

Male and Female Farm Producers in 2017: A Comparison Across Pennsylvania



The number of farm producers who identify as female has dramatically increased over the past decade. This trend has important implications for farming in the Commonwealth, and raises questions such as: how are male and female farm producers different in regards to how much they sell, where they produce, and what they produce? This report uses data from the 2017 Census of Agriculture to examine such differences between male and female farm producers in Pennsylvania.

The definition of a farm “producer” has varied through the years, but the most recent U.S. Census of Agriculture considers a producer to be any person involved in decision-making for the farm operation they work on regarding planting, harvesting, marketing, or managing. For the purpose of this report, producers will be referred to as “farm producers” or simply just “producers.”

Highlights

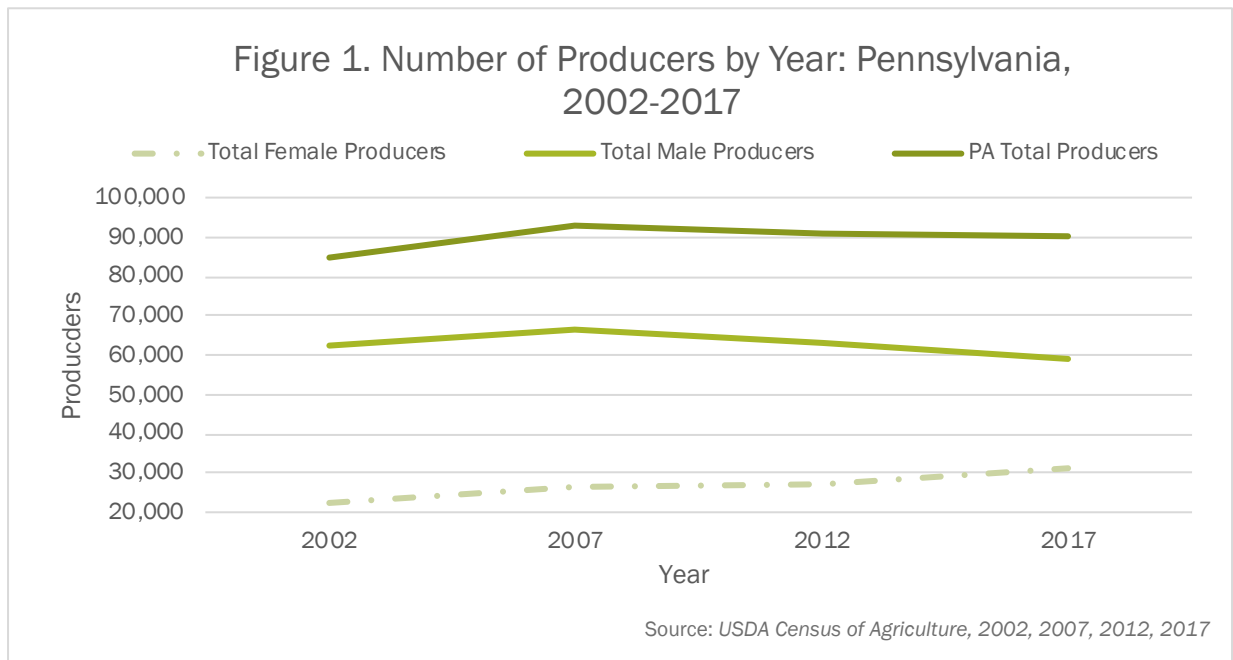
- The number of female farm producers in Pennsylvania increased by 15% between 2012 and 2017 while the number of Pennsylvania male farm producers has decreased by 7% over the same years
- In 2017, 35% of producers in Pennsylvania were female and 65% were male
- The largest percentage of producers in 2017 sold under \$1,000 a year, regardless of sex
- As sales increased in value, a smaller percentage of producers selling at that value tend to be female and a larger percentage tends to be male
- 50% of all producers worked on smaller farms with 10-69 acres of land
- As farm size increases by acres, a smaller percentage of producers working on that farm size tends to be females and a larger percentage tends to be male
- The top agriculture production category for both females and males is “other crop farming” such as hay and tobacco

UNDERSTANDING PENNSYLVANIA AGRICULTURE: 2017 UPDATE

Section 1: Farm Producers in Pennsylvania by Number and Sex

While the number of total farm producers in Pennsylvania has been decreasing steadily from 2007 to 2017, the number of female farm producers has been on the rise since at least 2002. The number of female farm producers in Pennsylvania has increased by 33% since 2002, with a 15% increase from 2012 to 2017 alone (see Figure 1). Female farm producers in Pennsylvania numbered 31,449 in 2017, making up 35% of the total producers in the state. Pennsylvania's percentage of female and male farm producers is closely aligned to the same percentages for the United States; about 36% of producers in the United States are female compared to 64% who are male producers.

There have been some changes in how the Census of Agriculture counts producers which may be affecting these numbers. Ag Censuses from 2002-2012 have counted up to three producers on a farming operation, while the most recent Census in 2017 counted for up to four producers on each operation. It is possible that some of the female farm producers in 2017 were making the same contributions to agriculture in 2012, but because of the process at the time, they were simply not counted in the Census (Pilgeram et al., 2020). Due to the ever-changing nature of data collection, there is no perfect way to capture the exact differences in these numbers. This report uses only the total number of female producers, keeping in mind the aforementioned caveat.



In approximately 93% of Pennsylvania counties, the percentage of female farm producers ranged between 30-40% of all producers there in 2017. These values closely resembled Pennsylvania's statewide proportion of female producers of 35% (see Table A-1 in the Appendix for county-level information).

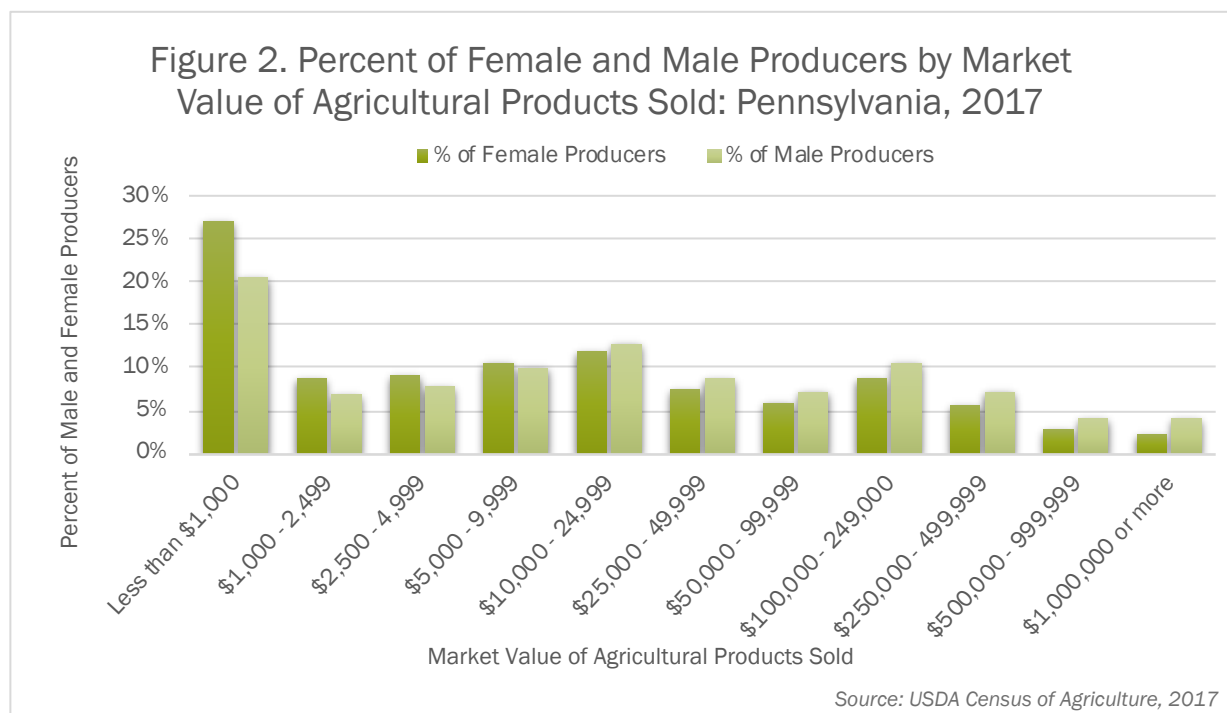
There are a few counties that had a larger percentage of female producers. Female producers made up 52% of producers in Delaware County, 46% in Forest County, 71% in Philadelphia

County, and 44% in Pike County. These four counties had a relatively small number of total producers compared to other counties in Pennsylvania; Philadelphia County is the only of the four that had over 100 total producers. The counties of Cambria, McKean, and Northumberland had the smallest proportion of female farm producers at 30%.

Section 2: Farm Producers and Market Value of Agricultural Sales in Pennsylvania

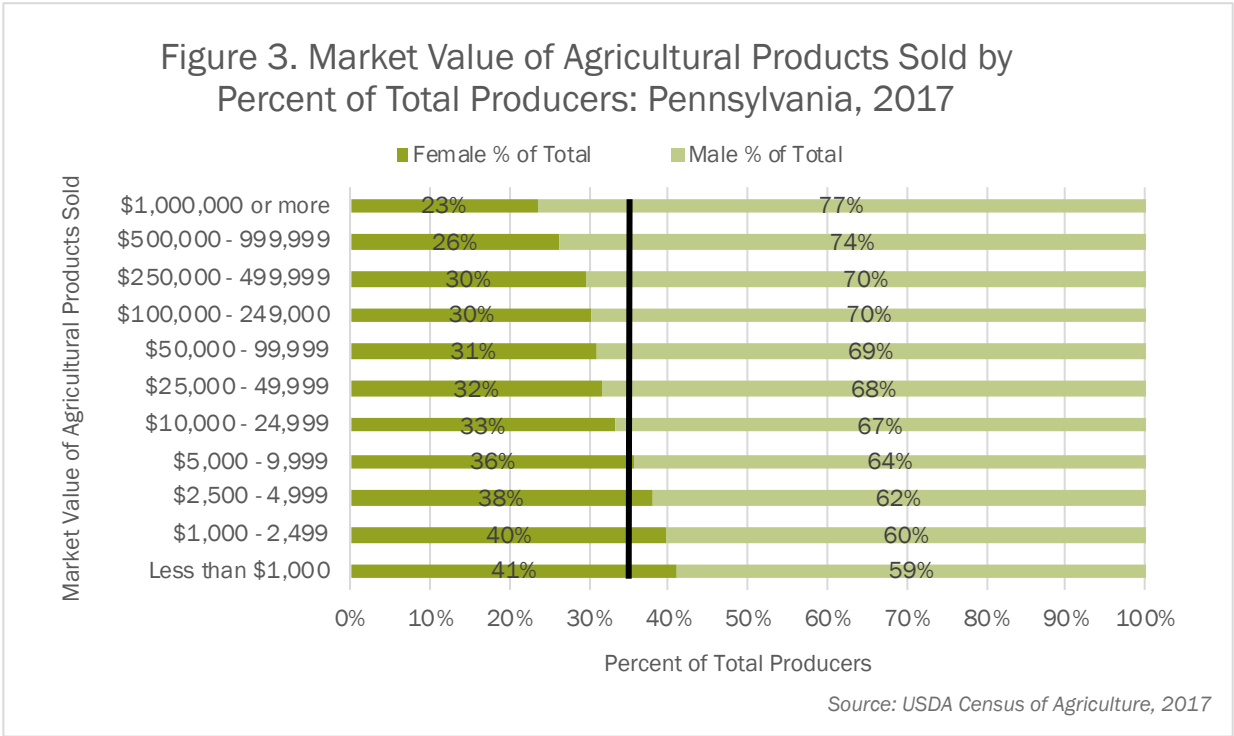
As defined by the Census of Agriculture, the “market value of agricultural products sold” refers to the total value of the agricultural products sold by the farm before taxes or production expenses; it is equivalent to a producer’s total sales for 2017. The Ag Census also clarifies “the value of sales in 2017 does not necessarily represent all crops harvested in 2017.” Therefore, it is possible for a producer to sell products they had stored from a previous year’s harvest. It is also possible for a producer to harvest crops and store them for later years instead of selling them in 2017. The Census of Agriculture counts an operation as a farm if it has the potential to sell \$1,000 or more a year. This section will explore how much farm producers sell in a typical year.

The largest percentage of both female and male Pennsylvanian producers had a market value of their agricultural products sold that was less than \$1,000 in 2017. Producers selling in this range accounted for 23% of the total producers in Pennsylvania (see Figure 2). About 27% of females and 21% of males sold under \$1,000 in 2017. For some of these producers, agriculture is not their primary source of income. They may farm for multiple reasons such as to supplement their income, or simply because they find enjoyment in farming and the lifestyle it provides.



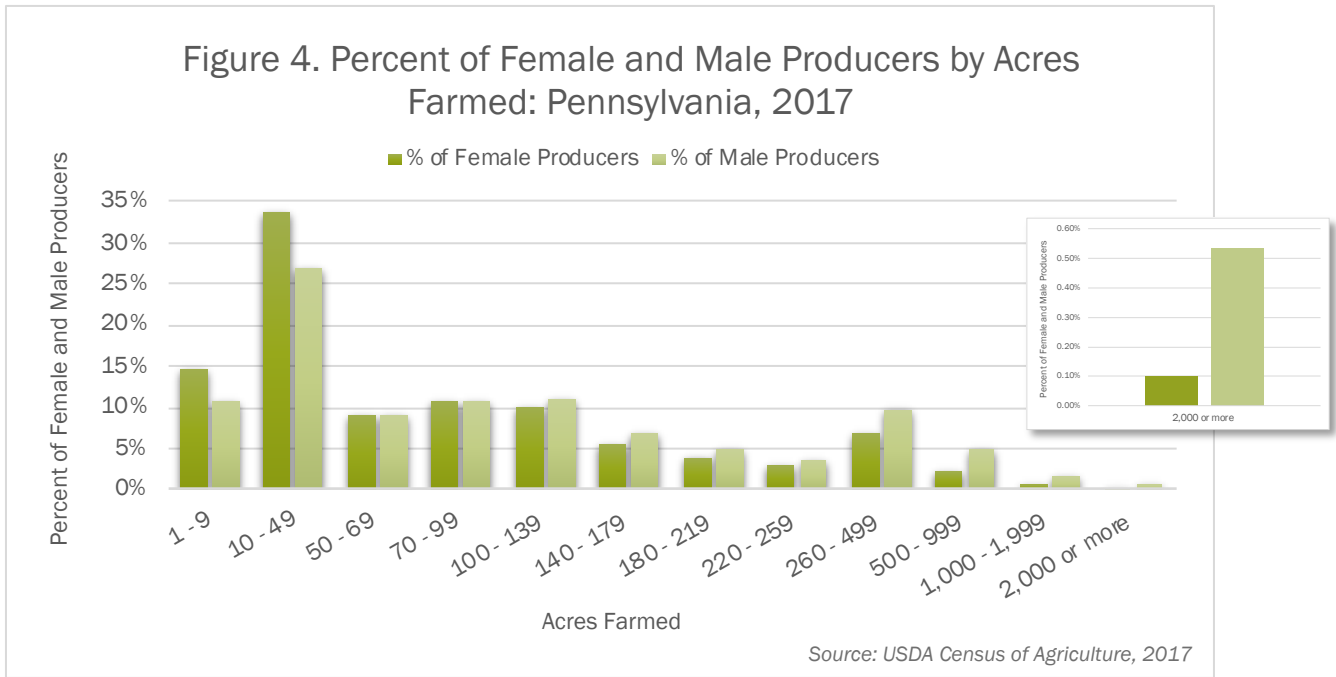
About 55% of females sold between \$1,000 and \$9,999 in agricultural product sales as compared to 46% of males for the same market value. These findings show that a significant majority of female and male producers operate small farms with less than \$9,999 in annual sales (55% and 45%, respectively).

When the proportion of producers within each total sales range is considered, it becomes clear that female producers are more likely to be operating smaller farms than are male producers. For example, 41% of the producers that sold less than \$1,000 in 2017 were female, as were 40% of the producers that sold \$1,000 to \$2,499 (see Figure 3), which is higher than the overall 35% proportion of farmers statewide who are female. The data shows that the proportion of female producers is increasing lower as farm size increases. For example, only 23% of producers in farms selling \$1 million or more a year are female.



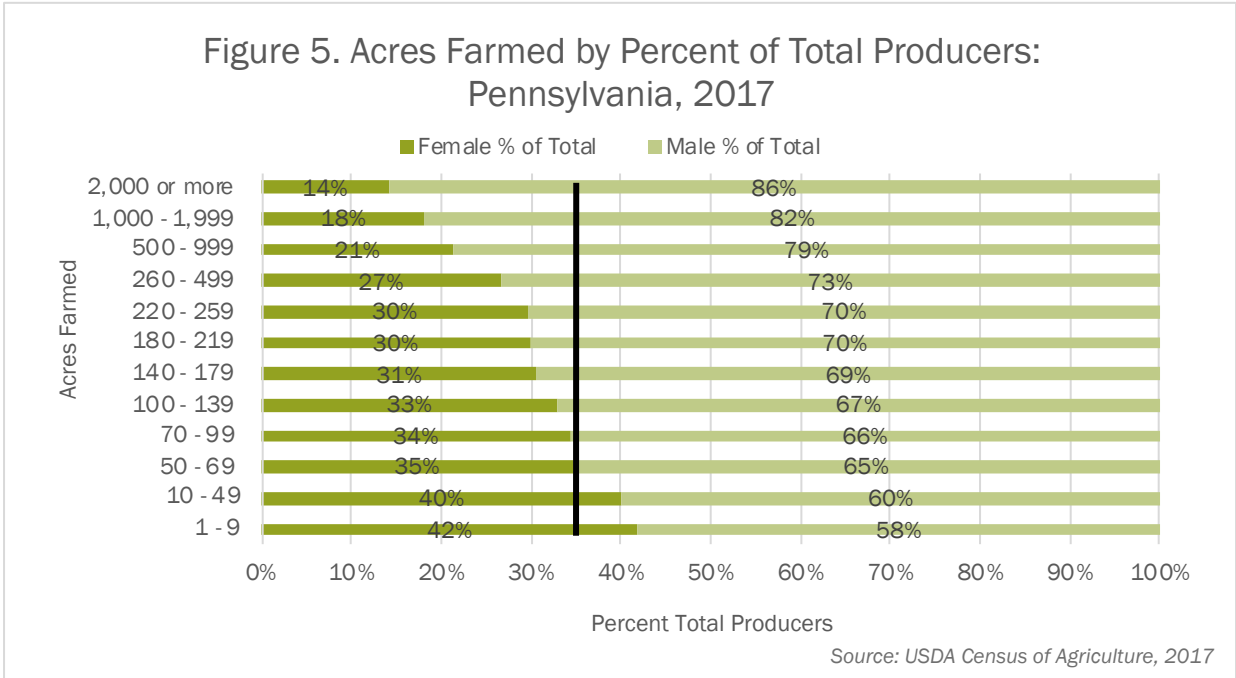
Section 3: Farm Producers and Farm Size in Pennsylvania

About 29% of Pennsylvania producers were situated on farms between 10 and 49 acres in size; this includes 34% of female producers and 27% of male producers were working on these farms (see Figure 4). Similarly, half of Pennsylvania producers were working on farms sized between 1 and 69 acres.



The smallest percentage of producers in 2017 were working on farms with more than 1,000 acres of land, regardless of sex, with only .3% of female and 1.4% of male producers operating farms of that size. The vast majority of producers operating such large farms are male (82%) while only 18% are female.

As with the market value of sales data, females are overrepresented among producers operating smaller farms, and underrepresented among larger farms. For example, 42% of producers who were working on farms with 9 acres or less were female, while only 14% of producers on farms with 2,000 acres or more of land were female (see Figure 5).



Section 4: Pennsylvanian Farm Producers and Agricultural Products

Now that the sizes and average sales of the farms in Pennsylvania have been explored, the major agricultural products produced in Pennsylvania will be explored. Table 2 shows the percentage of females, males, and total producers working in each agricultural product type as defined by the Census of Agriculture. The greatest percentage of both males (28%) and females (27%) in Pennsylvania participated in the official Ag Census category of “other crop farming”¹ which is mostly from hay farming but the category but also includes tobacco farming. The lowest proportion of both males (1%) and females (1%) worked with cattle feedlots².

Agricultural Product Type	Number of Female Producers (% of Females)	Number of Male Producers (% of Males)	Number of Total Producers (% of Total Producers)
Oilseed and Grain Farming	2,315 (7%)	7,529 (13%)	9,844 (11%)
Vegetable and Melon Farming	1,432 (5%)	2,159 (4%)	3,591 (4%)
Fruit and Tree Nut Farming	1,181 (4%)	2,046 (3%)	3,227 (4%)
Greenhouse, Nursery, and Floriculture Production	1,550 (5%)	28,41 (5%)	4,391 (5%)
Other Crop Farming	8,344 (27%)	16,779 (28%)	25,123 (28%)
Beef Cattle Ranching and Farming	4,073 (13%)	7,792 (13%)	11,865 (13%)
Cattle Feedlots	248 (1%)	696 (1%)	944 (1%)
Dairy and Milk Production	3,443 (11%)	7,831 (13%)	11,274 (12%)
Hog and Pig Farming	468 (1%)	913 (2%)	1,381 (2%)
Poultry and Egg Production	1,246 (4%)	2,194 (4%)	3,440 (4%)
Sheep and Goat Farming	1,980 (6%)	2,206 (4%)	4,186 (5%)
Aquaculture and other animal farming	5,169 (16%)	6,026 (10%)	11,195 (12%)
Total	31,449 (100%)	59,012 (100%)	90,461 (100%)

Source: USDA Census of Agriculture, 2017

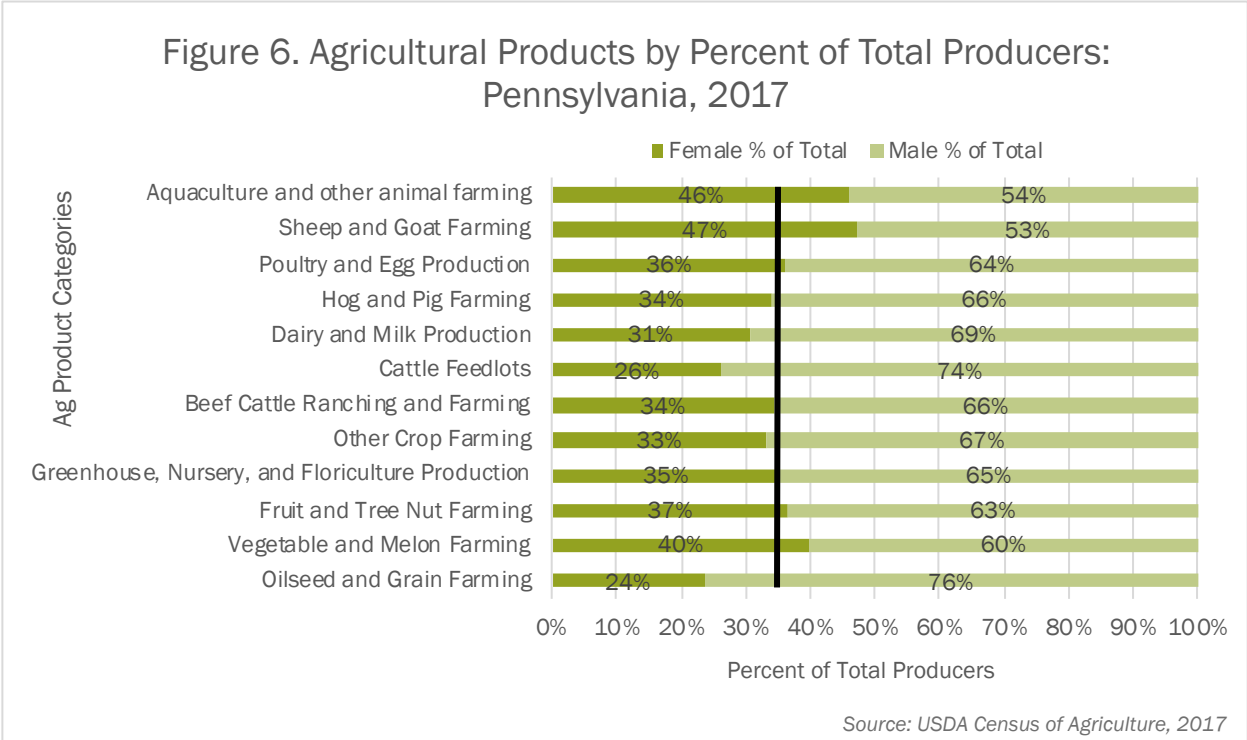
The percentage of female and male farm producers in each category are within 1% of each other for most of the categories. There are four exceptions where that difference is greater than 1%: oilseed and grain farming, aquaculture and other animal farming, sheep and goat farming, and dairy and milk production.

¹ The 2017 Census of Agriculture defines this category as including hay, sugarcane, tobacco, and all other crop farming in Pennsylvania.

² Cattle feedlots are confined areas used to feed cattle in an effort to increase their growth and weight gain. This is typically the final stage of production in the beef industry

The percentage of males who were participating in oilseed and grain farming, 13%, was almost double that of females (7%), whereas a larger percentage of females (16%) were working in the aquaculture and other animal farming category compared to males (10%).

When the percentage of producers of each type of agricultural product are considered by sex, it becomes clear that female producers in 2017 were more likely to be involved in aquaculture and other animal farming which, in Pennsylvania, includes trout farming and other animal farming such as horses or rabbits (47% females and 53% males) and sheep and goat farming (46% females and 54% males) (see Figure 6). The proportion of female producers in other agricultural products (excluding oilseed and grain farming and cattle feedlots) is relatively close to the overall percentage of Pennsylvania female farm producers at 35%.



Females were the least represented in “cattle feedlots” and “oilseed and grain farming” where they made up under 30% of each category. Only about 1% of total producers worked with cattle feedlots, but the category as a whole was made up of 74% males and 26% females.

Summary

This report sought to showcase the major differences between male and female farm producers in Pennsylvania using data regarding the number, sales, farm size, and agricultural products from the most recent Census of Agriculture (2017). There are other differences between male and female producers in Pennsylvania, and this report does not account for those who do not identify as either sex.

In Pennsylvania, the gap in the number of male farm producers compared to female farm producers has shrunk since 2007. Even still, there were nearly two times the number of males in the farming industry compared to females in 201. Looking at male and female farm producers in Pennsylvania does not only highlight how they are different, but how they each contribute to the economy. Despite the differences explored in this report, both male and female producers have an impact on Pennsylvania's agricultural industry and the lives of others residing in the Commonwealth.

References

Pilgeram, R., K. Dentzman, P. Lewin, and K. Conley. (2020). *How the USDA Changed the Way Women Farmers Are Counted in the Census of Agriculture*. Choices. Quarter 1. Available online at: <http://www.choicesmagazine.org/choices-magazine/submitted-articles/how-the-usda-changed-the-way-women-farmers-are-counted-in-the-census-of-agriculture>

U.S. Department of Agriculture. (2004). *Tenure, Number of Operators, Type of Organization, and Principal Operator Characteristics, Table 40*. Available online at: http://usda.mannlib.cornell.edu/usda/AgCensusImages/2_002/01/51/2002-01-51.pdf

U.S. Department of Agriculture. (2009). *Selected Operator Characteristics for Principal, Second, and Third Operator: 2007, Table 49*. Available online at: https://www.nass.usda.gov/Publications/AgCensus/2007/Full_Report/Volume_1_Chapter_1_State_Level/Pennsylvania/st42_1_049_049.pdf

U.S. Department of Agriculture. (2019). *Selected Producer Characteristics: 2017 and 2012, Table 52*. Available online at: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Pennsylvania/st42_1_0058_0058.pdf

U.S. Department of Agriculture. (2019). *Summary by Market Value of Agricultural Products Sold: 2017, Table 72*. Available online at: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Pennsylvania/st42_1_0072_0072.pdf

U.S. Department of Agriculture. (2019). *Summary by North American Classification System: 2017, Table 75*. Available online at: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Pennsylvania/st42_1_0075_0075.pdf

U.S. Department of Agriculture. (2019). *Summary by Size of Farm: 2017, Table 71*. Available online at: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Pennsylvania/st42_1_0071_0071.pdf

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Appendix

Table A1. Number (Percent) of Farm Producers by Sex by County: Pennsylvania, 2017

County	Female Producers	Male Producers	Total Producers	County	Female Producers	Male Producers	Total Producers
Adams	691 (34%)	1,349 (66%)	2,040	Lackawanna	146 (32%)	316 (68%)	462
Allegheny	263 (40%)	397 (60%)	660	Lancaster	3,014 (34%)	5,826 (66%)	8,840
Armstrong	359 (31%)	783 (69%)	1,142	Lawrence	338 (35%)	627 (65%)	965
Beaver	405 (37%)	683 (63%)	1,088	Lebanon	670 (34%)	1,323 (66%)	1,993
Bedford	642 (33%)	1,306 (67%)	1,948	Lehigh	248 (36%)	441 (64%)	689
Berks	1,143 (35%)	2,114 (65%)	3,257	Luzerne	242 (33%)	493 (67%)	735
Blair	317 (36%)	554 (64%)	871	Lycoming	518 (32%)	1,100 (68%)	1,618
Bradford	870 (35%)	1,614 (65%)	2,484	McKean	122 (30%)	284 (70%)	406
Bucks	537 (39%)	848 (61%)	1,385	Mercer	654 (34%)	1,288 (66%)	1,942
Butler	609 (36%)	1,085 (64%)	1,694	Mifflin	379 (33%)	768 (67%)	1,147
Cambria	268 (30%)	633 (70%)	901	Monroe	147 (37%)	250 (63%)	397
Cameron	22 (38%)	36 (62%)	58	Montgomery	361 (36%)	644 (64%)	1,005
Carbon	127 (37%)	216 (63%)	343	Montour	187 (32%)	391 (68%)	578
Centre	623 (34%)	1,183 (66%)	1,806	Northampton	282 (36%)	503 (64%)	785
Chester	1,130 (40%)	1,726 (60%)	2,856	Northumberland	368 (30%)	839 (70%)	1,207
Clarion	304 (32%)	654 (68%)	958	Perry	472 (35%)	870 (65%)	1,342
Clearfield	248 (32%)	524 (68%)	772	Philadelphia	79 (71%)	32 (29%)	111
Clinton	157 (36%)	274 (64%)	431	Pike	41 (44%)	52 (56%)	93
Columbia	456 (37%)	792 (63%)	1,248	Potter	288 (37%)	487 (63%)	775
Crawford	680 (37%)	1,176 (63%)	1,856	Schuylkill	376 (32%)	784 (68%)	1,160
Cumberland	737 (35%)	1,396 (65%)	2,133	Snyder	498 (33%)	991 (67%)	1,489
Dauphin	360 (33%)	728 (67%)	1,088	Somerset	706 (34%)	1,387 (66%)	2,093
Delaware	47 (52%)	43 (48%)	90	Sullivan	110 (35%)	208 (65%)	318
Elk	155 (38%)	249 (62%)	404	Susquehanna	544 (37%)	930 (63%)	1,474
Erie	684 (35%)	1,270 (65%)	1,954	Tioga	636 (35%)	1,166 (65%)	1,802
Fayette	459 (34%)	909 (66%)	1,368	Union	343 (35%)	637 (65%)	980
Forest	29 (46%)	34 (54%)	63	Venango	221 (34%)	432 (66%)	653
Franklin	854 (31%)	1,938 (69%)	2,792	Warren	271 (36%)	491 (64%)	762
Fulton	293 (32%)	610 (68%)	903	Washington	1,129 (38%)	1,850 (62%)	2,979
Greene	419 (36%)	730 (64%)	1,149	Wayne	381 (35%)	705 (65%)	1,086
Huntingdon	388 (32%)	838 (68%)	1,226	Westmoreland	673 (36%)	1,204 (64%)	1,877
Indiana	564 (35%)	1,035 (65%)	1,599	Wyoming	205 (31%)	465 (69%)	670
Jefferson	246 (33%)	497 (67%)	743	York	1,328 (37%)	2,234 (63%)	3,562
Juniata	386 (33%)	770 (67%)	1,156	Pennsylvania	31,449 (35%)	59,012 (65%)	90,461

Source: USDA Census of Agriculture, 2017

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