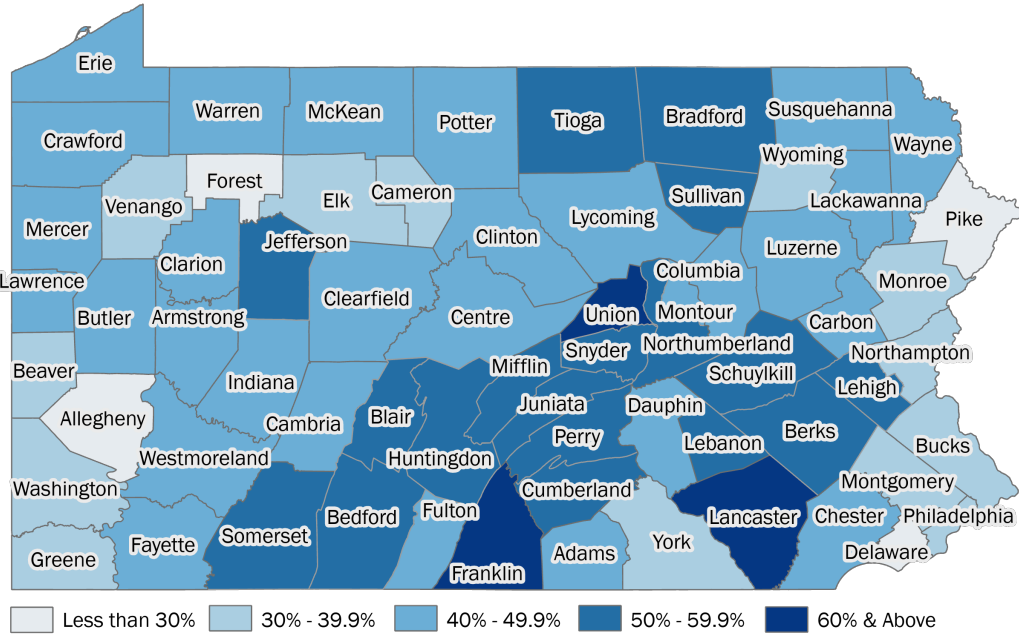
Table 5 and Figure 9 show total net cash farm income generated by all farms in each agricultural product sales group. In 2017, farms that generated annual sales of $500,000 and above contributed the majority of Pennsylvania's total net cash farm income. Farms that generated less than $9,999 in annual sales contributed losses to Pennsylvania's total net cash farm income.

Table 5: Total Net Cash Farm Income by Sales Group: Pennsylvania, 2017	
Sales Group (Market Value of Agricultural Products Sold)	Total Net Cash Farm Income (All Farms)
$0 - $9,999	-$229,230,000
$10,000 - $49,999	$30,966,000
$50,000 - $99,999	$77,792,000
$100,000 - $499,999	$682,184,000
$500,000 and above	$1,671,965,000
PA Total Net Cash Farm Income	$2,233,677,000.00

Figure 9: Net Cash Farm Income by Sales Group: Pennsylvania, 2017
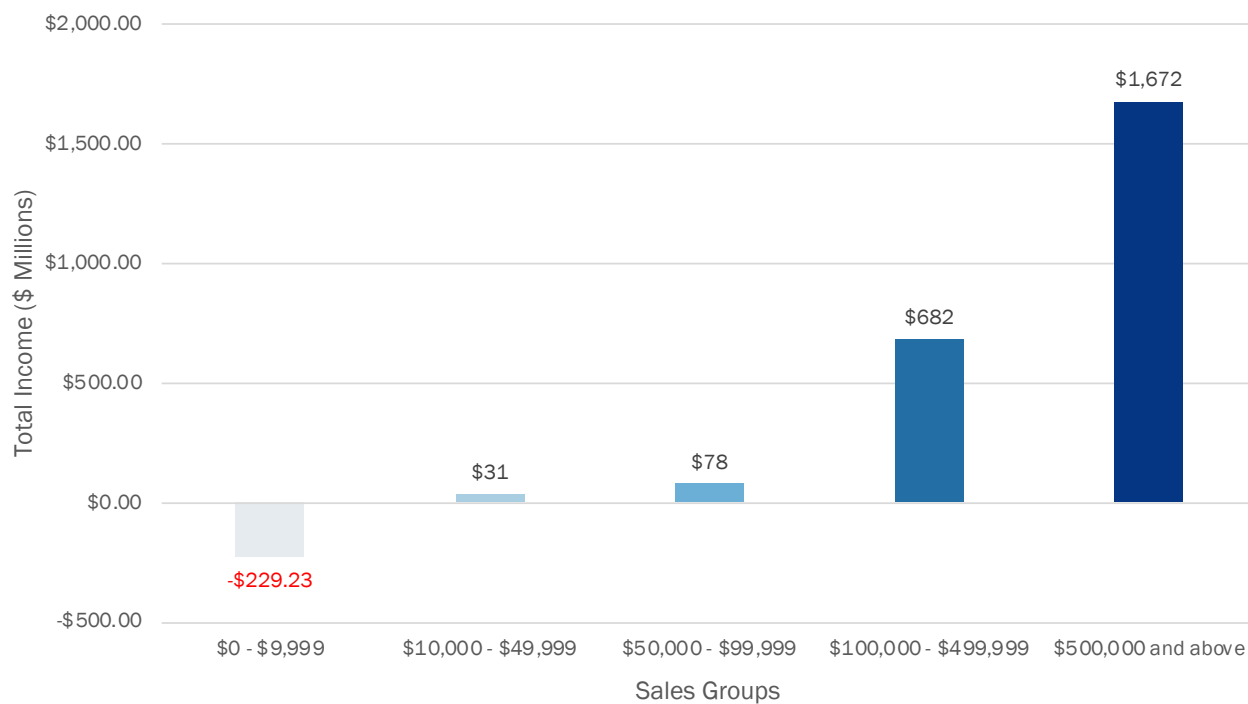
Source: USDA Census of Agriculture, 2017

Section 5: **Demographics**

This section provides an overview on age, gender, and days of off-farm work for Pennsylvania producers. Map 14 shows the average age of agricultural producers by county. Cameron, McKean, and Luzerne Counties had the oldest average age of producers in 2017 at 60.6 years. Note that Huntingdon County had an average producer age of 58.5 years. Counties with the youngest producers were Philadelphia (42.5 years) and Lancaster (46.6 years).
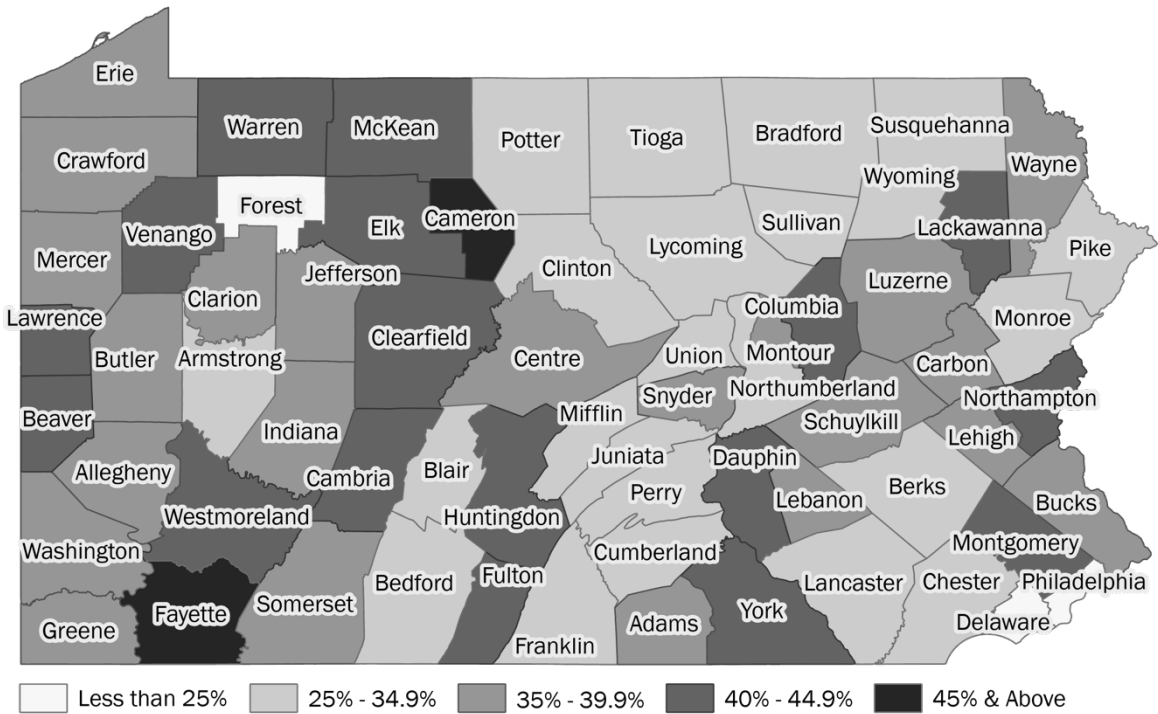
Map 14: Average Age of Producers by County, 2017 (Years)
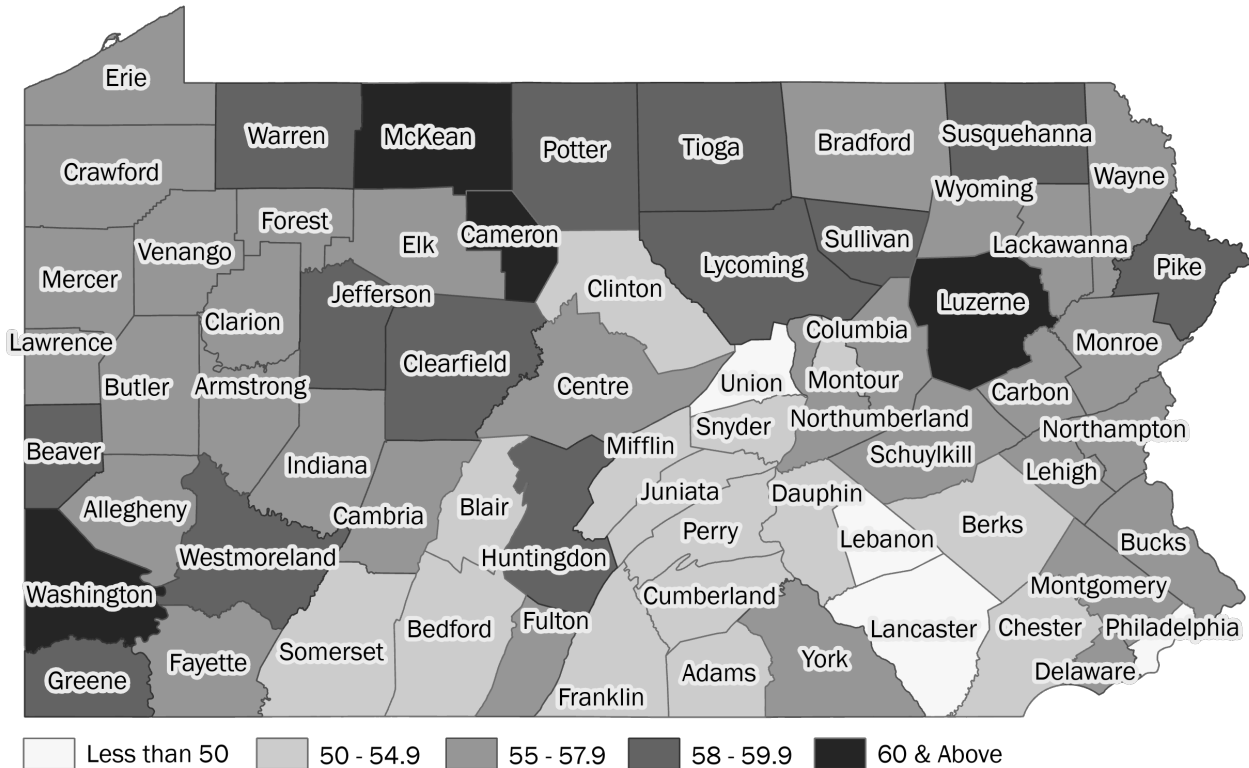
Map 15 below shows that most counties had between 30% and 40% of female producers. The highest percentage of female producers was in Philadelphia County (76.5%) and lowest percentage of female producers was in Cambria County (29.9%). Over half of producers, 53.8%, in Delaware County were female and 48.5% of producers in Pike County were female.

Map 16 below shows the percent of producers with at least 200 days of work off the farm. This demonstrates that many counties have producers that rely on off-farm work for much of the year.

Map 15: Percent of Female Producers by County, 2017

Less than 34%	34% - 36.9%	37% - 40.9%	41% - 54.9%	55% & Above	
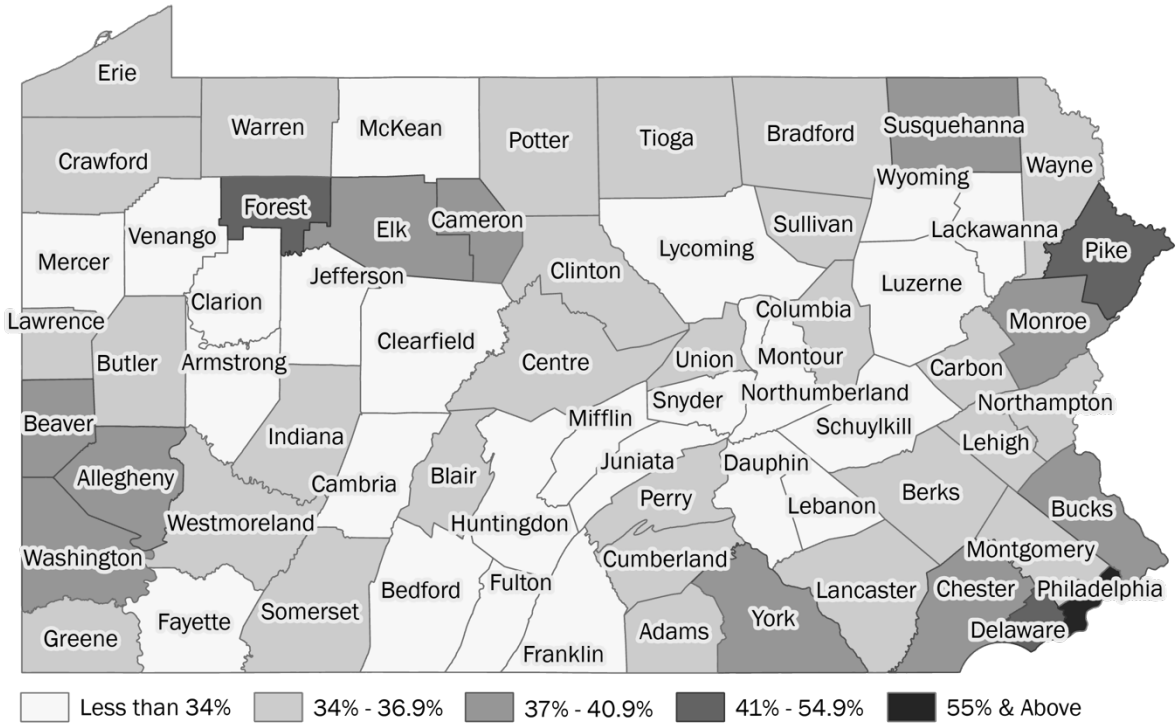
Map 16: Percent of Producers with 200+ Days of Off Farm Work by County, 2017

Less than 25%	25% - 34.9%	35% - 39.9%	40% - 44.9%	45% & Above	

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This report is part of a series called "**Understanding Pennsylvania Agriculture: 2017 Update**," which explores different aspects of the 2017 USDA Census of Agriculture. This series was created by the Center for Economic and Community Development in partnership with Penn State Extension.

The Center conducts more detailed analysis around these and other topics of interest. For more information please contact:

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This publication is available in alternative media on request.