Western North Carolina 2017 Census of Agriculture Report

ASAP Local Food Research Center
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Introduction and Background

This report presents findings from an analysis of USDA Census of Agriculture data, exploring changes in food and farming in Western North Carolina (WNC) and the region's agricultural impact in the state. WNC is located in the Southern Appalachian Mountains and is the site of a vibrant local food and farm community. It includes the 23 counties of Alleghany, Ashe, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania, Watauga, Wilkes, and Yancey, as well as the Qualla boundary.

This region has a rich agricultural background, but in the mid-1990s it experienced two significant transitions. This included the loss of burley tobacco as the dominant cash crop with the end of the federal quota and price support program and the emergence of an effort to develop markets for locally grown food as an alternative to tobacco. In the early 2000s, Appalachian Sustainable Agriculture Project (ASAP) formed to implement a local food campaign to raise awareness of and support for the region's farms, build markets for locally grown food, and provide people that live in the region with direct connections and a voice in how food is produced. In 2012, ASAP formed the Local Food Research Center to study the economic, social, and environmental impacts of localizing food systems and to identify the strategies that can bring about positive food system change.

Every five years, the United States Department of Agriculture (USDA) conducts a Census of Agriculture and releases a report of over six million data points. This is the most comprehensive and consistent source of data available regarding farm businesses, farmland, and farmers, down to the county level. However, it is limited in that it does not provide contextual, qualitative information to explain data trends particularly at smaller local and/or regional scales. Regardless, the Census of Agriculture is a valuable data source for ASAP's Local Food Research Center because it helps to describe the changes taking place in our local food and farming economy.

The following report characterizes the agricultural economy in Western North Carolina, including trends in the number of farms and farmland acreage, along with demographic and socioeconomic characteristics of agricultural producers. The major agricultural industries contributing to sales, farmland, and number of farms are then explained. Income and net returns from farming are then followed by a deeper look into the products specifically sold through local markets in the region.

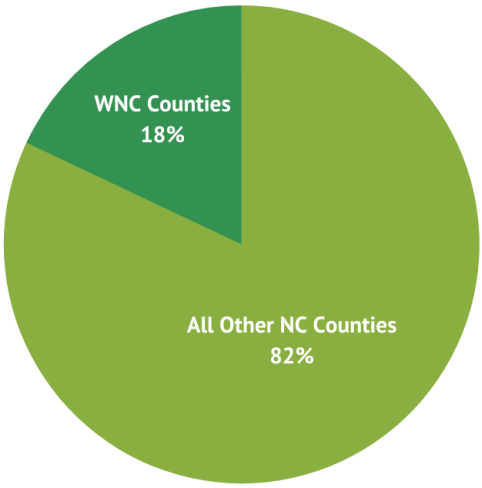
The Landscape of Agriculture and Local Food in the WNC Region

Regional Context and Agricultural Trends in Western North Carolina

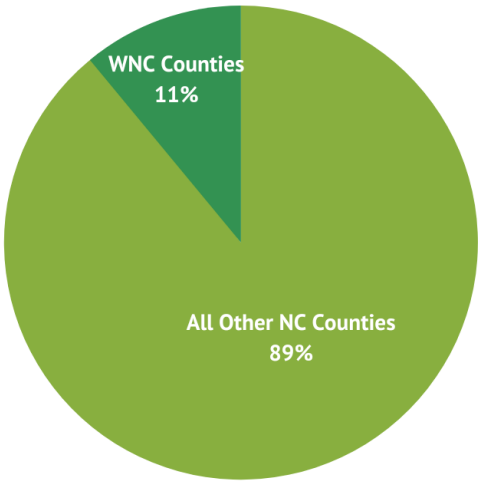
North Carolina is generally separated into three regions: mountains, piedmont, and coastal plains. Western North Carolina counties discussed in this report compromise the mountain region, and are topographically and culturally different from the other two regions. Although the mountain region contains 23 out of the 100 counties in North Carolina, it only makes up 18% of the total land, 11% of active farmland, and contains 11% of the population of the entire state (as shown in Figure 1).

Figure 1

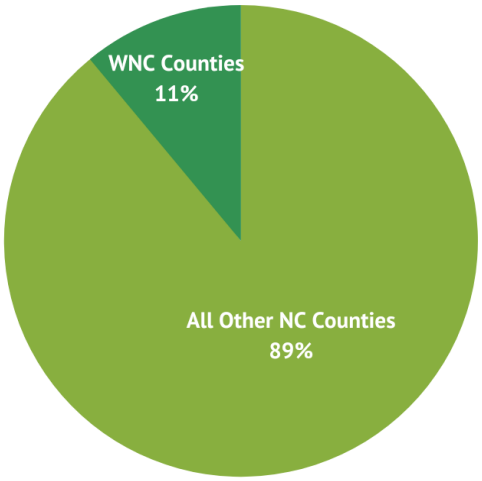
Share of North Carolina Land in WNC



Share of North Carolina Farmland in WNC, 2017



Share of North Carolina Population in WNC, 2020



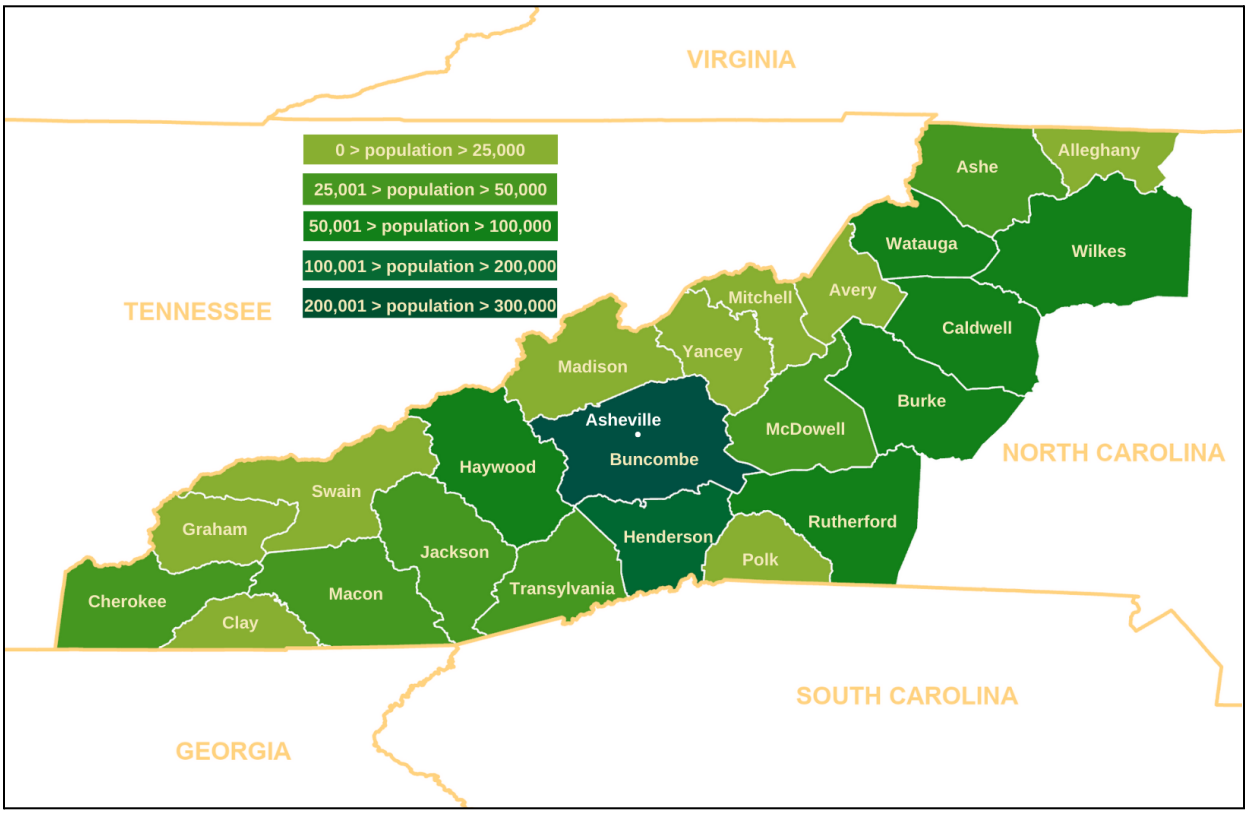
Like the region's name suggests, Western North Carolina is located in the Southern Appalachian Mountains and comprises parts of the Blue Ridge, Great Smoky, and Brushy Mountain Ranges. The natural environment in this region is highly biodiverse, nourished by fresh water from mountain rivers and their many tributary springs and streams. Although wildlife flourishes, this region is not well suited for most forms of large-scale agriculture. River valleys provide the few areas of flat land that are accessible by tractor and other agricultural machinery. Road access to larger trade locations outside of the region and commuting between mountain areas has been historically precarious due to the rugged topography.

WNC agriculture has evolved from traditional Native practices, to subsistence farming combining Native and European agricultural methods, to regional production of staple crops like pole beans, tomatoes, and tobacco, to the trends of today. Current thriving agricultural industries include forestry, horticulture, Christmas trees, cattle, and poultry, and farms that produce fruits, vegetables, and other goods for local consumption. These types of farms are complementary to the primarily sloped lands and are products of the transformations of agriculture in the region.

Figure 2 shows population by county in Western North Carolina. Buncombe County, with the city center of Asheville, has the largest population in Western North Carolina, over 269,000 people as of the 2020 Census. Neighboring Henderson County has the second highest population (116,281 people), still only 43 percent of Buncombe's population. It follows that those two counties have a large and diverse farming community, with many market outlets, consumers, and high-quality infrastructure to move products in the area. The remaining twenty-one counties all have fewer than 100,000 residents. Graham, Alleghany, Swain, Clay, and Mitchell all have fewer than 15,000 residents.

Figure 2

Population by WNC Counties, 2020

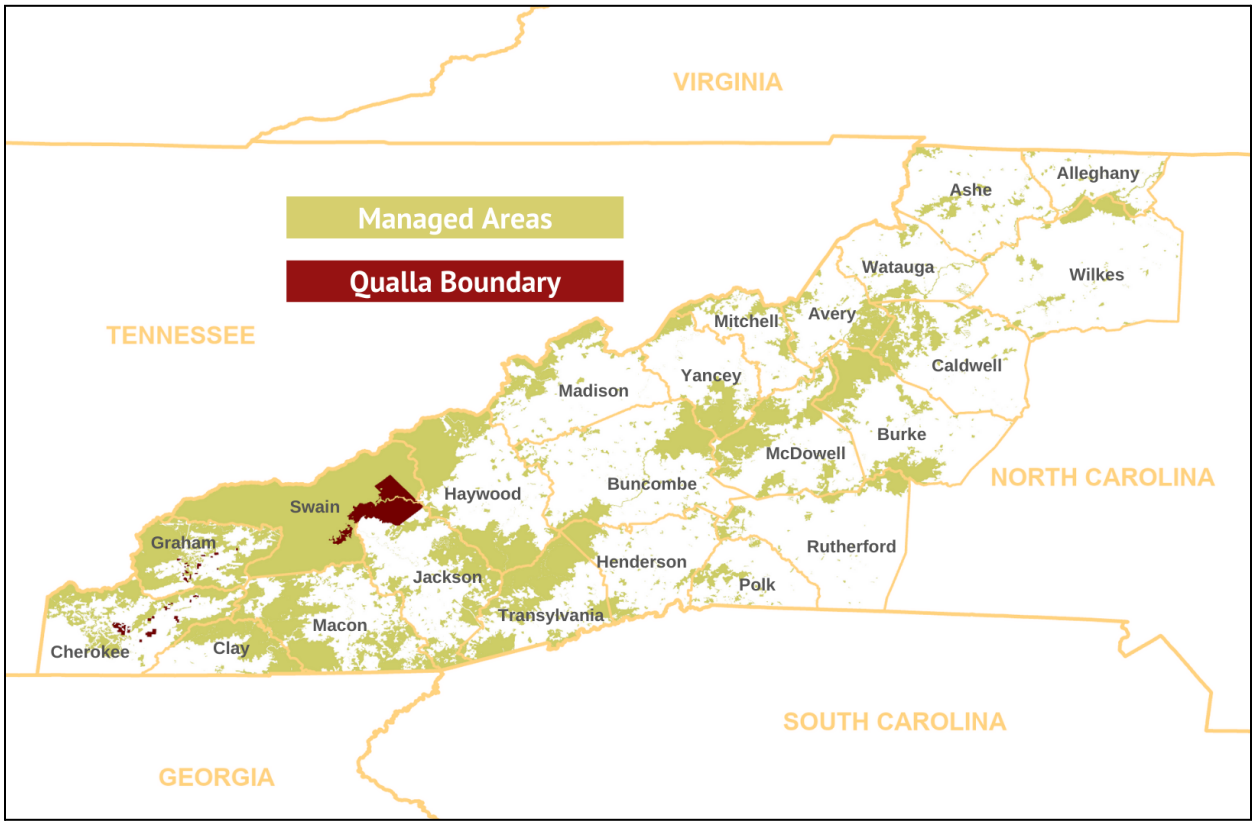


It is important to note the managed areas in Western North Carolina, or properties where conservation of biodiversity and ecosystem function are among the goals of the land management programs. As seen in Figure 3, Swain County is entirely a managed area. The Great Smoky Mountains National Park makes up 40 percent of Swain County, and the Town of Bryson City Watershed and the Mountains-to-Sea Trail are managed areas as well. The remainder of the managed land in Swain County is federally protected because it is critical habitat for Indiana Bats and Spruce-fir Moss Spiders. Pisgah National Forest, a federally managed area, surrounds much of the Haywood-Transylvania and Haywood-Jackson county lines and NC-TN state line in Madison, Yancey, and Mitchell counties. Pisgah National Forest also makes up the majority of the shaded regions in McDowell, Burke, and Caldwell counties. Nantahala National Forest, another federally managed area, makes up most of the shaded regions in and around Cherokee, Clay, Macon, and Jackson counties. The sporadically shaded lands across the region are managed as state parks, by regional land conservancies, or are in private conservation easements (NCNHP, 2022). These areas are managed for environmental conservation reasons, and therefore are less likely to be used as farmland. As you will see later in the report, counties like Swain that are highly managed by a federal, state, or local entity, have fewer farming activities.

The Qualla Boundary, shaded red in Figure 3, is the territory held as a land trust by the United States government for the Eastern Band of Cherokee Indians. This area is a small fragment of the extensive historical homeland of the Cherokee people. The majority of the contiguous portion of the Qualla Boundary is within Swain and Jackson counties, though there is land within Graham and Cherokee counties as well. The Tribal community is a separate entity than those counties, operating the Tribe's own governmental system, schools, law enforcement and rescue services, and hospital. Although the Qualla Boundary is differentiated in many ways from North Carolina counties, the National Agricultural Statistics Service (NASS) does not separate the Qualla Boundary from the counties that the boundary is geographically within. For that reason, the remainder of this report cannot differentiate between agricultural practices and trends within the Qualla Boundary and its corresponding counties.

Figure 3

Managed Areas in WNC



Farms and Farmland

The following section outlines the historic and current trends in farms and farmland in Western North Carolina. The region and county patterns are explored and compared to state and nation trends. Across all regions examined, the number of farms shrank and the average farm size grew.

According to the 2017 Census of Agriculture, WNC had 932,130 acres of farmland, 10,028 farms, and an average farm size of 93 acres (Table 1). Ashe, Wilkes, and Buncombe counties had the most acreage in farmland and the highest number of farms. These three counties accounted for 29 percent of the region's farms and 31 percent of the region's farmland. Farmland ranged from 10,131 acres in Swain to 109,790 acres in Ashe. Buncombe had the most farms (1,073), while Swain had the least farms (99). Average farm size ranged from 158 acres in Alleghany to 58 acres in Macon. Although they both had high numbers of farms and farmland acreage, the average farm size in Ashe (127 acres) was nearly double that of Buncombe (67 acres).

Table 1

Acreage of Farmland, Number of Farms, and Average Farm Size (Acres) in Western North Carolina, 2017

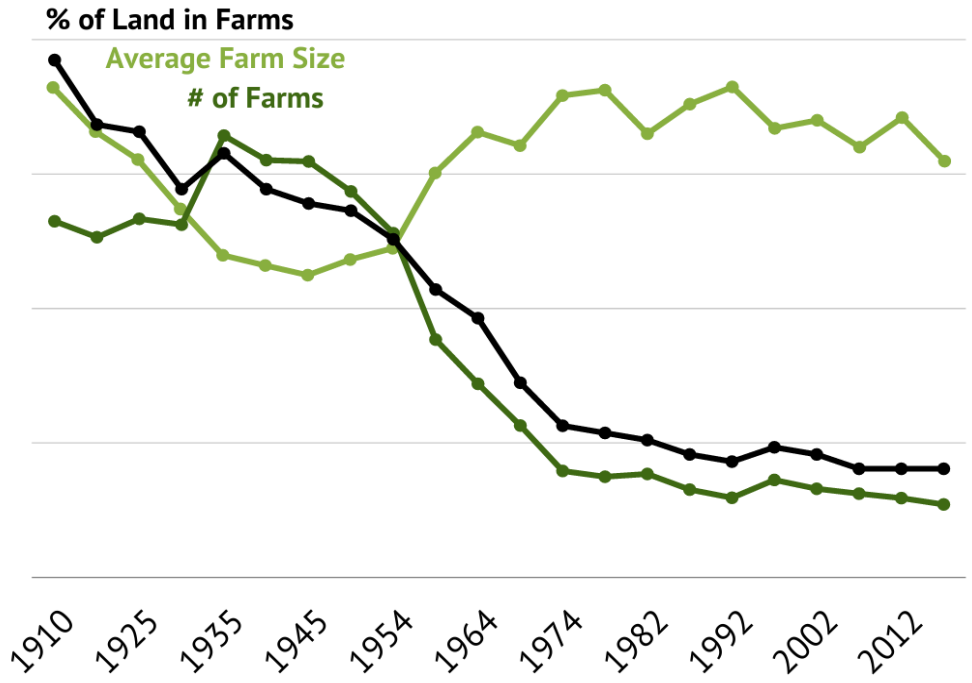
	Farmland Acreage	Number of Farms	Average Farm Acreage
WNC	**932,130**	**10,028**	**93**
Ashe	109,790	864	127
Wilkes	106,710	932	114
Buncombe	72,284	1,073	67
Alleghany	70,593	448	158
Rutherford	59,921	620	97
Madison	56,761	639	89
Haywood	52,244	541	97
Watauga	49,614	520	95
Henderson	41,099	455	90
Burke	38,641	508	76
Caldwell	37,991	411	92
Yancey	30,824	369	84
Polk	29,102	281	104
Avery	28,679	351	82
Cherokee	26,236	277	95
McDowell	22,997	333	69
Macon	19,775	340	58
Jackson	15,729	215	73
Mitchell	14,802	250	59
Transylvania	14,684	215	68
Clay	12,525	164	76
Graham	10,998	123	89
Swain	10,131	99	102

The definition of "farm" has been modified several times since the first agricultural census of the United States in 1840. Since 1975, a farm has been defined as "any establishment from which $1,000 or more of agricultural products were sold or would normally be sold during the year." The USDA includes institutional farms, experimental and research farms, and Indian reservations in this definition, excluding public, industrial, and grazing association land.

Figure 4 shows the historical trends of the percentage of land in farms, average farm size, and total number of farms in Western North Carolina. Mirroring country and state patterns, the percent of land in farms and number of farms have steadily decreased in WNC over the years (USDA National Agricultural Statistic Service, 2020). Since the farm definition change in 1975, the average farm size has increased in North Carolina from 123 to 182 acres, while the average farm size in Western North Carolina has fluctuated, but stayed around 90 acres. WNC counties have lost over 350,000 acres of farmland since 1974 and 3,500,000 acres since 1910, although what is considered farmland also changed considerably since the early 20th century.

Figure 4

Historical Percent of Land in Farms, Average Farm Size, and Number of Farms in WNC



Since the 2012 Census of Agriculture, only seven out of twenty-three WNC counties gained farms, seen in Figure 5. Counties in the far southwest corner of North Carolina generally gained farms while those in the far northwest corner lost the highest percentages of farms.

Western North Carolina lost the same percentage of farms as North Carolina (8%), five percentage points higher than the United States' losses (3%). According to a report from American Farmland Trust, North Carolina is ranked second in the nation in potential agricultural land lost by 2040. This report also ranked four WNC counties in the top 45 of all counties in the United States in percentage of remaining agricultural land to be converted by 2040: Transylvania at 21st, Clay at 30th, Watauga at 39th, and Macon at 41st in the nation (Hunter, Sorensen, Nogerie-McRae, Beck, Shutts, & Murphy, 2022).

Table 2 describes the gains and losses in farming and farmland for Western North Carolina, North Carolina, and the United States in greater detail. Graham County had the highest increase, a positive 15 percent change in number of farms, followed by Cherokee and Clay counties. Ashe, Alleghany, and Avery counties all lost between 20 and 30 percent of their number of farms compared to 2012. Many of the losses in Ashe, Alleghany, and Avery farms can be attributed to cattle farming and the effects of the Great Recession on Christmas tree farming.

Figure 5

Percent Change in Number of Farms in WNC Counties, 2012-2017

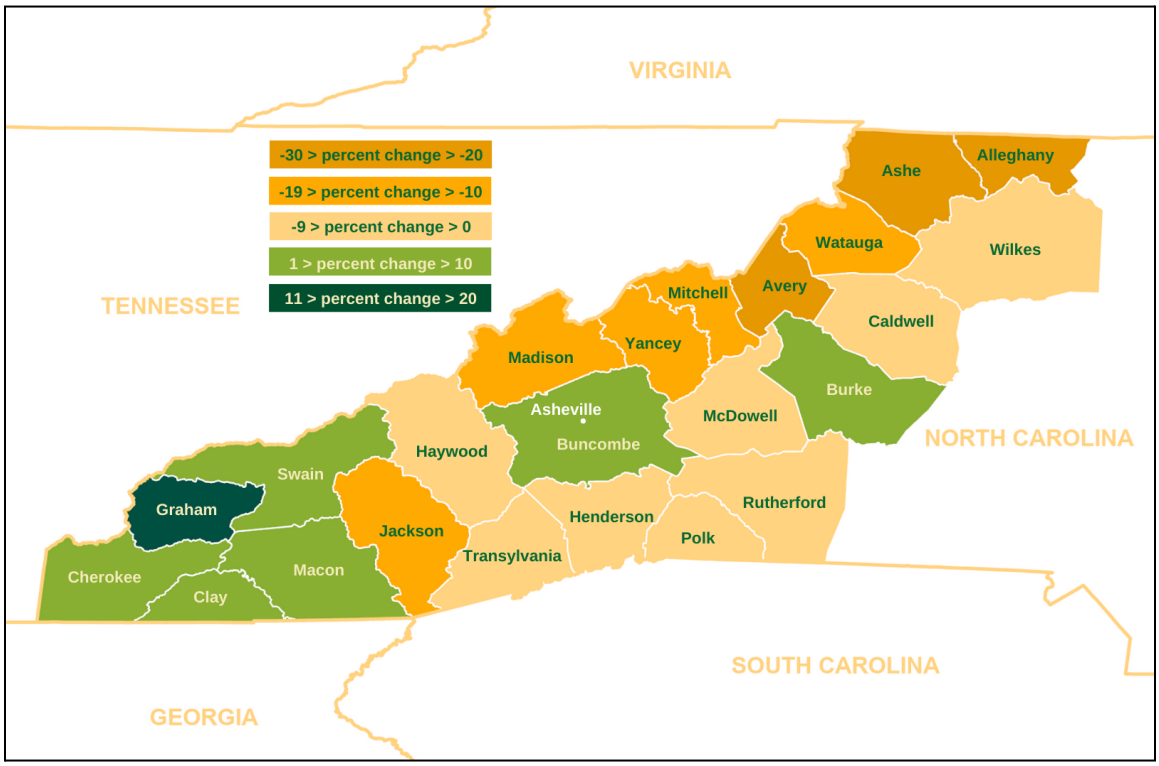


Table 2

Total Number of Farms, 2012-2017

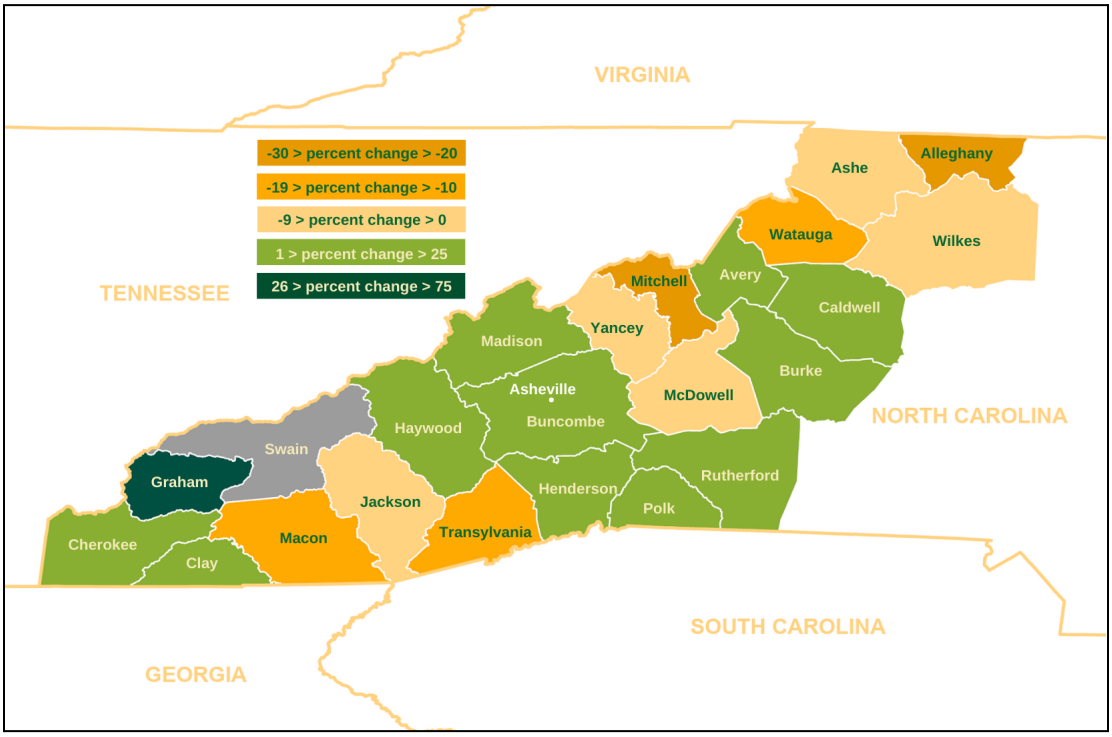
		2012	2017	% Change
USA Farms		**2,109,303**	**2,042,220**	**-3%**
NC Farms		**50,218**	**46,418**	**-8%**
WNC Farms		**10,912**	**10,028**	**-8%**
Counties with Greatest Positive Change in Number of Farms	Graham	107	123	15%
	Cherokee	255	277	9%
	Clay	154	164	6%
Counties with Greatest Negative Change in Number of Farms	Avery	483	351	-27%
	Ashe	1,140	864	-24%
	Alleghany	567	448	-21%

Twelve WNC counties experienced an increase in farmland acreage from 2012 to 2017. Graham County had the highest increase in farmland acreage, growing by over sixty percent. Cherokee and Polk counties followed with 22 and 21 percent increases in acreage. Mitchell and Allegheny counties both lost over 20 percent of farmland compared to 2012. Transylvania County followed, losing 18 percent of its farmland (as seen in Figure 6 and detailed further Table 3).

The percent change of farmland from 2012 to 2017 across Western North Carolina and the state of North Carolina is less than one percent. The United States lost a total of two percent, or around fourteen million acres of farmland. The average farm size in WNC increased by nearly one-fifth, however the median farm size shrank by 1.4 percent. The difference between average farm size (93 acres) and median farm size (40 acres) indicates that farm size was skewed right, so there were more smaller farms than larger farms. [1]

Figure 6

Percent Change in Farmland Acreage in WNC Counties, 2012-2017



[1] Though the Census of Agriculture has consistent data on the number of farms in each county and category, the data for sales, farmland, and producer characteristics is incomplete in places. If publishing a particular data item would identify an operation (for example, if there is only one producer of a particular commodity in a county), NASS does not publish the information. In such cases, the data are suppressed and "withheld to avoid disclosing data for individual operations." Counties shaded in gray on these maps designate the areas for which data was withheld from publications. In Figure 6, no farmland acreage information is available for Swain County in 2012.

Table 3

Percent Change in Farmland Acreage, 2012-2017

		2012	2017	% Change
USA Farmland Acreage		**914,527,657**	**900,217,576**	**-2%**
NC Farmland Acreage		**8,414,756**	**8,430,522**	**0.2%**
WNC Farmland Acreage		**933,152**	**932,130**	**-0.1%**
WNC Average Acreage per Farm		**78**	**93**	**19%**
WNC Median Farm Size		**41**	**40**	**-1.4%**
Counties with Greatest Positive Change in Farmland Acreage	Graham	6,837	10,998	61%
	Cherokee	21,453	26,236	22%
	Polk	24,101	29,102	21%
Counties with Greatest Negative Change in Farmland Acreage	Mitchell	19,322	14,802	-23%
	Alleghany	90,926	70,593	-22%
	Transylvania	17,929	14,684	-18%

The vast majority of farms in WNC are small, though some very large farms are operated as well. Confirming the conclusion drawn from average and median farm sizes, the distribution of WNC farms by range of acreage is heavily skewed by a few large farms. Table 4 describes the percent change in WNC farms from 2012 to 2017, by acreage. Nearly half of WNC farms were smaller than fifty acres, though thirteen farms had over 2,000 acres of farmland. Mid-sized farms, ranging from 50 to 99 and 220 to 259 acres, had the highest losses from 2012 to 2017. Only one percent of farms in 2017 were between one and two thousand acres, though that number increased by sixty percent since 2012.

Farms that produce food for local consumption are often smaller than those that supply goods to larger markets. Those farms that produce for local markets might only need a few acres to produce a highly diversified assortment of fruits, vegetables, meats, cheeses, and so on to support themselves by selling at farmers markets, restaurants, and to value-added processors.

Table 4

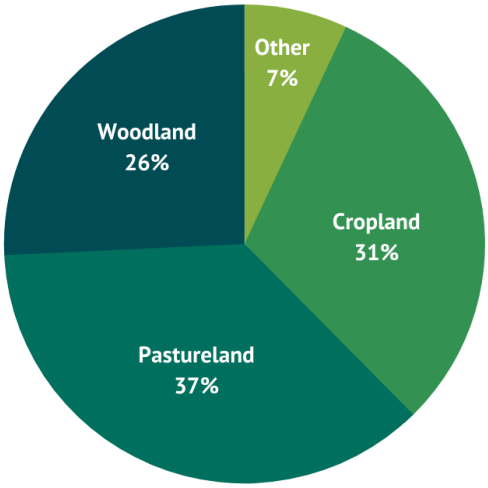
Percent Change in Number of WNC Farms by Acreage, 2012-2017

	2012	2017	% of All Farms in 2017	% Change
1 to 9 acres	742	782	11%	5%
10 to 49 acres	3051	2598	37%	-15%
50 to 69 acres	958	772	11%	-19%
70 to 99 acres	899	708	10%	-21%
100 to 139 acres	630	696	10%	10%
140 to 179 acres	378	363	5%	-4%
180 to 219 acres	271	253	4%	-7%
220 to 259 acres	170	135	2%	-21%
260 to 499 acres	360	409	6%	14%
500 to 999 acres	139	162	2%	17%
1,000 to 1,999 acres	47	75	1%	60%
2,000 acres or more	11	13	0.2%	18%

The Census of Agriculture characterizes farmland in three main buckets; cropland, pastureland, and woodland. Figure 7 shows the 2017 breakdown of farmland in WNC. The largest segment was pastureland, which includes any land used only for pasture or grazing, accounting for 37 percent of all farm acreage. This does not include acreage that was harvested as hay or other similar crops, which are considered cropland. Much of this pastureland was utilized by cow-calf operations. Thirty-one percent of the farm acres were cropland, which includes any land that was used for crops, edible or not, or could have been used for crops without additional improvements. This includes cropland that was planted in cover crops, or crops that failed or were abandoned.

Figure 7

Percent of WNC Farmland in Crops, Pasture, Woods, and Other, 2017



Twenty-six percent of farmland was classified as woodland, which can include natural or planted woodlots or timber tracks, but not Christmas trees, which are considered cropland. Finally, the "other" category includes land used as house or barn lots, ponds, roads, ditches, or wasteland. In WNC, this accounted for seven percent of farmland acreage. From 2012-2017, woodland stayed about the same, while cropland and pastureland decreased slightly.

Farming Participation and Farmer Demographics

The Census of Agriculture provides valuable information about farm producer characteristics. A producer is defined as a person who is involved in making decisions for the farm operation. Decisions include judgements about such things as planting, harvesting, livestock management, and marketing. The producer may be the owner, a member of the owner's household, a hired manager, a tenant, a renter, or a sharecropper. If a person rents land to others or has land worked on shares by others, they are considered the producer only of the land which is retained for their own operation. The census collected information on the total number of male and female producers and demographic information for up to four producers per farm. This section highlights the producer characteristics of Western North Carolina farms. WNC producer aggregated characteristics are similar to state and national-level characteristics.

Tables 5 and 6 include many of the characteristics of producers available from the Census of Agriculture. WNC had a total of 16,511 producers, 609 of which were hired managers. Thirty-five percent of producers counted were female and eleven percent had served in the military.

Twenty-nine percent, over 2,900, of WNC farms had a new and beginning producer. The USDA considers anyone who has operated on any farm for ten years or less to be new and beginning. Producers had spent an average of 23 years operating any farm. For over half of producers, farming was not their primary occupation. Thirty-eight percent of producers worked at least some days off their farm and 24 percent worked over 200 days off their farm. Producers in the latter group likely include both farmland owners who do not intend to farm as their primary occupation and new and beginning farms that are not yet well established. For new and beginning farmers, off-farm work is often necessary to provide a sustainable income and maintain access to healthcare and other benefits until their farms turn a profit. Nearly eight out of ten producers live on the farm that they operate.

Table 5

Western North Carolina Farm Producer Characteristics, 2017

WNC Producer Characteristics		
	Count	**Percentage**
Total Number of Producers	16,511	100%
Hired Managers	609	4%
Producers that are Female	5,736	35%
Farming is Not Primary Occupation	9,643	59%
Place of Residence is on Farm Operated	12,960	79%
Served in Military	18,76	11%

Table 6

Western North Carolina Farm Producer Time on Farms, 2017

Number of Years on Any Farm		Number of Days Worked Off Farm	
5 years or less	15%	None	23%
6 to 10 years	13%	1 to 49 days	6%
11 years or more	72%	50 to 199 days	8%
Average years on any farm	23	200 days or more	24%

Table 7 describes the racial and ethnic characteristics of agricultural producers and residents in Western North Carolina. Though the region is primarily made up of White-identifying residents (90%), an even higher percentage of agricultural producers identified as White (97%). The proportion of White producers in WNC is higher than national (92%) and North Carolina (94%) proportions of White producers.

Of all residents in Western North Carolina, 6% are of Hispanic, Latino, or Spanish Origin and another 4.2% are Black or African American. Only 3%, or 479 WNC agricultural producers, identified as being Hispanic or Latino, American Indian or Alaska Native, Asian, Black or African American, or multiracial in WNC as of the 2017 Census of Agriculture.

In most WNC counties, the racial distribution of agricultural producers mirrored that of the region, with the exceptions of Cherokee, McDowell, and Swain counties. Cherokee and Swain counties had a significant population of American Indian or Alaska Native agricultural producers, 6% and 12% of their producers respectively. Of the 553 producers in McDowell County, 4% identified as Asian and 3% identified as either Hispanic, Latino, or Spanish origin, American Indian or Alaska Native, or Black or African American.

Only Cherokee, Clay, and McDowell counties had lower percentages of White agricultural producers compared to the ratio of White residents. In every other county, the percentage of White agricultural producers was higher than the percentage of total White residents. This difference was most pronounced in Swain County, where 86% of agricultural producers were White and only 64% of the county's residents were White. Though Swain County had a higher proportion of American Indian or Alaska Native agricultural producers compared to the region as a whole, the agricultural producers are not reflective of the racial diversity of the county's residents.

Table 7

Race and Ethnicity of WNC Farm Producers and All Residents, 2017

	Farm Producers	All Residents
White	97.0%	90.0%
Producers of Hispanic, Latino, or Spanish origin	1.1%	6.0%
American Indian or Alaska Native	0.6%	1.2%
Asian	0.5%	1.1%
Black or African American	0.2%	4.2%
Native Hawaiian or Other Pacific Islander	0.0%	0.1%
More than one race reported	0.5%	1.8%

The average age of farm producers in Western North Carolina was 58 years old, and only 9 percent were considered young producers (ages 35 or younger) by the USDA. Over half of producers in WNC were between 55 and 74 years old, another twelve percent were 75 years or older (Table 8). One of the most prominent issues in American agriculture is the aging farmer; Western North Carolina is no exception (Abbot, 2019; Fried & Tauer, 2016; Henriques, 2019).

Over three-fifths of farms in Western North Carolina had access to the internet. Because of rural broadband grants, WNC counties have great fiber-optic internet service, making up 41% of farms in all of North Carolina with that level of internet access (NCGA, 2010). Internet access is vital in today's world, both for large and small farming operations. Farms that sell to large markets can use internet-based applications to check ever-changing prices of crops or livestock, helping them decide optimal times to bring goods to market. Smaller-scale farms can promote themselves and stay connected to consumers with personalized websites and social media profiles.

Table 8

Western North Carolina Farm Producer Age and Internet Access, 2017

Ages		Farms with Internet Access	
Under 25 years	1%	Any Type of Internet access	77%
25 to 34 years	6%	Dial-up service	2%
35 to 44 years	12%	DSL service	24%
45 to 54 years	18%	Cable modem service	21%
55 to 64 years	26%	Fiber-optic service	14%
65 to 74 years	25%	Mobile internet service	24%
75 years and over	12%	Satellite	9%
Average age	58	Don't know	4%
Number of Young producers	1,404	Other Internet service	1%

The bulk of farms in Western North Carolina were owned by a family or individual (as seen in Table 9). As producers age out of farming, the way that farmland is passed to a new generation of producers is important to consider. Knowing that the majority of farmland is currently owned by families or individuals can shape programming to support estate planning for farmers.

Table 9

Type of Farm Organizations in WNC, 2017

Type of Farm Organizations in WNC	
Family or individual	87%
Partnership	5%
Family held Corporation	5%
Other than family held Corporation	1%
Other - estate or trust, prison farm, grazing association, American Indian Reservation, etc.	2%

Twenty-three percent of all WNC farms hired farm workers, totalling 12,367 workers. Hired labor includes paid family members, bookkeepers, maintenance workers, and migrant workers and does not include contracted labor or unpaid workers. Fifty-nine percent of those farms only hired one or two workers.

Half of the farms in WNC had unpaid workers, totalling over eleven thousand unpaid farm workers. Unpaid farm workers are "agricultural workers not on the payroll who performed activities or work on a farm or ranch," including family members and seasonal apprentices.

In 2017, three percent of all WNC farms hired migrant farm workers, totalling nearly 5,000 workers, (Table 10). NASS defines a migrant farm worker as someone whose employment required travel that prevented the worker from returning to their permanent place of residence the same day. Although there is no demographic data for migrant farm workers in the Census of Agriculture, Farmworker Advocacy Network reports that 94 percent of migrant farmworkers in North Carolina are native Spanish speakers. Nationally, most farmworkers are unaccompanied males whose families still live in their home countries (NC FAN, 2012). The counts of migrant workers for five counties are unavailable. The redaction of these counties indicates that the estimate of total number of migrant workers in WNC in this report is lower than the true number of migrant workers. Nearly all migrant farm workers in WNC were hired labor, not contract.

Ashe, Avery, and Henderson had the highest number of farms with migrant workers, each between 50 and 100 farms (Figure 8). Of the 4,956 migrant farm workers in WNC, over half worked in the Ashe (39%), Avery (13%), and Alleghany (11%) counties, where Christmas tree farms are prevalent. Christmas tree farms require extensive labor during harvest season, when each tree is manually cut and baled.

Proportionally, WNC has similar hired labor trends to North Carolina and the United States, as seen in Table 10. The most significant difference is in payroll, where the payroll per hired worker in WNC ($7,831) is around half of payroll per hired worker in NC ($12,001) and the USA ($13,121). This is likely related to the fact that farm workers in Western North Carolina are more seasonal than the rest of the state. Seventy percent of hired labor worked less than 150 days per year in Western North Carolina, compared to fifty-nine percent in all of North Carolina.

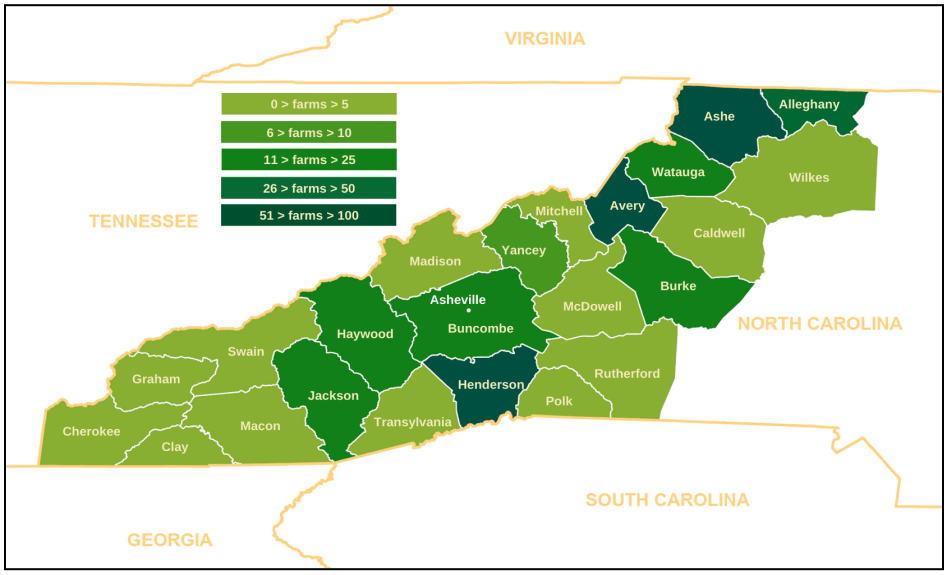
Table 10

Hired Labor in Western North Carolina, 2017

Hired Labor			
	WNC	**NC**	**USA**
Percent of All Farms that have Hired Labor	23%	27%	25%
Payroll per Hired Worker	$7,831	$12,001	$13,121
Total Number of Hired Workers	12,367	67,496	2,411,033
Percent of Farms with Hired Labor, 1 Worker	34%	33%	37%
Percent of Farms with Hired Labor, 2 Workers	25%	23%	25%
Percent of Farms with Hired Labor, 3-4 Workers	18%	20%	20%
Percent of Farms with Hired Labor, 5 or more Workers	23%	25%	19%
Percent of Hired Labor Working Less than 150 Days per Year	70%	59%	60%
Percent of All Farms that Hire Migrant Workers	3%	4%	1%
Total Number of Migrant Workers	4,956	28,063	398,906
Percent of Migrant Workers that are Hired (vs. Contract)	93%	90%	90%
Percent of All Farms with Unpaid Workers	50%	47%	47%
Number of Unpaid Workers	11,374	46,783	2,160,205

Figure 8

Number of Farms with Migrant Workers in WNC Counties, 2017



Agricultural Products

The types of agricultural products sold in Western North Carolina are diverse, from vegetable crops, to fruit from trees, to cattle and poultry. The following section examines WNC agricultural industries closely, in terms of farms that sold each type of goods and the value of those sales.

The North American Industry Classification System (NAICS) is the standard used by federal statistical agencies for classifying businesses for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. Classifications are determined by which product accounts for over half of a farm's agricultural production in terms of overall market value. For example, a farm receiving 51 percent of its earnings from cattle and 49 percent of its earnings from tomatoes will be classified under the "beef cattle ranching and farming" category.

Table 11 describes the distribution of farms in each of the NAICS categories in Western North Carolina and the state as a whole. Over one third of farms in Western North Carolina were considered to be within the "beef cattle ranching and farming" category. This category is composed of farms primarily engaged in raising cattle. The majority of cattle raised in the region is through cow-calf operations, in which farmers keep a permanent herd of cattle and raise the calves to "feeder" weight to sell at livestock auctions. These cows are typically not processed or sold locally. In general, cow-calf producers are more susceptible to the cycles of supply and demand that determine commodity pricing. Many farmers are not dependent on these operations for their primary income and use cow-calf to supplement income and to keep land maintained in pasture (Local Food Research Center, 2019).

Another eighteen percent of farms fell under the "sugarcane farming, hay, and all other crop farming" category. The farms in that category primarily produce hay in WNC, however highly diversified farms that produce a variety of fruits, vegetables, hay, and more are also included here. The number of farms that were in the greenhouse, nursery, and floriculture production (12%) and aquaculture and other animal production (11%) categories follow. The former includes farms growing crops under cover, nursery stock flowers, and Christmas trees. The latter includes farms raising a combination of animals with no one animal or family of animals accounting for one-half of the establishment's agricultural production. Pastureland-only farms, those with only 100 or more acres of pastureland, were also classified as "other animal production farming."

Of the 1,187 farms considered within the "greenhouse, nursery, and floriculture production" category in WNC, 19 percent were in Ashe County and 17 percent were in Buncombe County. Over one-fifth of the farms in the "fruit and tree nut farming" category were in Henderson County, where a thermal belt makes apple production ideal. A significant portion of the WNC farms within the "beef cattle ranching and farming" category were in Wilkes County (12%) and Buncombe County (11%).

Over half of all the North Carolina farms considered in the "greenhouse, nursery, and floriculture production" category were in WNC counties - this is likely due to the abundance of Christmas tree farms in the region. Nearly half (44%) of NC "cattle feedlot" farms were in WNC as well.

Table 11

NAICS Farms in WNC and NC, 2017

NAICS Category	Total	% of WNC	NC	WNC as % of NC
Beef cattle ranching & farming	3,735	37%	13,583	27%
Sugarcane farming, hay, & all other crop farming	1,807	18%	9,413	19%
Greenhouse, nursery, & floriculture production	1,187	12%	2,240	53%
Aquaculture & other animal production	1,143	11%	4,943	23%
Vegetable & melon farming	580	6%	2,216	26%
Sheep & goat farming	509	5%	2,046	25%
Fruit & tree nut farming	409	4%	1,445	28%
Poultry & egg production	387	4%	3,106	12%
Dairy cattle & milk production	82	1%	261	31%
Oilseed & grain farming	132	1%	4,700	3%
Cotton farming	0	0%	290	0%
Tobacco farming	13	0%	893	1%
Cattle feedlots	8	0%	18	44%
Hog & pig farming	36	0%	1,264	3%

Nine NAICS categories had fewer farms in 2017 than in 2007, totalling over 1,800 farms lost (Figure 10). Most animal production categories, including beef and dairy cattle, poultry and egg, and sheep and goat, saw significant losses. Each of those categories lost between 10-30% of farms over ten years, totalling over 1,200 farms. Hog and pig production and cattle feedlots were the exception to this downward trend, gaining twenty and seven farms respectively in ten years.

Within the NAICS categories, tobacco farming has seen the most dramatic percentage loss of farms in Western North Carolina from 2007 to 2017, shown in Figure 9. WNC lost 92% of its tobacco farms in that ten year period - a result of the 2004 Fair and Equitable Tobacco Reform Act, commonly referred to as the "tobacco buyout," which ended a federal quota and price support program and opened tobacco production to global competition.

Another 311 farms either started businesses or changed NAICS categories from 2007 to 2012. In contrast to animal production, fruit and vegetable production has remained relatively stable in the last ten years. The NAICS category "sugarcane farming, hay farming, and all other crop farming", which consists of majority hay and highly diversified crop farms in WNC, saw an increase of 18 percent from 2007 to 2017, or 276 farms.

Figure 9

Percent Change in Number of WNC Farms, Selected NAICS Categories, 2007-2017

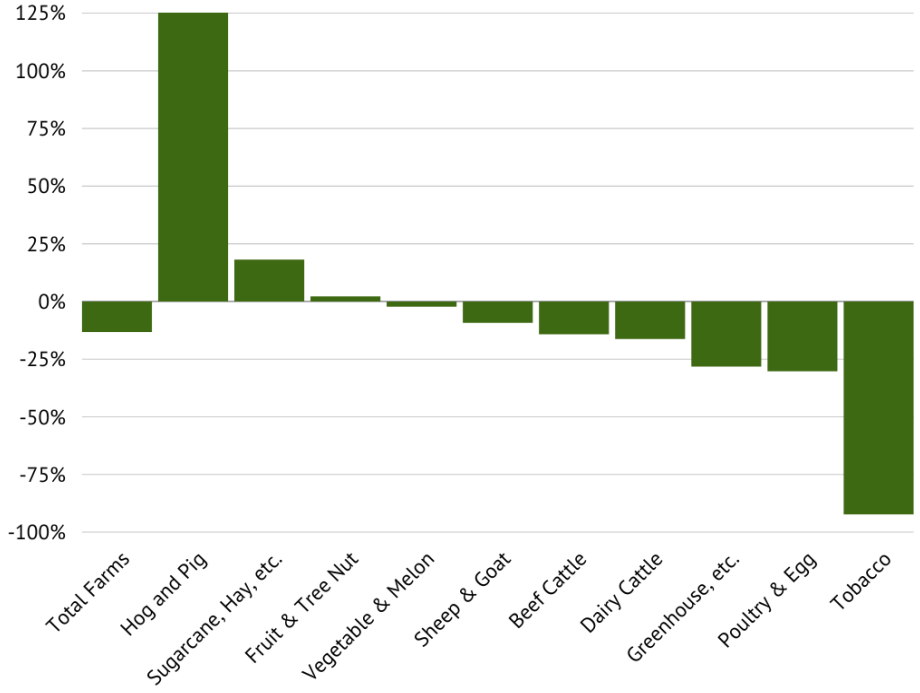


Figure 10

Change in Number of WNC Farms, Selected NAICS Categories, 2007-2017

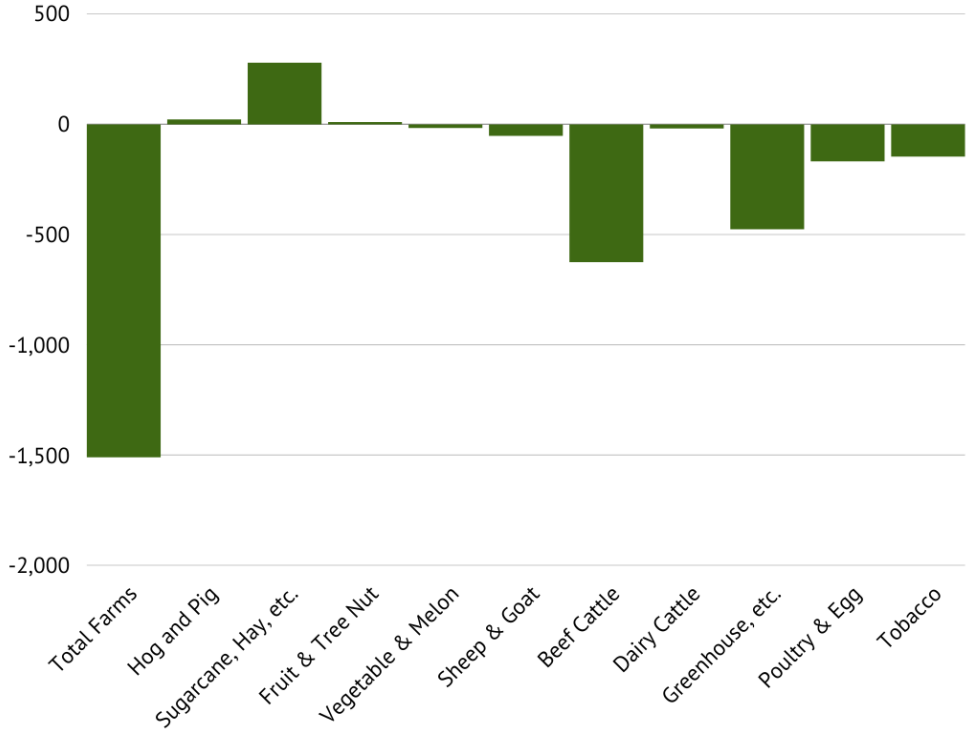
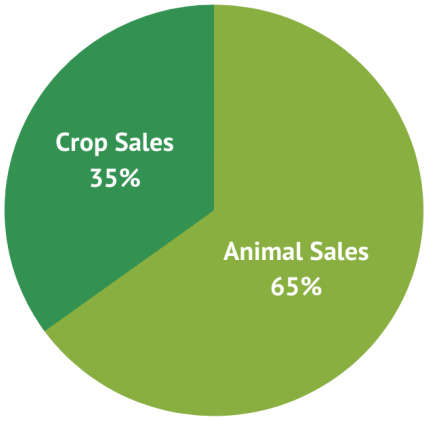


Figure 11

WNC Crop Sales and Animal Sales, 2017



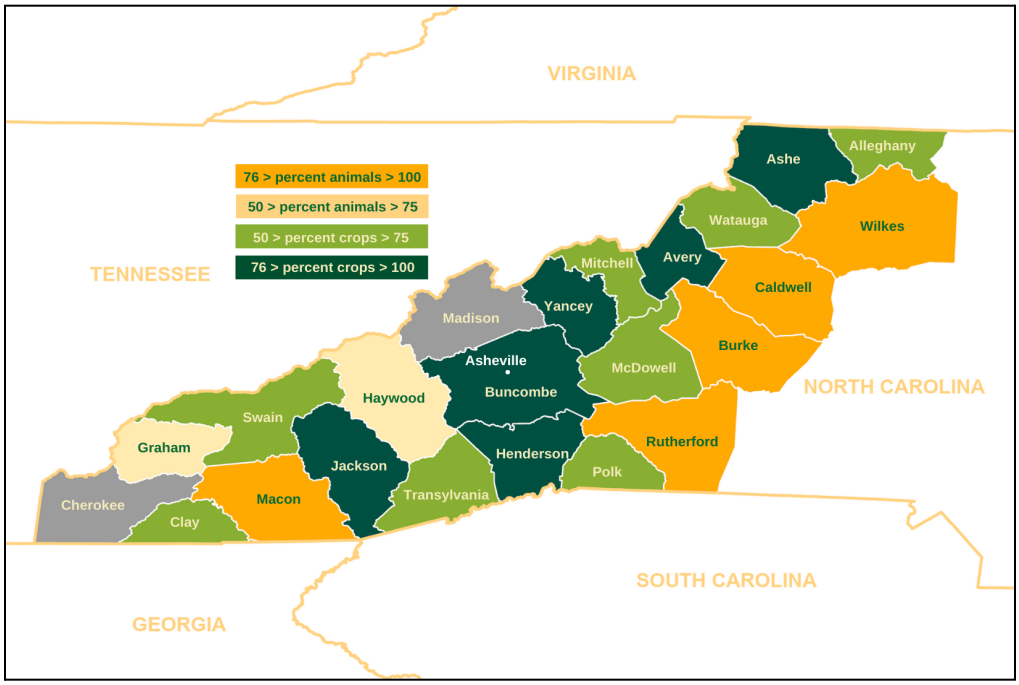
The majority of sales (65%) in Western North Carolina counties were from animals, according to the 2017 Census of Agriculture. The remaining thirty-five percent were from crops. As you'll see below, more counties had a higher proportion of sales from crops than from animals. This indicates that counties selling mainly animal products had much higher overall sales than those who rely heavily on crop sales.

Figure 12 describes the distribution of animal and crop sales in WNC counties. For counties shaded in dark green, over 75 percent of their agricultural sales were from crops. Counties shaded in dark orange had over 75 percent of their agricultural sales from animals. The lighter colors indicate counties who had 50-75% of their sales from either animals (light orange) or crops (light green).

Ashe, Avery, Yancey, Buncombe, Henderson, and Jackson counties received over 75% of their 2017 agricultural sales from crops. These counties are generally along the central-western region of WNC, where the mountains are more rugged. On the other hand, Wilkes, Caldwell, Burke, Rutherford, and Macon counties, primarily along the eastern border of the region where hills have softer slopes and there is more flat land, received over 75% of their agricultural sales from animals.

Figure 12

Distribution of Animal and Crops Sales in WNC Counties, 2017



Note: Sales distributions were unavailable for Madison and Cherokee counties.

As seen in Figure 12, 14 of the 23 counties in the Western North Carolina region received the majority of their agricultural sales from crops. In fact, 25 percent of all North Carolina farms that sell vegetables were in WNC counties. WNC made up 83 percent of the farms that sold sorghum for syrup, 63 percent of farms that sold hops, 54 percent of farms that sold rhubarb, 53 percent of farms that sold artichokes, and 44 percent of farms that sold winter squash in North Carolina (Table 12). Tomatoes, potatoes, snap beans, sweet corn, and summer squash were the crops sold by the greatest number of WNC farms (Table 13). Sixteen percent of WNC farms that sold vegetables are in Buncombe County (137 farms), the only WNC county with over 100 farms that sold vegetables.

Table 12

Highest Shares of North Carolina Vegetable Farms in WNC, 2017

Vegetable	WNC as Percent of NC
Sorghum for Syrup	83%
Hops	63%
Rhubarb	54%
Artichokes	53%
Winter Squash	44%

Table 13

Top Vegetables Sold by WNC Farms, 2017

Vegetable	WNC Farms that Sell Vegetable
Tomatoes (in the open)	331
Potatoes	313
Snap Beans, Bush & Pole	288
Sweet Corn	252
Summer Squash	212

Though only 7 out of 23 Western North Carolina counties obtained the majority of their sales from animals, the number of farms that benefited from animal sales is highly significant. Over 3,500 farms in WNC sold cattle and calves, and over 1,000 sold poultry (seen in Table 14). Five hundred WNC farms sold goats in 2017. There were forty-four farms that sold trout in WNC counties, making up 90 percent of all North Carolina trout farms. WNC made up a significant portion of farms that sold wool, honey, and sheep and lambs in NC as well.

Table 14

Number of Farms Selling Animal Products, 2017

	WNC	NC	WNC as % of NC
Milk from Cows	58	233	25%
Cattle and Calves	3,566	14,143	25%
Hogs and Pigs	204	2,145	10%
Sheep and Lambs	274	919	30%
Wool	115	243	47%
Goats	500	2,134	23%
Poultry	1,145	6,099	19%
Turkeys	52	569	9%
Duck, Geese, Other	147	891	16%
Honey	314	999	31%
Catfish	7	31	23%
Trout	44	49	90%
Ornamental Fish	2	25	8%
Sport or Game Fish	2	18	11%
Other Aquaculture Products	2	7	29%

Table 15 describes the trends in WNC Christmas tree production. Over half of the Christmas trees in the United States were grown in seven counties, three of which are in North Carolina. Ashe County was the top producer of Christmas trees in the entire nation in 2017, with 211 farms cutting a total of nearly 2 million trees. Avery, Alleghany, Watauga, and Jackson counties all produced over 60,000 Christmas trees in 2017 as well.

Though 92 percent of both North Carolina farms and acreage producing Christmas trees were in Western North Carolina counties, those numbers decreased dramatically from 2012 to 2017. The number of Christmas tree farms in WNC decreased by nearly forty percent. In some cases, smaller tree farms were bought by larger operations, but acreage decreased by ten percent as well. The number of trees cut in 2017 was twenty-three percent lower than in 2012 for all of WNC and 93 percent lower for Alleghany County, which saw huge losses since 2012.

At least a portion of the losses in the Christmas tree industry can be attributed to the economic recession of the late 2000's. Not only did many operations go out of business due to the recession, those who stayed afloat scaled back planting to reduce spending. Because Christmas trees take years to mature, the effects of the recession were not felt in this industry until around 2017.

Table 15

Christmas Tree Production and Percent Change, 2012-2017

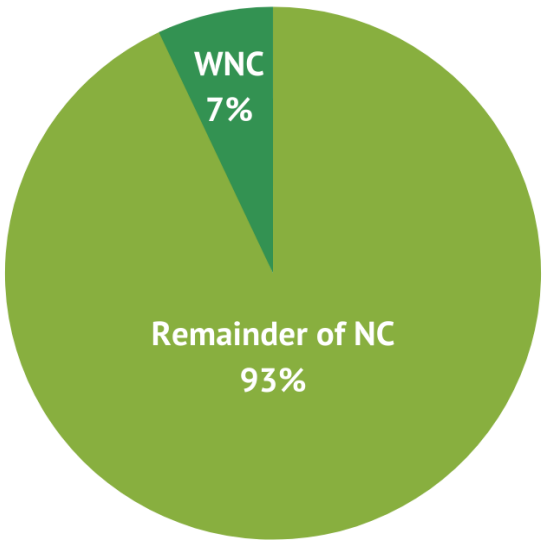
	2017 farms	2017 acres	2017 # trees cut	% change farms	% change acres	% change trees cut
WNC	**787**	**35,764**	**3,266,557**	**-39%**	**-10%**	**-23%**
NC	**854**	**38,893**	**4,031,864**	**-38%**	**-4%**	**-6%**
WNC as % of NC	**92%**	**92%**	**81%**	**-2%**	**-6%**	**-18%**
Ashe	211	14,970	1,882,577	-41%	6%	-5%
Avery	185	5,416	763,552	-42%	-26%	0.5%
Alleghany	93	8,418	62,529	-27%	-14%	-93%
Watauga	78	3,400	240,327	-38%	9%	-7%
Jackson	47	2,009	171,850	-36%	-17%	-15%

Farm Income

This section details income from farming in Western North Carolina. Only seven percent of all farm sales in North Carolina were from counties in the WNC region (seen in Figure 13). Though WNC had over $870 million in sales, only thirty-six percent of farms in WNC had net gains. Over half of the farms in the region lost money on farming in 2017. Mitchell, Polk, and Madison counties had an overall negative net income from agriculture. Wilkes County had the highest net income per farm ($131,350), followed by Burke County ($58,017) and Caldwell County ($48,823).

Figure 13

Share of North Carolina Farm Sales in WNC, 2017



WNC Farms with Net Gains & Losses, 2017

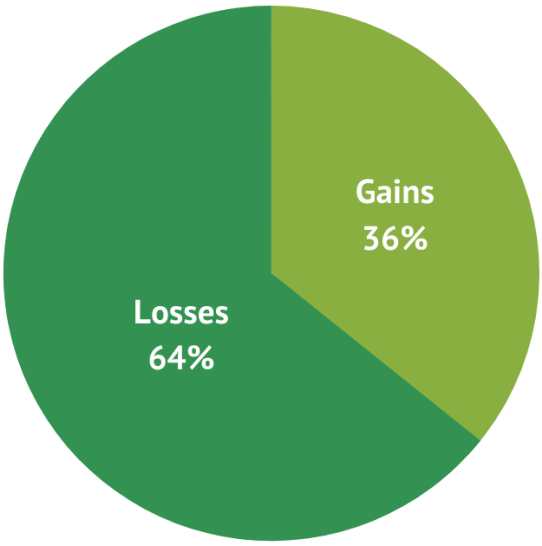


Figure 14 is a representation of the commodity sales of farm products in Western North Carolina counties. As the shade of green darkens, the commodity sales from farm products increases. Farms along the southwestern border of North Carolina had the lowest gross sales, between zero and five million dollars in sales. Graham County was the only county with less than two million dollars in sales, followed by Swain, Mitchell, and Clay counties. Moving northeastward, WNC counties had higher and higher sales. Ashe, Henderson, and Burke counties all had sales between $50 million and $100 million, but Wilkes County surpassed all others with over $335 million in commodity sales.

Figure 14

Farm Product Commodity Sales in WNC Counties, 2017

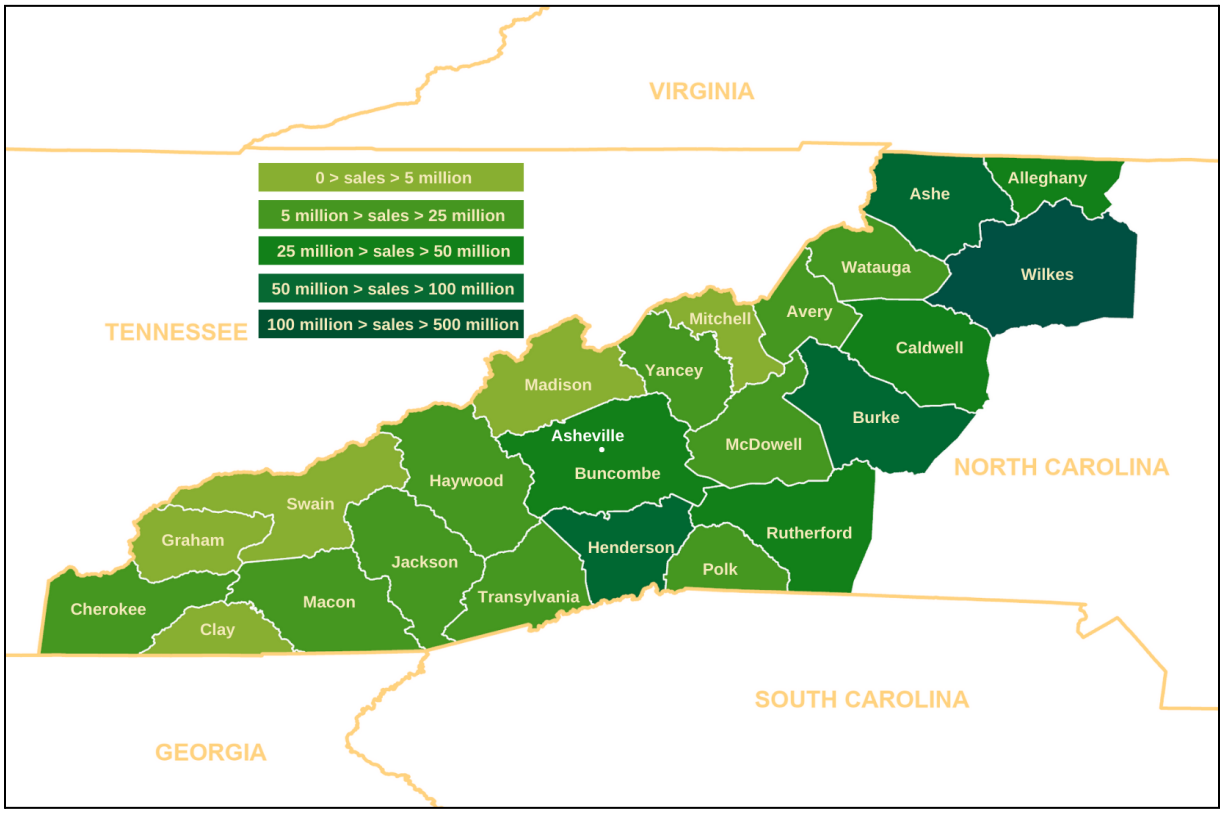
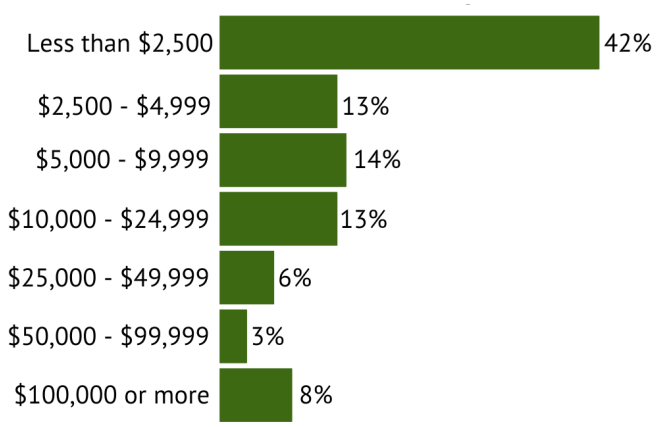


Figure 15

Percent of WNC Farms by Sales Category, 2017

The majority of farms (55%) in Western North Carolina were farm businesses that sold less than $5,000 worth of farm goods in 2017. These are likely operations that provide supplemental income and allow farmland owners to qualify for Present Use Valuation on their property taxes.



Only eight percent of WNC farms sold over $100,000 worth of farm goods in 2017. Wilkes and Henderson counties are outliers in Western North Carolina, where 16 percent of their farms sold over $100,000. Over ten percent of farms in Avery (15%), Caldwell (14%), Burke (13%), Ashe (11%), and Alleghany (11%) counties sold over $100,000 worth of farm goods as well. Most other counties in WNC only had between two and six percent of farms in that sales category.

Local Food and Extended Agricultural Economies

The following section describes the farms and farm sales that relate to local market outlets, processed or value-added goods, and agritourism in Western North Carolina counties. Local market outlets consist of sales of edible agricultural products that are both produced and sold by the operation directly to consumers (at farmers markets, farm stores/stands, roadside stores/stands, U-pick, CSA, online marketplaces, etc.) or directly to intermediaries such as retail markets, institutions, or food hubs using local or regional branding. Retail and institutional establishments include markets such as supermarkets, supercenters, restaurants, caterers, independently-owned grocery stores, food cooperatives, K-12 schools, colleges, hospitals, workplace cafeterias, prisons, and foodbanks. The USDA's definition of direct-to-consumer sales changed from 2012 to 2017. While they are accurate for the current year, they cannot reliably be compared to previous years. Value-added foods sold directly to consumers (such as cheese, jam, and wine) were added to the definition of this variable in 2017, therefore values reported in 2012 are lower than a comparable 2017 figure.

Local food sales are an important contributor to the local economy in WNC, totalling nearly 26 million dollars annually, including nearly 15 million dollars in direct to consumer sales and over 11 million dollars in direct to intermediary sales (Table 16). Fifty-seven percent of WNC local food sales were directly to consumers, and the remaining forty-three percent of sales were sold directly to retail markets, institutions, and food hubs for local or regionally branded products. However, 3.6 times as many farms sold directly to consumers than the number of farms that sold to local intermediary markets. This is likely because direct to consumer sales are more accessible to producers, but on average, each individual sale is of smaller volume and value.

Western North Carolina made up 28 percent of all North Carolina farms selling directly to consumers and 34 percent of all North Carolina farms selling directly to local intermediaries. When comparing direct sales to consumers in terms of population, Western North Carolina counties have a much higher proportion ($12.97/person) compared to all of North Carolina ($6.70/person).

Table 16

Local Food Farms and Sales, 2017

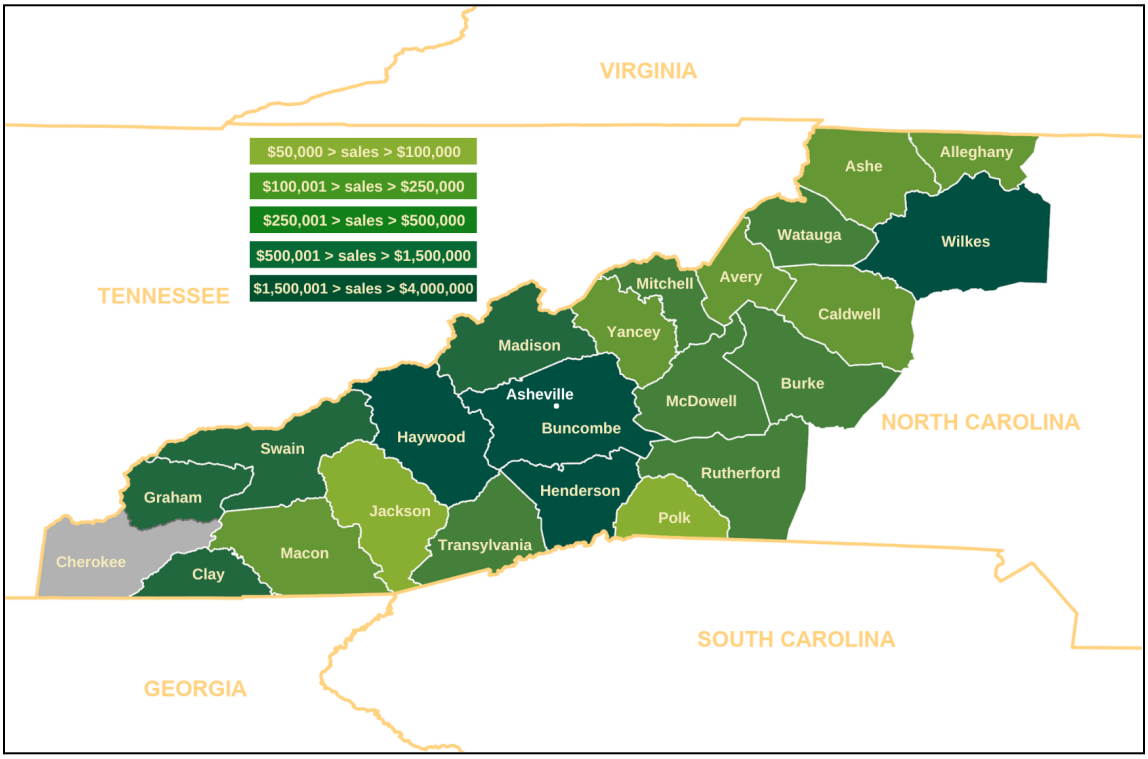
	Value of food sold directly to consumers		Value of products sold direct to intermediaries	
	Farms	Sales ($1,000)	Farms	Sales ($1,000)
WNC	**1,142**	**$14,911**	**316**	**$11,025**
NC	**4,058**	**$69,968**	**925**	**$175,736**
WNC as % of NC	**28%**	**21%**	**34%**	**6%**
Buncombe	176	$1,589	48	$3,272
Henderson	98	$3,286	28	$4,352
Haywood	84	$1,826	16	(D)

Around 11 percent of farms in Western North Carolina sold products directly to consumers (Table 16). Buncombe County had the highest number of farms that sold directly to consumers (176 farms; 16 percent) and to intermediary markets (48 farms). Neighboring Henderson, Haywood, and Madison had 80 or more farms that sold directly to consumers. This is understandable considering Buncombe County has the highest population and a thriving tourism industry with many high capacity farmers markets and restaurants. However, Henderson County had the greatest percentage of farms selling direct (21.5 percent) and the highest value of direct to consumer sales, likely due to the large number of farms offering u-pick agritourism. Though Wilkes County had the second highest value of direct to consumer sales in 2017, only 54 farms (six percent) contributed to those sales.

Figure 16 examines the dollar value of sales directly to consumers in each WNC county in 2017. Henderson ($3,286,000), Wilkes ($2,468,000), Haywood ($1,826,000), and Buncombe ($1,589,000) farms all sold over $1 million worth of agricultural products directly to consumers in 2017.

Figure 16

Local Sales for Farms in WNC Counties, 2017



Note: Direct to consumer sales were unavailable for Cherokee county.

Another new category in the 2017 Census of Agriculture is the value of processed or value-added agriculture, described in Table 17. These data represent the value of products that originated from crop or livestock commodities produced on the farm operation. Through further manufacturing or processing, these items were transformed into products worth more than the originally produced commodity. Examples of value-added goods include jellies, hot sauces, meat jerky, and salsas.

Of the 1,062 farms in North Carolina that sold value-added products, 32 percent (337 farms) were in Western North Carolina. Madison, Henderson, and Macon counties all sold over $1 million worth of value-added agricultural products in 2017, the highest in WNC. The WNC region sold over $7 million worth of value-added products in total.

In a region where tourism is a main economic driver, income from agritourism is a significant contributor. This includes income from recreational services like hunting, fishing, farm or wine tours, u-pick, and hay rides. Sales from agritourism and recreational services in Western North Carolina counties totaled $3,731,000 in 2017. Thirty-four farms in Buncombe County represented around half of those sales.

Table 17

Value-Added and Agritourism Farms and Sales, 2017

	Value of processed or value-added agricultural products sold		Value of agritourism and recreational services	
	Farms	Sales ($1,000)	Farms	Sales ($1,000)
WNC	**337**	**$7,293**	**216**	**$3,731**
NC	**1,062**	**$31,422**	**995**	**$23,785**
WNC as % of NC	**32%**	**23%**	**22%**	**16%**
Buncombe	46	$873	34	$1,878
Madison	41	$1,020	19	$230
Henderson	17	$1,116	9	$56
Macon	11	$1,088	11	$247

Conclusion

Western North Carolina's agricultural industry mirrors the rest of the state and nation in many ways. The region has experienced steady farm and farmland loss over the decades as families leave or age out of the profession. A growing population driven primarily by in-migration has put tremendous development pressure on agricultural land, which often occupies the most desirable flat land amongst primarily mountainous terrain. Though agriculture will continue to face these and other challenges brought on by population and climate changes, farmers continue to adapt. Agriculture has been and will continue to be a thriving aspect of the local community and economy in Western North Carolina. The trend away from farms growing tobacco and towards farms growing diverse, edible crops continues and is indicative of a transitioning agricultural system, towards locally marketable products.

Today, ASAP supports over 850 direct to consumer farms in the Southern Appalachians to build the supply of local food by providing regional promotionals, training and technical assistance, direct market connections, financial resources, and more. Additionally, ASAP helps to build customer demand for local food by providing educational resources, local food promotions, farm to school and preschool programming, engagement events and activities, programs that remove financial barriers to local food, and more. These opportunities support consumers in being active participants in shaping the local food system they want for their community. By addressing both local food supply and demand, ASAP hopes to make local food the default and easiest choice in Western North Carolina. As a result, a thriving and equitable local food system will support farm business viability, preserve farmland, bolster the local economy, improve health, and strengthen relationships and community resilience. The changes ASAP hopes to make are generational and system-wide. The data available from the Census of Agriculture is extremely useful for tracking

major agricultural transitions in the region to understand what impact ASAP and other organizations are making. The next Census of Agriculture data will represent agricultural activity in 2022, including trends and adaptations due to the COVID-19 pandemic. This data will likely be available in the spring or summer of 2024. To fill in the gaps, ASAP's Local Food Research Center sends an annual end of year survey to the 850+ farmers in their Appalachian Grown network. This data set is smaller and skewed towards the farmers producing for local markets. However, it provides a more in depth and qualitative look at the experiences of farmers participating in the local food movement. The results of these annual surveys can be found on ASAP's website at www.https://asapconnections.org/local-food-research-center/

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