

Changes in Ohio Farms Over a Decade

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Every five years the United States Department of Agriculture completes The Census of Agriculture- a national comprehensive survey of agricultural activity for all U.S. farm and ranch operations. It is the leading source of agricultural data for every state, congressional district, county and county equivalent. Containing roughly 6.4 million unique data points the Census of Agriculture is a valuable public resource. Established in 1840, the 2017 Census released April 11, 2019 is the 29th in the series and can be found [here](#).

This article specifically discusses the changes in number of farm operations and land held in farms across Ohio between the 2007 and 2017 Censuses. The 2007, instead of the immediately preceding 2012 Census serves as the reference year due to the “Age of Prosperity” in farm incomes spanning 2012.

Number of Farms in Ohio

The Census definition of a farm is “any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year.” The current definition has remained the same since 1974 after 8 previous changes and is consistent with the definitions of other Census surveys. The United States has seen a decline in the number of farms since the 1974 Census although, as mentioned previously, there was a change in farm definition that year. However, there has been a 71% decline in the number of farms since the Great Depression. The 2017 Census reported that there were 2,042,000 farms in the U.S., 77,805 (3.8%) of which are located in Ohio. United States farms declined 7.4% and 3.2% since the 2007 and 2012 Census, respectfully. In contrast, Ohio farms in 2017 numbered 2.6% more than in 2007.

Figure 1 illustrates the number of Ohio farms and the acres of land in farms for the last five censuses. Land in farms has remained stable around 13.9 million acres with a slight increase since 2012 and 2007 (see figure 1). With more farms and stable land in farms, the average farm size declined 3% to 179 acres. In contrast, acres per U.S. farm increased to 441 acres- up from 434 in 2012 and 418 in 2007.

Figure 2 contains the distribution of Ohio’s 77,805 farms by county, with darker red counties representing more farms and white counties representing the fewest farms. The geographic size of counties in some cases explains the variation in number of farms across counties. Wayne County is home to the most farms, where Cuyahoga County, unsurprisingly, is home to the fewest number of farms. Outside a few pockets of counties, the Northeastern quadrant Ohio has a highest concentration of farms- likely due to farm size and diversification of operations. High population density of Amish in the region is likely a contributing factor in farm size and diversification.

Figure 1- Ohio Farms and Land in Farms, 1997-2017

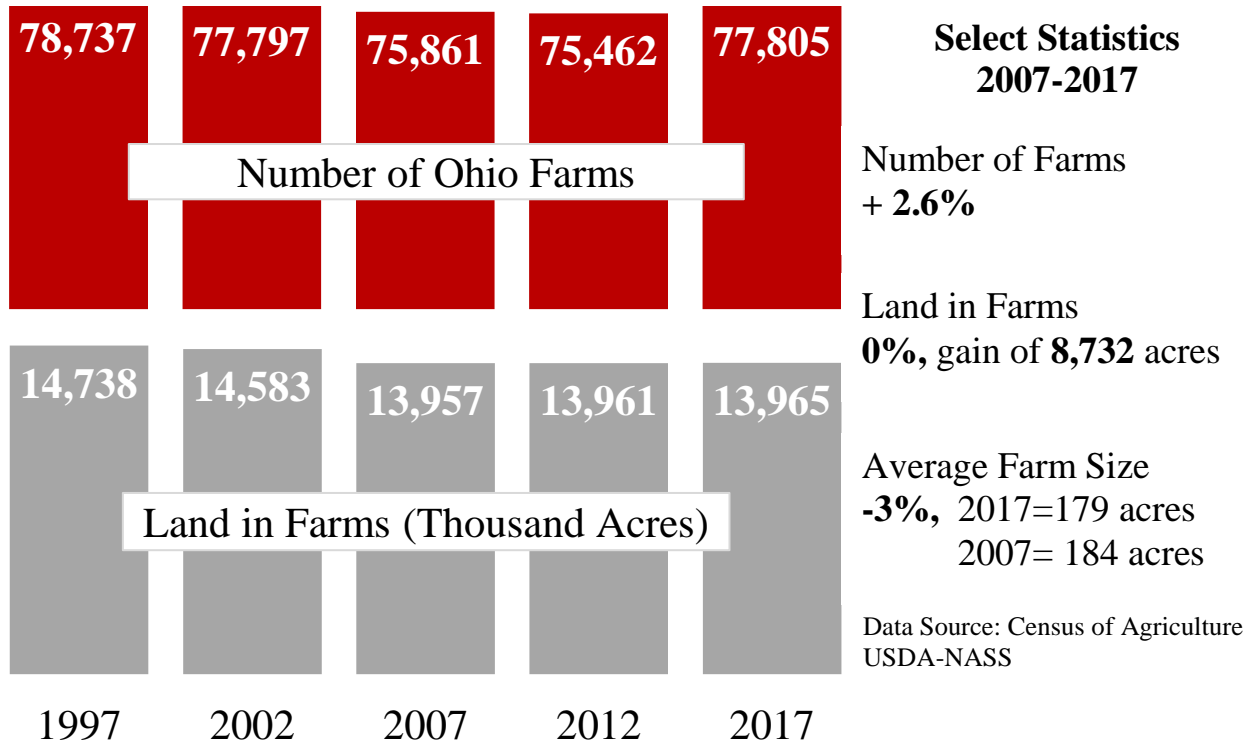


Figure 2- Ohio Farms by County, 2017

Wayne County has the largest number of farms, 2,034.

Cuyahoga County has the fewest number of farms, 111.

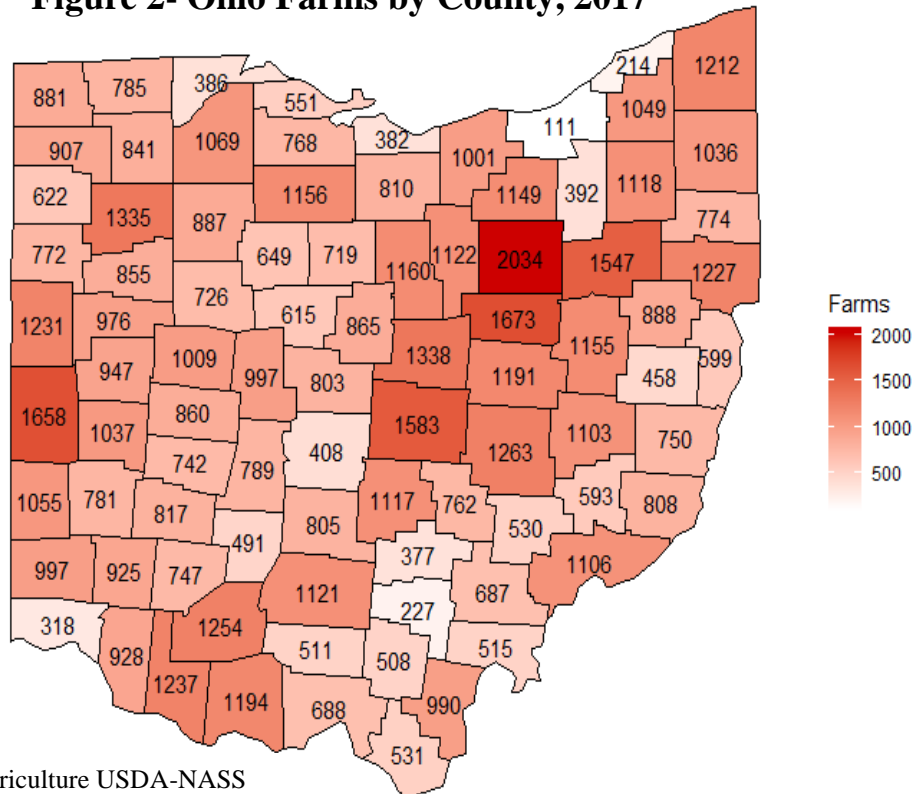
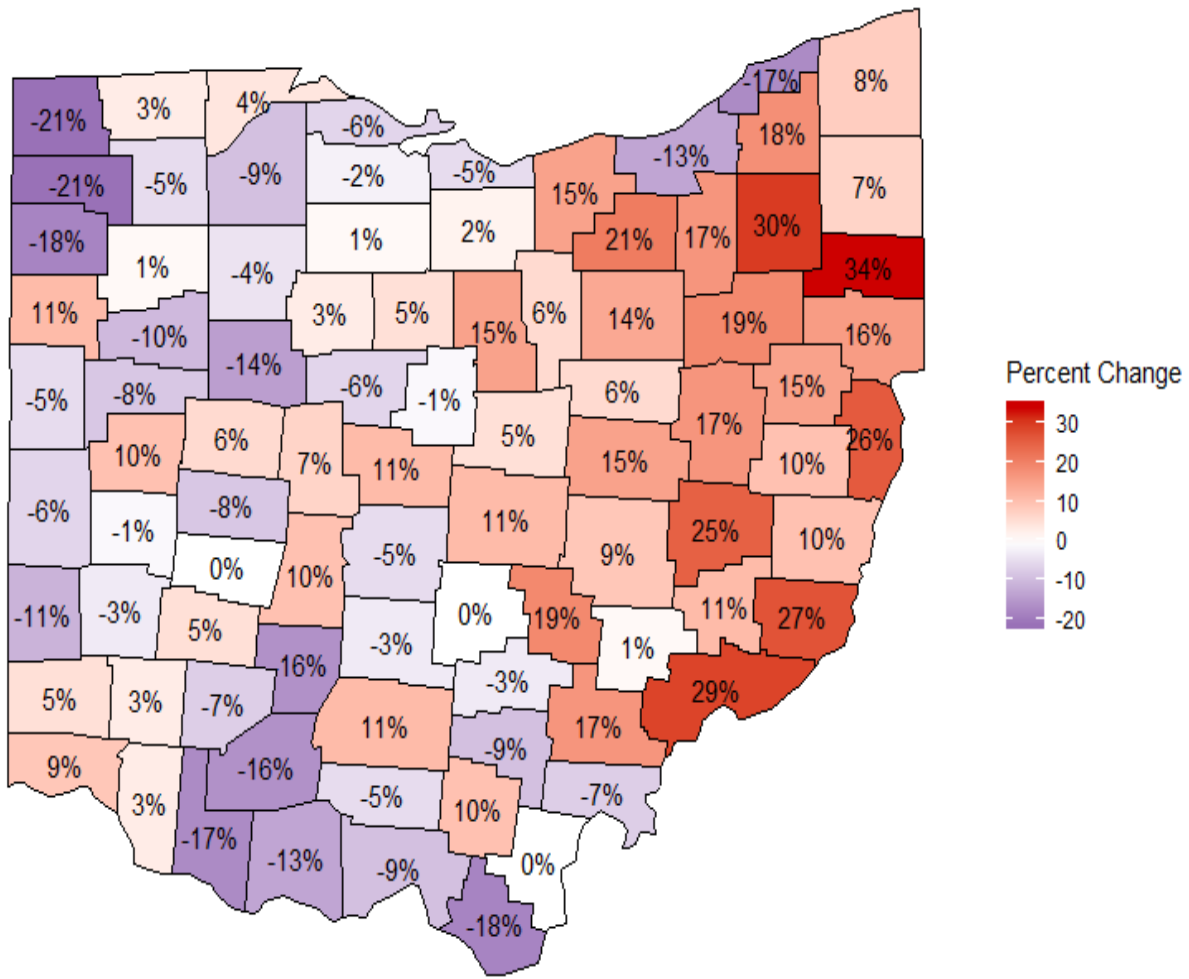


Figure 3- Percent Change, Ohio Farms by County, 2017 vs. 2007

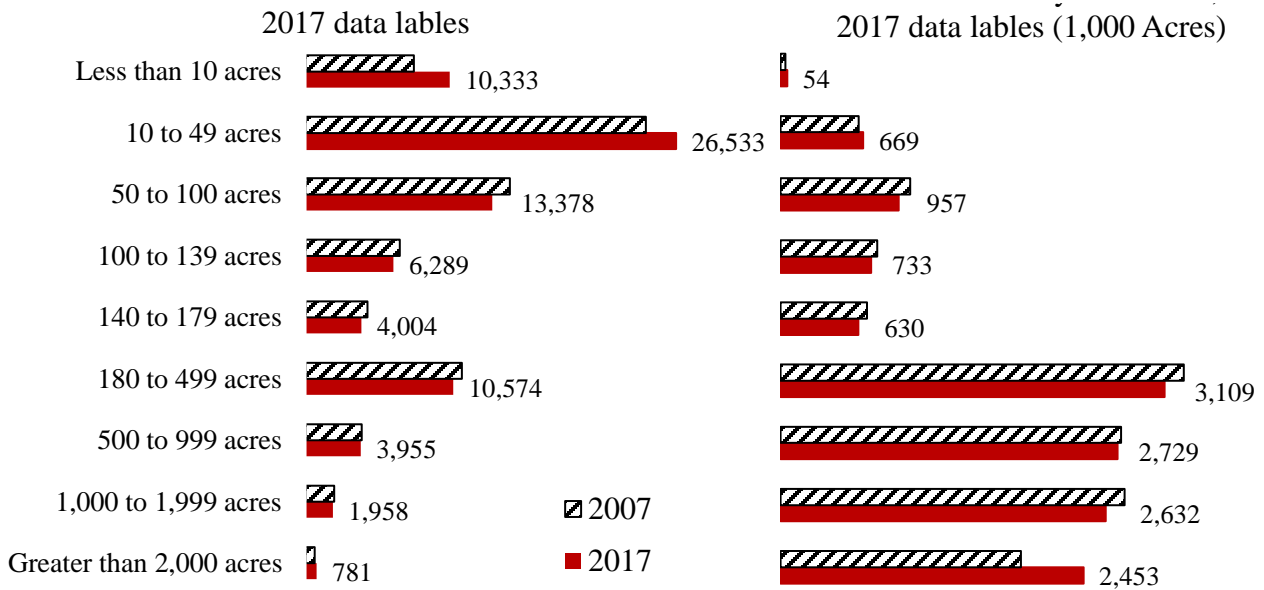


While the state as a whole gained farms since 2007, thirty-five (40%) of Ohio’s 88 counties experienced a decrease in the number of farm operations since 2007. Figure 3 illustrates the percentage change in farms for each Ohio County during the last decade. Counties that experienced a decline are illustrated with varying levels of purple. Counties that experienced an increase are illustrated with varying levels of red. Three clusters of counties emerge. The Eastern third saw relatively high rates of farm entries. The middle third mostly had modest increases with some decreases. The Western third had variation, but some counties experienced a relatively high rate of farm exits in the last decade.

Mahoning County in Northeast Ohio had the largest percentage increase of total farms at 34% (774 farms in 2017 vs 578 in 2007); Neighboring Portage County added the largest absolute number of farms at 256 new farms (+30%). Defiance and Williams Counties in Northwest Ohio experienced the largest percentage decrease in total farms dropping 234 and 235 farms, respectively. In absolute terms, Brown County in Southwest Ohio lost 250 farms over the last decade (1,237 in 2017 vs 1,487 in 2007).

In 2017, 10,333 Ohio farms (13%) operated with less than 10 acres and 781 Ohio farms (1%) operated more than 2,000 acres (see Figure 4, left hand side). Farms with acreage less than 100 acres represent 65% of Ohio’s farming operations. Conversely, 2,453,000 of Ohio’s 13.9 million farmland acres (18%) is held in farms of 2,000 acres or more and 54,000 acres (0.3%) is held in farms classified as having less than 10 acres. Ohio farms classified as less than 100 acres represent 12% of Ohio’s farmland.

Figure 4- Ohio Farms and Land in Farms, by Size of Farm in Acres, 2007 and 2017



The change in number of Ohio farms classified by size over different time frames is represented in Figure 5. Over the last 20 years, the largest and smallest farm sizes have seen the biggest percent growth in number of farm operations, with operations classified as 50 to 999 experiencing decreases of around 20%. Without tracking individual farms it is difficult to know what happened to these farms. Some likely got larger; some probably go smaller, and some probably left farming all together.

While the largest and smallest size classifications witnessed growing numbers of farms, the rate of gain is different. Figure 6 illustrates the rate of growth from the previous Census. With a growth rate of 52% in 2017 over the 2012 Census, farms with less than 10 acres grew the most as a percentage after an 11% decline in 2012 from the 2007 Census. Reversely, farms of 2,000 acres are growing at a decreasing rate. The numbers of large farms are still growing, but at a decreasing rate. Earlier figure 4 illustrated there were 781 farms in this size classification meaning that a 5% growth rate would add 39 farms. Figure 6 also illustrates the growth in farms in 2012 over 2007 at the midsized rage. It is hard to know whether this was small farms getting bigger or large farms getting smaller during this time period.

Figure 5- Percent Change in Ohio Farms over 5, 10, 15 and 20 years, by Size, 1997-2017

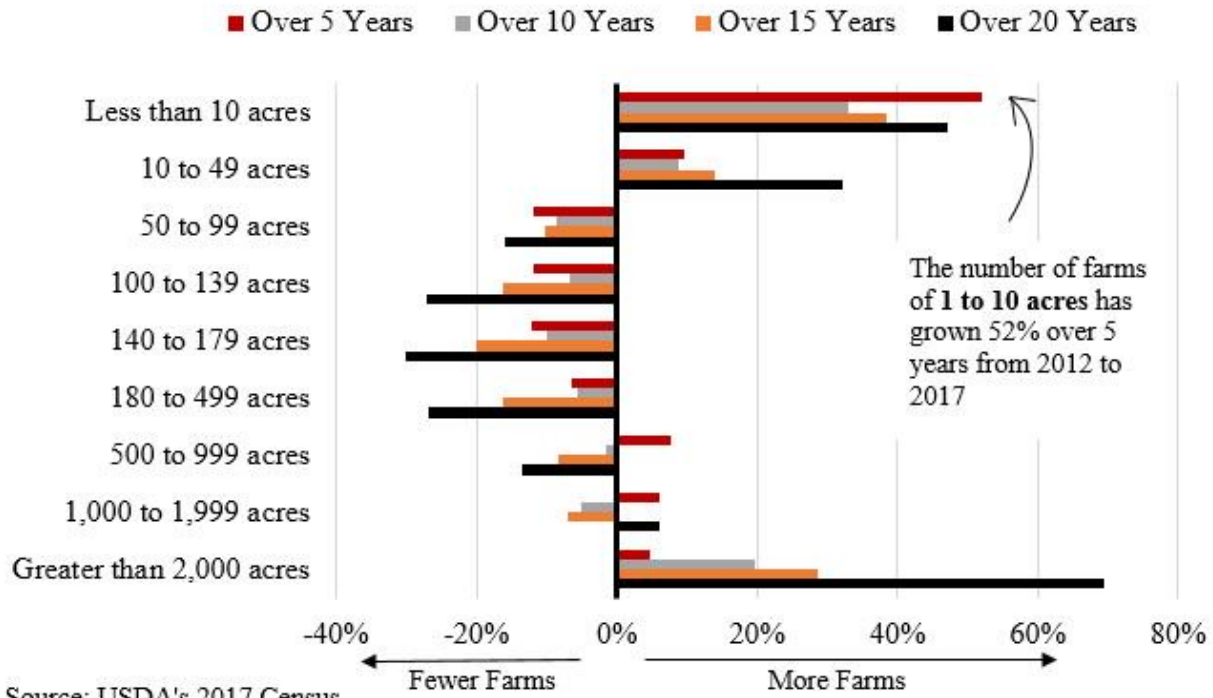
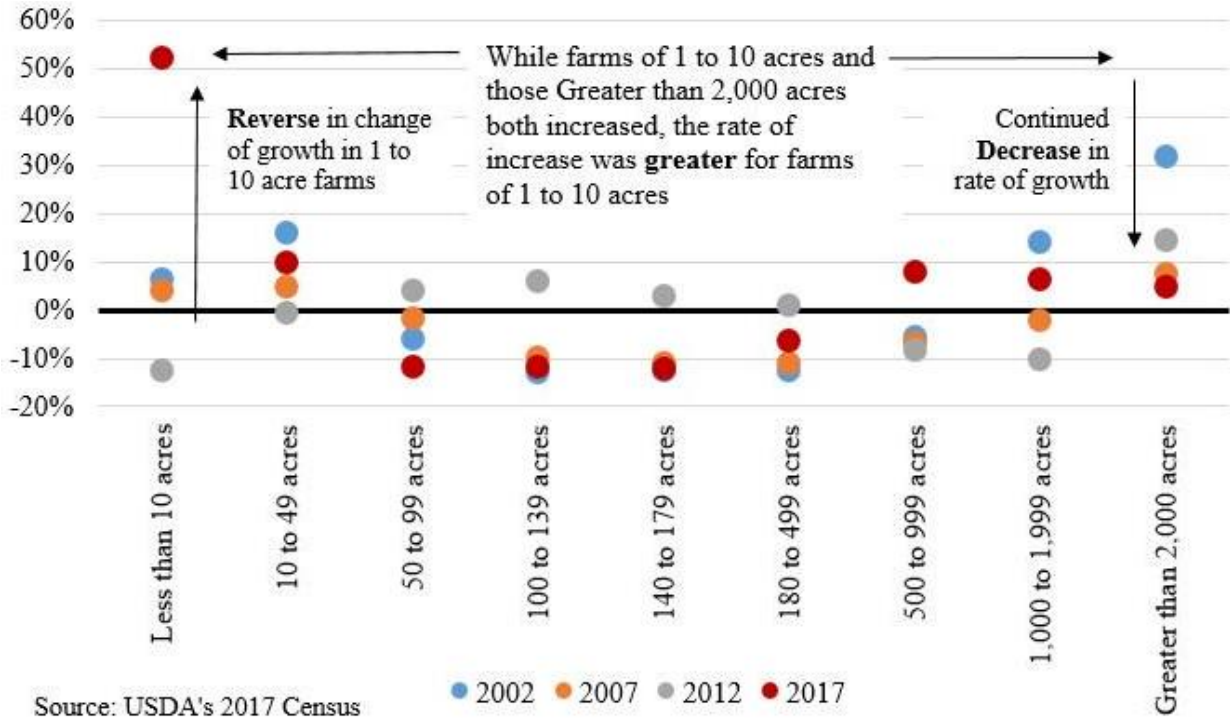


Figure 6- Rate of Change in Number of Ohio Farms by Size over 5, 10, 15, and 20 years, 1997-2017

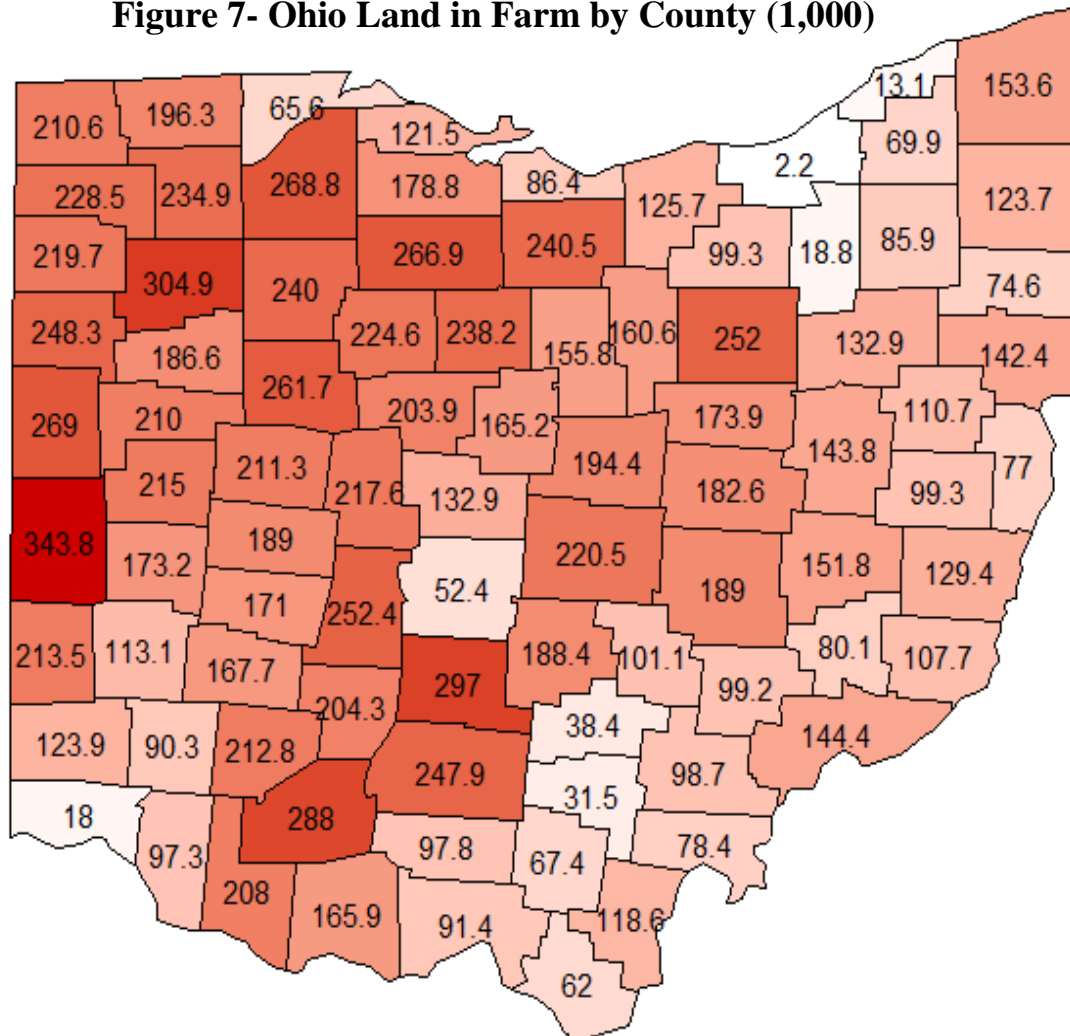


Ohio Land in Farms

The Census definition of land in farms is “consists primarily of agricultural land used for crops, pasture, or grazing. It also includes woodland and wasteland not under cultivation but considered part of a producers total operation. Land in farms includes land covered under the Conservation Reserve Program (CRP), Wetland Reserve Program (WRP), Farmable Wetlands Program (FWP), and the Conservation Reserve Enhancement Program (CREP).” This includes land owned and rented from others, but not grazing land owned by the federal government under per head grazing permits. The Census showed that the United States has roughly 900 million acres of land held within farms representing 39.8% of all land, of which 13,965,295 acres (1.5%) are located in Ohio. Similar to Ohio’s deviation from the national average in number of farms, land held in Ohio farms increased 8,732 acres since 2007. However, this increase is minimal at less than 1%.

Figure 7 illustrates the distribution of farmland in Ohio by county as reported in the 2017 Census with darker color representing a larger number of acres. Darke County in Western Ohio had the largest number of farmland acres at 343,774 and Cleveland centered Cuyahoga County had the smallest number of acres at 2,248.

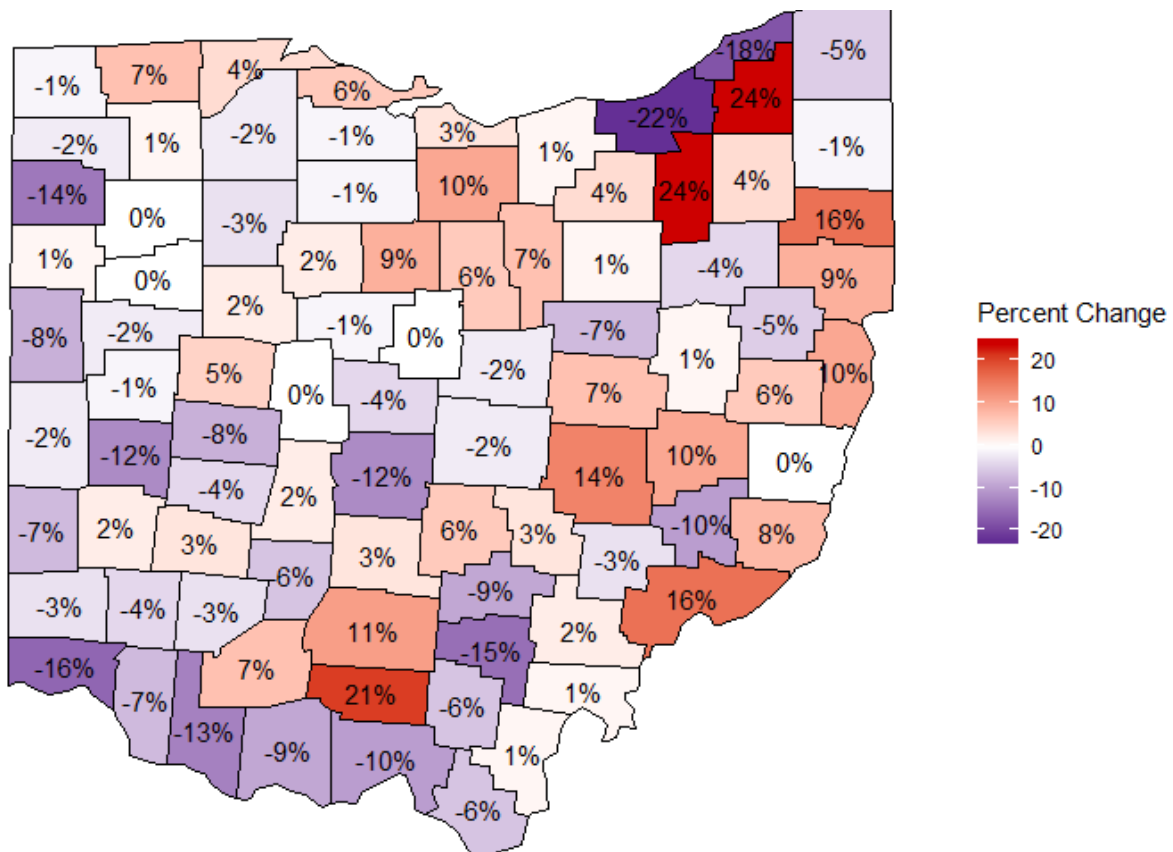
Figure 7- Ohio Land in Farm by County (1,000)



While the state as a whole gained farmland in 2017 from 2012 and 2007, exactly half (44) of Ohio’s counties lost farmland. Figure 8 illustrates the percentage change of farmland by county during the last decade. Counties shaded in varying colors of red represent those counties that saw an increase; counties that experienced a decrease in farm land are shaded in varying shades of purple. Similar to the change in farms by county, farmland grew more in Eastern Ohio. Reductions in farmland mostly occurred in Western Ohio. Not surprising is the decrease in farmland near Ohio’s metropolitan areas of Cincinnati, Cleveland, Columbus, Dayton and Toledo due to development pressure.

Cuyahoga County, base of Cleveland, saw the largest percentage decrease in farmland acres (2,248 in 2017 vs 2,910 in 2007), but that was from a relatively small base in 2017(see figure 8). In absolute terms, Paulding County in Northwest Ohio saw the largest decrease in farmland acres (219,663 in 2017 vs 255,564 in 2007). Summit County in Northeast Ohio had the highest growth of farmland acres as a percentage at 23.6% also starting from a relatively small base in 2017 (18,752 in 2017 vs 15,166 in 2007). Neighboring Geauga County also saw a high percentage growth (23.6%), again from a small starting base. Ross County in South Central Ohio had the largest growth of farmland acres (247,903 in 2017 vs 223,650 in 2007).

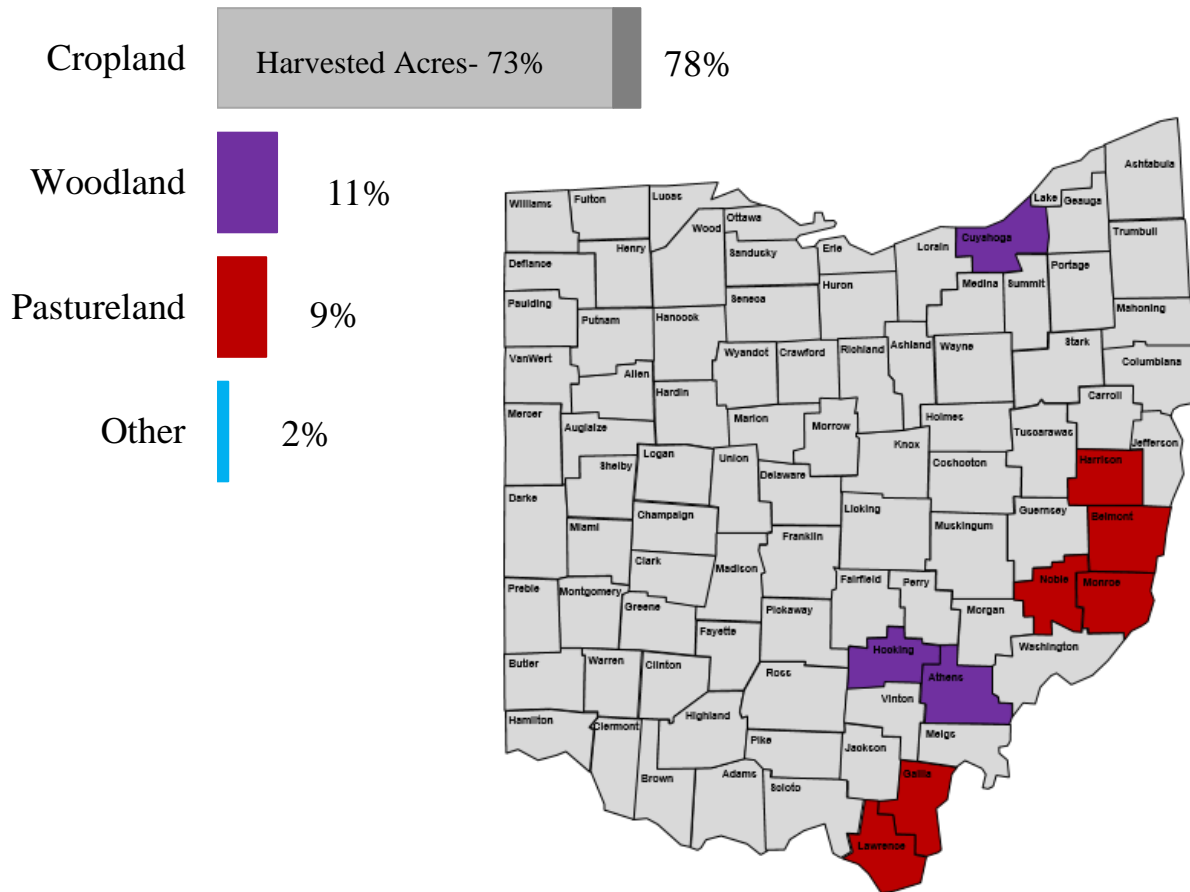
Figure 8- Percent Change of Ohio Land in Farms between 2007-2017



As mentioned earlier, farmland represents land cultivated for crops, woodland and pastureland. Cropland includes considered failed acres encompassing preventive planting and corn silage acres. Subtraction of failed acres results in total harvested acres for cropland. Of the 900 million U.S. farmland acres 401 million (45%) is permanent pasture acres, 396 million (44%) is cropland, 73 million (8%) is woodland and 30 million (3%) is considered other.

Not surprisingly, Ohio farmland is covered in cropland acres (78%), with harvested cropland acres representing 73%. Woodland comes in second at 11% and pastureland at 9%. This as well is a deviation from the U.S. use of farmland, where pastureland in states like Montana, Texas, North and South Dakota have large shares of pastureland. Ohio's woodland and pastureland are primarily located in Southeast Ohio where cow calf operations and the Appalachian Mountains are located.

Figure 9. Ohio Land Use as % of Land in Farms



Summary

In reverse of the national statistics for both number of farms and land held within farms, Ohio had 77,805 farms in 2017 an increase of 1,944 (+2.6%) since 2007 and an increase of 8,000 acres to 13,965,295 farmland acres. Sixty-five percent of Ohio's farms are less than 100 acres in size. However, 88% of Ohio's land is operated by farms of more than 100 acres. While farms above 500 acres and those below 50 acres saw increases in 2017 from previous years, farms of less than 10 acres increased 52% after decreasing in 2012 and farms above 2,000 acres increased, but at a decreasing rate. The majority (78%) of Ohio's farmland is cultivated for cropland.

Future policy and research considerations

- Why did Ohio gain farming operations when the United States decreased? A possible explanation is Ohio's position to population centers, where small part-time and direct to consumer operations have access to high numbers of clientele. There is also the possibility of a sampling issue.
- Is there a natural progression to agricultural operations based on size? For example do farms start out small and continue to grow, replacing exiting mid-sized farms or do they stay small.
- The relative profitability of Ohio's timber industry to cultivation of row crops or pasture based livestock operations.
- How has concentrated animal operations changed the use of farmland over the last half century.
- Does the growth rate and size of farms under 100 acres influence the services offered by University Extension Systems considering that producers of large size have access to privately offered service?

References

United States Department of Agriculture, National Agricultural Statistics Service. "2007 Census of Agriculture. <https://www.nass.usda.gov/Publications/AgCensus/2007/>

United States Department of Agriculture, National Agricultural Statistics Service. "2017 Census of Agriculture." <https://www.nass.usda.gov/AgCensus/>

United States Department of Agriculture, National Agricultural Statistics Service. "2017 Census of Agriculture: Ohio State and County Data." https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_State_Level/Ohio/